

SUPPLEMENTARY DOCUMENT 1: SUMMARY INITIAL DISASTER NEEDS ASSESSMENT¹

1. **Overview.** The regions affected by Typhoon Yolanda account for 12.5% of the Philippine's gross domestic product. Economic activity in the area is centered in agriculture and agro-based industry and services. The areas most affected by the Typhoon, including the almost half of the communities responding to the post-disaster Multi-Cluster/Sector Initial Rapid Assessment (MIRA) listed agriculture as their primary livelihood. One-third of respondents listed fishing as a primary source of income.

2. Preliminary estimates of the government place damages at P30.6 billion (\$706million), consisting of P15.6 billion (\$360 million) for infrastructure and P15.0 billion (\$346 million) for agriculture.² However, these estimates do not include provisions for lost economic activity or support for displaced persons. The government's draft Yolanda Recovery and Rehabilitation Plan (YRRP) estimated the immediate and medium-term costs for recovery and rehabilitation exceeding \$2.3 billion. External sources using disaster simulation models have estimated that the aggregate effect of the storm on the Philippine economy could be closer to \$14 billion.³ The level of property damage is extensive with over 1 million homes totally or partially destroyed. Preliminary assessments indicate that 5.1 million workers have lost their livelihoods and approximately half of these individuals are engaged in vulnerable forms of employment living in some of the poorest areas of the Philippines. Virtually all of the population in the immediate path of the storm was affected with half of the affected population displaced. These factors have combined to produce a growing refugee problem as the displaced move to cities and towns which survived the initial brunt of the storm. These same cities and towns are now challenged by the growing need to provide shelter, food and basic necessities to the displaced. Large numbers of the displaced have also sought out temporary shelter in one of the government's 1,070 evacuation centers.

3. As a result, the strain on the government's finances will be large and immediate as officials address these two mutually reinforcing after effects of the storm. In addition, the government faces an immediate need to provide fiscal resources to support the reconstruction of critical infrastructure such as power and water over vast, rural areas. Access to communication is likewise extremely limited and serves to inhibit the efforts of communities to support one another and share resources. Government damage assessment is ongoing.

4. **Immediate disaster relief.** The most immediate impact of the typhoon will be felt through the expenditures supporting relief and rescue efforts. For example, the government has requested an initial budget of P707 million (\$16 million) for transportation assets, air and marine assets, and shipping services to support the delivery and distribution of relief supplies. In addition, P2 billion (\$46 million) will be required to support the reconstruction of the Tacloban City airport, the repair of the Kalibo Airport, and the reconstruction and repair of municipal buildings and related airport equipment.

¹ ADB. 2013. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of the Philippines for the Emergency Assistance for Relief and Recovery from Typhoon Yolanda*. Manila. This assessment, to the extent possible, has been updated to include estimates as of 1 December 2013.

² National Disaster Risk Reduction and Management Council. *Situation Report No. 49*. 1 December 2013.

³ 2013. Kinetic Analysis, Silver Spring, Maryland, USA.

5. **Destroyed homes and structures.** An initial post-typhoon damage assessment for Tacloban City performed by Copernicus Emergency Management Service⁴ found that more than 700 residential buildings were completely destroyed and more than 1,200 were damaged in Tacloban city alone.⁵ This analysis was carried out by comparing pre and post event satellite imagery and also shows that in Tacloban, one of the hardest hit areas, 5 industrial facilities and 7 educational buildings were destroyed while 18 roads are blocked.⁶ Over time, the Government's estimate of homes destroyed or damaged has exhibited an increasing bias towards the initial satellite sourced estimates as on-the-ground surveys are completed. For example, National Disaster Risk Reduction and Management Council (NDRRMC) Update No. 20, which was published on 15 November 2013, listed homes destroyed and damaged at 136,247 and 117,802, respectively. As of 1 December 2013, this total had increased to about 1.2 million homes damaged (586,117) and destroyed (582,841) with initial assessments indicating that access to roofing materials is a key concern (footnote 2).

6. With a low penetration for non-life insurance, the burden of clearing debris and construction will fall largely to the government.⁷ Using the government's estimates, with an assumed replacement cost of \$5,000 per structure, 582,841 destroyed homes produces an initial funding need of \$2.9 billion.⁸ However, this represents a conservative, lower-end estimate. ADB's experience indicates that the cost of construction materials rises as the supply of materials will be initially very limited relative to demand.

