CARE International in PNG

Post Disaster Needs Assessment Report

Huiya and Walagu, Hela Province
Dodomona and Mougulu, Western Province
Papua New Guinea

May 7th – May 17th 2018

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Annex 1: Individual Community Level Assessment Data
Quick Summary of Key Findings

In brief the assessment found extensive and continuing need for humanitarian assistance in the each of the communities visited during the assessment. In three of the communities visited namely Huiya, Dodomona and Walagu the scale of need is significant with the majority of householders in each community displaced and continuing to be severely affected by the effects of the earthquake that struck on the 26th February 2018.

The number one priority need is for shelter. Families need to move on with their lives, settle in new locations for the most part or return to previous areas, move out of care centres and communal shelters to individual family homes that provide shelter from the elements, reduce their risk to communicable disease and afford them the dignity and privacy they require. Part of the rebuilding process is the re-establishment of gardens for the cultivation of food crops to sustain their lives into the future and wean off the food aid support that will shortly come to an end.

Health and WaSH are perhaps jointly second priorities. The background incidence of communicable diseases such as diarrhoea, skin infections and respiratory diseases is high with elevated levels reported since the earthquake struck. Investment in prevention through support in water, sanitation and hygiene is vitally important at this time. Immediate requirements are to provide WaSH related NFI s such as jerrycans and soap coupled with education and promotion to support good hygiene practices such as handwashing with soap.
at critical times. Longer term support can be provided to improve access to water of a potable quality, that is accessible and of a quality fit for a range of different purposes.

Health Care is deficient in a number of areas not only to address the communicable disease burden but also to address the many other health issues that affect the targeted communities. Issues such as injuries, vaccination, reproductive health, STIs and other infections such as TB are high priority issues to be supported within the health system. The local health infrastructure is clearly lacking in many areas such as physical infrastructure, equipment, consistent and comprehensive drugs supply as well as staffing.

As mentioned under Shelter people want to re-establish their gardens for the cultivation of food. Significant challenges exist regarding the staple food crop Sago which has been lost under many landslides and can’t be replaced easily. Other needs include a range of seeds and tools to support the re-establishment of gardens. Linked to this is the issue of nutrition as chronic nutrition is apparent in the communities. There is an opportunity to support communities build more protein and micronutrients into their existing diet through the livelihoods support to be provided.

Like the Aid Posts other community infrastructure was insufficient even before the damage caused by the earthquake. Another opportunity exists to support Schools in particular and raise the quality of infrastructure by investing in Rain Water Harvesting and other WaSH infrastructure such as toilets and handwashing facilities to support the education needs of school going children.

Protection and Gender issues exist in the communities viewed but were not reported to be at levels above those before the earthquake. The isolated feature of these communities and the observed sharing of tasks between men and women suggests protection and gender issues are not as big an issue as could have been anticipated. However, the big proviso is that protection issues often go unseen and are confined to the domestic sphere. Further, it is well documented that disaster and displacement result in increased protection and gender risks and so it is recommended that these risks be subject to ongoing monitoring supported by an integrated education and training program with defined, but realistic, avenues for assistance and support where needed.

Lastly, the assessment also looked to see ways in which Disaster Risk Management could be enhanced through the recovery programme. Much of the infrastructure, training and health/hygiene promotion support will incorporate ways to build the resilience of these communities to future shocks such as earthquakes, floods and drought. Wider work may be needed to connect communities to broader Disaster Risk Management.

In short there is real need in these communities and CARE is well placed to deliver multi sectoral support in coordination with key stakeholders within Government and other service providers in the NGO and wider humanitarian response community.

Introduction

A magnitude 7.5 earthquake hit Papua New Guinea at 4am on Monday 26th February 2018 with the epicentre in Nipa-Kutubu district, Southern Highlands Province. The estimated
number of deaths reported in the media (Post-Courier, March 6th) was 122 with the National Disaster Centre (NDC) estimating that approximately 270,000 people were in need of assistance. Reliefweb reported that a total of 544,000 people were affected by the earthquake across 5 provinces namely Hela, Western, Southern Highlands, Western Highlands and Enga.

The first phase of the emergency response dealt with immediate needs such as emergency shelter, provision of general food support (rice, tinned fish etc.), WaSH (provision of WaSH related NFIs), provision of emergency health care alongside a focus on gender and protection.