7. **Displaced population.** Assessments indicate that 5.6 million workers (including 2.2 million women) in 36 provinces have lost their livelihoods. Of these, around 2 million are engaged in vulnerable forms of employment.⁹ The number of displaced is greater than that of Hurricane Katrina and the Indian Ocean tsunami combined.¹⁰ With no livelihood, and little savings, the displaced have migrated to other towns and evacuation centers most of which are located in the Eastern and Western Visayas regions. The government estimates that there are 1,070 official evacuation centers in operation supporting 217,444 displaced persons or 47,863 families (footnote 2). However, this estimate understates the scope of the displacement.

8. For example, Catbalogan City was shielded from the storm by geography and its structures were left largely intact. In an effort to find shelter, collect remittances or purchase supplies, approximately 100,000 people traverse through the city every day. On a permanent basis, the population of the city has swelled to 200,000, which is twice its pre-storm level. To maintain order, the national government has augmented the local police force with military personnel.

⁴ The Copernicus Emergency Management Service provides all actors involved in the management of natural disasters, man-made emergency situations, and humanitarian crises with timely and accurate geo-spatial information derived from satellite remote sensing and completed by available in situ or open data sources.

⁵ The study was coordinated by the European Commission's Joint Research Centre.

⁶ European Commission Joint Research Centre (11 November). 2013. http://ec.europa.eu/dgs/jrc/index.cfm?id=1410&dt_code=NWS&obj_id=18280&ori=RSS. The imagery disclosed that 70% of the built-up area was affected, of which 58% was either destroyed or highly affected. Approximately 65% of the affected area is residential. Roads were blocked at 113 different locations.

⁷ The World Bank's financial sector data base for 30 April 2013 lists non-life insurance premiums represent just 0.48% of gross domestic product in the Philippines as compared to 1.13% for Thailand and 1.37% for Malaysia.

⁸ Estimated cost of replacement is consistent with experience gained in the Indonesian Tsunami relief effort. Costs started \$4,000 per house but rapidly escalated due to a shortage of building supplies.

⁹ United Nations Office for the Coordination of Humanitarian Affairs. *Situation Report No. 20*. 3 December 2013.

¹⁰ 2013. Asian Wall Street Journal, "Spared by Typhoon, Quiet Town Struggles With Refugees."

9. As the population of these refugee centers continues to grow, it will increase pressure on the host cities. For example, displacement sites require a regular supply of food, water, medical facilities, emergency shelter, non-food items and security. As more people leave the affected areas, the logistical demands on host cities will increase necessitating government support. Assuming an all-in cost of subsistence at P437 per day, or an equivalent \$10, the current official level of refugee families will require expenditures of \$480,000 a day, \$14.4 million a month, and almost \$175 million for a full year. In addition, the government will need to provide temporary shelter to those who have been displaced by the storm. Proposals provide for a number of options from basic temporary structures to semi-permanent structures. Cost estimates range from P32.6 million (\$750,000) to P53.3 million (\$1.2 million) per 1,000 families, depending on the option selected. Total costs for providing shelter to all displaced families would range from P29 billion (\$670 million) to P46 billion (\$1.1 billion).

Table 1

Humanitarian	Number of persons
Population affected	11,236,054 / 2,376,217 families
Population displaced	4,114,183 / 892,493 families
Inside evacuation centers	217,444 / 47,863 families
Outside evacuation centers	3,896,739 / 844,630 families
Number of confirmed deaths	5,632
Number of reported injuries	26,136
Number of reported missing persons	1,759
Damaged or destroyed property	Units
Houses destroyed	582,841
Houses damaged	586,117
Public schools (elementary and high school)	15 out of 57 Divisions reporting significant damage affecting 3,232 schools, 26,855 class rooms, 1,007,908 students and 34,104 personnel (represents 26% of total school divisions, 32% of all schools and 20% of classrooms in the affected area); ^a 90% of school buildings damaged in the most highly affected areas ^b Damage estimated at \$53 million (NDRRMC)
Health facilities	432 damaged public health facilities ^c Damage estimated at \$7.2 million (NDRRMC)
Damaged infrastructure	
Agriculture land, crops, livestock and fisheries	\$303 million (NDRRMC) 865,000 workers affected; loss of 74% of standing crops, 60% of tree crops loss, 65% of fishing equipment ^d
Irrigation systems and infrastructure	\$43 million
Roads, bridges and other structures	\$294 million
Power Network	1,959 transmission facilities (including backbone transmission lines, steel poles, and converter station)
Water Supply	\$10 million ^e

^a Department of Education. *Situation Report No. 10*, 20 November 2013.

^b Multi-Cluster/Sector Initial Rapid Assessment. Philippines Typhoon Haiyan. November 2013.

^c Department of Health. <http://typhoonyolanda.doh.gov.ph/>.

^d United States Agency for International Development. *Factsheet No. #14*. 29 November 2013.

^e Department of Public Works and Highways (initial estimates dated 20 November 2013).