Following coordination with key stakeholders CARE has decided to target four communities in the second phase of the response which will aim to meet the recovery needs of the communities across a range of sectors (Shelter, WaSH, Health, Livelihoods, Protection and possibly Food and Nutrition) over the coming months until the end of 2018. The intention is not only to support communities replace what has been lost but to enhance resilience to future shocks in a way that is aligned as much as possible with existing development plans and ways of working in this area.

Three of the target communities, Hiuya, Walagu and Dodomona, have been severely affected by the earthquake. Mougulu is different in that much of the area has been unaffected with just two villages affected by the earthquake. For the most part Mougulu is a place where people from the other three communities may go for additional assistance and secondary level health care. It will most likely act as a hub or focal point for the delivery of assistance for those in the surrounding area.

**The Assessment Team**

The assessment team was composed of five members split into two teams. Three members (Albert, Lincy and Niall) assessed the communities of Huiya and Dodomona while the other two members (Ottis and Shedrick) assessed Walagu and Mougulu.

Team 1 comprised of Albert, Lincy and Niall began their assessment on Monday May 7th 2018 spending three nights in Huiya followed by four nights in Dodomona. They returned to Mt Hagen on Monday May 14th. A gender balanced team of 2 males and 1 female each member had a specific sectoral focus. Albert focused on Livelihoods and Shelter, Niall focused on WaSH while Lincy focused on Health and cross cutting gender and protection issues.

Team 2 comprised of Shedrick and Ottis (both male) began their assessment on Wednesday May 9th 2018 spending five nights in Walagu and three nights in Mougulu. Ottis had a sectoral focus on Livelihoods while Shedrick focused on WaSH and Health.

Access to the assessment sites was only feasible by small aircraft with the teams utilising the services of Mission Aviation Fellowship to get in and out of each location. The communities provided accommodation for us in suitable buildings and assisted in cooking food as well as providing water and sanitation facilities.
Methodology

A mixed methods approach was adopted for the assessment making use of the limited secondary data available, listed below, and primary data collection.

The secondary data used to inform the assessment include:-

- CARE’s Rapid Assessment: Summary Report – No Date, 3 pages
- CARE Rapid Gender Analysis, Papua New Guinea – Highlands Earthquake, 22nd March 2018, CARE Papua New Guinea
- Disability Inclusion Integrated Assessment Report, Southern Highlands and Hela Provinces, Tuesday 8th – Saturday 10th March 2018
- Strickland/Bosavi Community Development Plan (2017 – 2025)
- Understanding Earthquakes and ways to live with them. Compiled by Mark Wallis, Strickland/Bosavi Disaster Management Group, 2018

Other secondary data to inform the assessment included minutes of the Highlands Humanitarian Hub Coordination meetings and the WaSH Cluster meetings. Other literature was gathered after the field phase of the assessment to help refine the recommended actions to be taken. They included the following:-

- Displacement Tracking Matrix Report for Earthquake-Affected Communities, Hela, Southern Highlands and Western Province, 20th April 2018
- Public Health Concerns after the Earthquake, Hela Provincial Health Authority – 19th March 2018
- CARE Basic Information WaSH leaflet (2 pages), No Date
- National Disaster Mitigation Policy, National Disaster Centre, Department of Provincial and Local Government Affairs. No Date.
- Displacement and Affected Population Definitions, Targeting and Responses (for discussion with Clusters) Draft 9th April 2018.

Additional coordination efforts were made with key providers of humanitarian assistance in the affected communities to help cross check findings and ensure overlaps were minimised and gaps bridged in the recovery phase. The organisations consulted included the following:-

- Oil Search Foundation
- PDCs for Hela and Western Provinces
- ECPNG who are patrons of Health and Education services in all 4 communities
- WFP
- Strickland Bosavi Foundation with support from Sally Lloyd
The process of consultation and coordination with other actors is far from complete and will need to continue as CARE’s individual sector response plans are developed.

Primary Data was gathered by the team using a number of different methods. Prior to departure the team received a standard KoBo Toolbox mobile data form and mobile device for data gathering plus specific forms namely a Shelter Assessment Form, Health Facility Questionnaire and Assessment of Health Services Infrastructure Assessment form. Prior to departure a School Assessment Form was developed. Also prior to departure each team group were provided with additional instruction on extra data to gather under each sector and guidance was also provided on the process of data gathering.

In general the team used the KoBo Toolbox as a guide enriched with qualitative data gathered through in depth discussions with a range of different stakeholders.