Source: National Disaster Risk Reduction and Management Council. *Situation Report No. 49*. 1 December 2013.

10. **Other immediate infrastructure needs.**¹¹ The government faces mounting expenses to restore basic infrastructure. While roads and bridges remain largely intact, other basic services have yet to be restored. More than one week after the typhoon, 124 barangays in 10 provinces remained without power with the majority in the Western and Eastern Visayas. Officials from the Department of Energy (DOE) have stated that a major geothermal power plant in Leyte, which provides around a third of the power requirement in the region, sustained heavy damage as a result of the storm.¹² Repairs are required to reconstruct the cooling towers, cooling system and control systems.¹³ In addition, Unified Leyte's small optimization plants, including the 15-MW Tongonan Topping Cycle and the 16-MW Malitbog Bottoming Cycle, are being assessed. While the steam field is operable, almost all of the company's buildings in the geothermal complex have sustained damage. Exacerbating the situation, damage to transmission lines, steel towers, power lines and poles, and substations as effectively isolated working power plants within the Visayas from the grid.¹⁴ DOE has requested a supplemental budget allocation totaling P1.2 billion (\$27 million) split between the DOE, the National Power Corporation, and the National Electrification Administration.

11. Access to drinking water remains a serious concern in eastern Samar, Cebu, Iloilo and Capiz provinces. The Government's early assessment indicates that half to 80% of those in the affected areas have no access to safe drinking water. The UN Disaster Assessment and Coordination team has reported that three of the five water pumps that serve Guiuan municipality in Eastern Samar Province are not functioning.¹⁵ Government assessment teams confirm a severe shortage of water outside Tacloban, with people drinking potentially contaminated water from damaged wells.

12. **Agriculture.** According to the Department of Agriculture, the typhoon damaged or destroyed 153,500 hectares of crops, including rice, corn, cassava, coconut, vegetables, banana, and mango, among others. For rice, the loss is 145,779 metric tons worth P2.4 billion (\$55.2 million) for corn, 17,881 metric tons or a total cost of P226 million (\$5.2 million); and damage to cassava, coconut, vegetables, bananas and other crops is P600 million (\$13.8 million).¹⁶ Livestock reported a P2.2 billion (\$50.9 million) loss while damage to fisheries infrastructure reached P4.9 billion (\$114.1 million) (footnote 2). Before the disaster, estimates indicate that there were about 1,500 commercial fishing vessels in the Visayas and 150,000 small vessels. Reportedly, in some of the worst hit islands, nearly all boats have been destroyed. These boats provided essential services to the population including transporting supplies, food and water. Their destruction, along with fishing gear, fish ponds and related equipment, have left many with no means of livelihood.

13. At the time of the typhoon, harvesting of the 2013 main season paddy crop, representing 55% of the annual production, was well advanced, while planting of the mostly irrigated 2013/14 secondary season crop had started. The affected central regions of the country account for 35 percent of the total paddy area and 32% of annual production. However, the aggregate impact

¹¹ National Disaster Risk Reduction Management Council, *Situation Report 30 (Update)*, 20 November 2013.

¹² GMA News Online. Yolanda-hit Leyte geothermal plant key to restoring power in Visayas. 18 November 2013,

¹³ The Energy Development Corporation has disclosed to the Philippine Stock Exchange that the main power plants supplied by the 650 MW facility, the 232 MW Malitbog, the 112.5 MW Tongonan, the 180 MW Mahanagdong, and the 130 MW Upper Mahiao, are out because of significant damage in the cooling towers.

¹⁴ InterAksyon.com. <http://www10.interaksyon.com/business/75152/unified-leyte-geothermal-power-plant-sustains-damage-from-yolanda> 19 November 2013.

¹⁵ United Nations Office for the Coordination of Humanitarian Affairs. *Situation Report No.14*, 20 November, 2013.

¹⁶ InterAksyon.com, <http://www.interaksyon.com/article/75085/yolanda-damage-to-ph-agriculture-now-over-p9-billion>; Manila Bulletin. <http://www.mb.com.ph/yolanda-leaves-p9-b-damage-to-agriculture/>. 19 November 2013.

of the typhoon masks the extent of crop losses at the subnational level. According to the NDRRMC, main season paddy and maize losses have occurred in the Eastern Visayas, Western Visayas, Mimaropa, Bicol, and the Central Visayas. Furthermore, over 80% of the damaged paddy area and 70% of the value of paddy and maize losses are concentrated in the region of Eastern Visayas.¹⁷

¹⁷ GIEWS Update, The Philippines: Strong Typhoon Haiyan Severely Affected the Agriculture Sector in Central Regions, 19 November 2013.