The range of stakeholders identified for participation in the assessment process included the following:-

- Community Leaders (Ward Councillors and Pastors from the ECPNG Church)
- Groups of women
- School children (a mix of boys and girls)
- Vulnerable individuals such as the Disabled and Elderly
- Householders
- Health Care Staff (Community Health Workers)
- School Staff

Primary Data was gathered via the following means:-

- Direct Observation (through transect walks for example supplemented with photos)
- Key Informant Interviews (with Ward Councillors for example)
- Focus Group Discussions (with Pastors and Groups of women for example)
- Household Interviews (in a variety of locations)
- Specific institutional assessments of Health Services and Schools
- Community Mapping – communities asked to draw a map of their area indicating key areas containing shelters and community infrastructure such as churches, schools, health posts and water sources.

Priority cross cutting issues examined throughout the process included

- Gender/Protection
- Environment
- Disaster Risk Reduction/Resilience Building

The community in each location were asked to provide two keys types of data to support the assessment process and plan the recovery response. They were:-

- A community map highlighting the locations in which people were now living divided into village groupings. For example Huiya is sub divided into 8 villages or sub-villages.
• A list of all householders by sub village indicating the sex, age and number of people in each household. We attempted to get the ages of every person to help get an age profile of each community seeking to find infants under 1 year old, children aged 1-5, children aged 5-18, adults and elderly aged 65 plus. Unfortunately we didn’t get this level of detail. The householders list also incorporated householders containing particularly vulnerable individuals such as the disabled to help target particular assistance (improved accessibility to a latrine for example). The householders list is also divided into categories of households that need different levels of assistance (those whose homes were damaged or lost and those who have been affected more as hosts of the displaced).

### General Findings

Three of the four communities were found to be in high need of continuing support over the coming months. Mougolu itself has been relatively untouched by the effects of the earthquake, except for two villages, but is anticipated to be a central distribution point to the other three communities. All were characterised by their isolation from the rest of the world made even more acute by the blocking of access routes into and out of the communities. For example Dodomona was a four hour walk from Huiya before the earthquake but is now said to be an eight hour walk. Communication with the outside world is a challenge primarily through HF radio and intermittent mobile phone coverage. The vulnerable communications environment is added to by the fact that many in the communities don’t know where to go for assistance if and when a disaster strikes.

Each are characterised by a mix of affected. Broadly, the affected can be categorised three ways:-

1. Householders who lost their homes and lands and have been displaced
2. Householders whose homes were lost/damaged, lands disrupted (by wild pigs who destroyed crops after fencing fell down) but who remain at the original site.
3. Householders who are hosting the displaced and sharing resources with them but whose homes were not destroyed/damaged.

The first two above are regarded as similar in the context of the shelter response.

Each community is homogenous in term of religious affiliation with each community said to be members of the Evangelical Church of Papua New Guinea (ECPNG).

Outside of groups such as health workers, teachers and pastors every other community member survives on subsistence agriculture with the barest minimum of engagement in other forms of livelihood activity apart from some very small level of trading.

The findings are similar for each of the three targeted communities with only some minor variations. For example in Huiya blankets were an expressed need not found in the other locations. Some findings in descending order of priority sector at this point in time are highlighted below:-
No. 1 – Shelter and Related NFI’s

Resettlement Sites: In Huiya and Dodomona those who lost their homes and gardens and were displaced from their place of origin have decided not to return. They have all resettled in the areas they have been displaced to. We were told that land was allocated and given to them by land owners by verbal agreement. The sites in which people are beginning to settle appear to be safe. They don’t appear to be at risk of landslides though the team did not possess the necessary expertise to be certain. Soils were suitable for the digging of pit latrines. The gradient at some locations was perhaps too steep making access to latrines located downslope difficult especially in muddy conditions.

In Walagu the situation is different with many intending to return to their original sites and re-establish their gardens once they have some shelter, even temporary shelter to return. They simply don’t have enough space to establish gardens where they are currently and therefore wish to return.

Photo 1: Obvious fissures in the ground at Huiya. Houses to the left of this fissure close to a steep drop off have been abandoned for fear of collapse.

One other concern about the new locations was their proximity to water sources utilised by others downstream. Care will have to be taken in the location of latrines for example to protect such water sources from potential contamination.

Communal Shelters: Many of those displaced continue to live in communal shelters with maybe 4 – 5 families per shelter in conditions that can best be described as overcrowded and lacking in privacy. Limited latrines are shared at ratios in the order of 1 latrine to 30 people.
Others displaced within their villages of origin have moved to safer locations and are recovering building materials from damaged or destroyed homes.

**Household Shelters:** Household shelters that have survived the earthquake provide a blueprint for the type of size and construction being adopted by those rebuilding or relocating homes within the villages. Shelters tend to be made almost entirely of local materials including timber poles, tree bark (for flooring), bamboo, sago leaf roofing and natural binding materials plus nails brought in from outside. Most appear to be raised off the ground on wooden posts. There appears to be an abundance of local materials that people can access without impacting significantly on the environment.

There is an opportunity to strengthen the design of new and existing homes to future potential earthquakes. Cross bracing was referenced in a report by Mark Wallis, Understanding Earthquakes found in our accommodation in Dodomona and could easily be incorporated through some simple training at the community level.

The estimated floor area of a household home is in the region of 6-8m x 4m.
While many building materials can be either recovered from collapsed homes or newly accessed from the local environment there remains significant material needs for those building new homes. The primary need is plastic sheeting or tarpaulins to weather proof households especially when the sago leaf used for natural roofing is in short supply. There was a strong demand for high quality tarpaulins capable of providing protection for several years. Some complained that tarpaulins received in the emergency phase of the response where inadequate though the assessment did not see significant deterioration of the tarps viewed on our visit.

**Household NFIs** - Tools such as hammers, saws, spades, axes, files and bushknives are also required as are nails for shelter construction many of which can also be used for livelihood activities.

Within the household there was a strong demand for household items including cooking pots, kitchen knives, eating utensils and in Huiya especially blankets. There was also a high demand for clothes and the needs in this area were obvious. Many children barely had any clothes at all.
The types of cooking pot, axe and file preferred by the communities

Brazilian made bushknife preferred by those spoken to in Dodomona

Many households were observed trying to harvest rainwater into buckets and many expressed a need for rainwater harvesting materials and a water collection tank in particular, perhaps 200 litres in volume which we suggest should be fitted with a tap. Guttering could potentially be locally sourced by utilising bamboo poles and banana leaves.
Photo 6: Small scale rainwater harvesting infrastructure seen in the villages.

Note: Our understanding is that the *aedes aegypti* mosquito responsible for Dengue Fever is not present in the communities visited and therefore the rainwater harvesting containers would not pose a risk to public health in this regard. Some follow up consultation will be required with vector specialists to determine if specific public health protection measures are required should RWH systems become universal in these villages.

Finally, there was a strong demand for solar lighting in each household partly as a protection measure to ensure safe passage to latrines but also to enable household activities and school work to be undertaken during the hours of darkness.

Photo 7: The types of solar lighting identified as present in the communities now.
No. 2 – Water, Sanitation and Hygiene including vector control and waste management (WaSH)

Based upon the health findings below and expressed need WaSH is a very high priority at this time. This section only deals with household WaSH. Institutional WaSH is dealt with later in this report. This section only deals with the early parts of the safe water chain from the source to the point of access. Issues around collection, transport and use to the point of consumption are highlighted under Hygiene below.

**Water** – It was difficult to ascertain the number of water sources and access points in the communities visited but the main source of water was surface water, described as creeks or streams. Ground water in the form of springs appeared to be accessible but there was some confusion as to whether these sources were actually springs or just surface water sources higher up into the forest. Ease of access varied from easy (within a 5 min walk) to much more difficult (1 hour round trip through the rainforest in Huiya).

Visually (we didn’t have the means to test water quality) the water in many of the streams viewed was of a reasonable quality with some low level of turbidity. The quantity available at this time also seemed significant although households reported only utilising 5-6 litres of water per person per day for domestic purposes which perhaps suggests not enough water is being used for bathing which in turn is linked to the high levels of skin infections reported.

The water reportedly accessed from springs was, again on visual inspection only, of a very high quality. The water was crystal clear which would suggest there is scope to improve access to this high quality water that is available all year round through the provision of gravity fed schemes in villages where feasible. Such water may need protection at the source to ensure water is of a high quality.

There was a distinct lack of rainwater harvesting at both institutional and household level. There was a high demand to engage in RWH but people did not have the means. Investment in RWH would yield significant quantities of water of a high quality for consumption with other sources providing water of a lower quality for other purposes.

As a means to support resilience to future shocks such as the drought brought on by El Nino in 2015 the assessment team felt further technical examination of the potential to supply spring water to villages by gravity is worth considering as is the development of enhanced RWH, protection of existing surface water sources and community level water storage facilities.
Photo 8: Reported spring 30 min walk from Huiya. Note: Ward Councillor is drinking directly from the spring in the middle of the shot. Access was difficult and treacherous in the view of the foreigner.

Photo 9: Typical surface water source viewed in Dodomana and physical quality viewed. Slightly turbid in the bottle.

In brief

Access – varied from easy to difficult (5 mins to 30 mins one way journey time)

Quantity – appears sufficient at this time but perhaps vulnerable in drought conditions

Quality – physically varied from good to reasonable. Microbiological and Chemical quality unknown at this time until technical analysis can be performed.

Sanitation (excreta management) – The use of latrines seems to be a common form of excreta management in these communities both before and since the earthquake. While there was some evidence of open defecation, the majority of people seemed to have access to some sort of locally made latrine. In the case of the displaced, families were sharing a
limited number of latrines but within a reasonable ratio of 1:30 at this point in the emergency response.

The quality of the latrines would place them towards the bottom end of the “sanitation ladder”. The latrines viewed were all made of local materials similar to the materials used in shelter construction. We didn’t ascertain the normal depth of latrines but they were said to be deep and soils seemed suitable to avoid collapse of the pits. The floor slabs were a mix of tree trunks (creating a gap for the drop hole) and compacted soil. The floor would be viewed as unhygienic and particularly hazardous in a community where almost everyone walks around in their bare feet. There was an absence of covers to help control flies and no one seemed to use ash to help control odours and limit fly access to excreta.

Latrines were generally located a reasonable but accessible distance from shelters often downhill. There is the risk of snakes going to and from the latrine and the absence of doors could be viewed as a protection risk. The location and the nature of access to latrines plus the need to squat renders many latrines inaccessible for the disabled and elderly.

In terms of small children we understand that the common practice is for the faeces of small children to be picked up and buried. The use of nappies/diapers is not common practice.

*Photo 10: Some evidence of open defecation*
Hygiene – In the context of hygiene the assessment yielded very mixed results. On the one hand there is clear evidence of existing habitual behaviours conducive to protecting health. The simple use of latrines, the presence of dish racks, the digging and use of rubbish pits and the use of mosquito nets by those who received them all indicate not only an awareness of communicable disease but good practices.

On the other hand there seemed to be a distinct lack of awareness about other behaviours that can protect one and one’s family’s health. The assessment team were alarmed to learn that people were not aware about the value of boiling water in order to make it safe for human consumption. There is a clear gap in terms of understanding what are the key hygiene behaviours one can adopt to prevent the types of communicable diseases prevalent in these communities.
Note: While in Dodomona the assessment team took the opportunity to deliver some key basic hygiene messages, including boiling water, to those attending Church service on the Sunday the team were there. Approx. 200 people received the messages. We were informed that two children under the age of 6 had died from diarrhoea in Dodomona since the earthquake struck. The diarrhoea hadn’t been prevented and the aid post didn’t have IV fluids at the time to treat the children.

On the hardware side of the Hygiene Improvement Framework (the framework basically highlights that improved hygiene is dependent on three inter-related elements (a) Hygiene Promotion, (b) Hardware and (c) an Enabling Environment) the assessed communities seriously lacked sufficient hardware to support good practices. Water infrastructure and sanitation infrastructure is commented on in previous paragraphs. We saw no evidence of bathing shelters or handwashing facilities at the household level. Primarily people lack many of the basic hygiene related NFIs supportive to good hygiene. Key among these supplies is soap which we did not observe in any household in addition to the absence of handwashing facilities. Other items deemed relevant included jerrycans for the collection and storage of water (the preference was for rigid types not the collapsible types received in the first phase of the response), soap powder to wash clothes, toothbrushes and toothpaste to support dental hygiene, buckets, sanitary pads for menstruating women (reusable), mosquito nets to protect from malaria and basins (metal) to help wash hands and dishes.

Note: it may make sense to concurrently promote the use of ash in the absence of soap to support hand hygiene in this context.

One idea to support a local solution to the provision of handwashing facilities is the TP tap seen in a CARE Basic Information WaSH leaflet from 2015 using bamboo to create handwashing infrastructure. Please see the leaflet for the design.
A variety of more rigid water containers was observed. There was a preference for this type of container over the collapsible jerrycans in volumes between 10 and 20 litres. 20 litre jerrycans are recommended for communities that have relatively close access to water supplies. 10 litre jerrycans are recommended for those communities, especially in Huiya, that have a longer walk to collect water – while not as much water can be collected, it is easier for it to be carried a long distance, especially for women and children who will often be responsible for water collection. In all locations, collection of water was reported and observed to be a responsibility of women and men.

The absence of such materials is partly linked to the disrupted access that the landslides caused when blocking routes in and out of the communities. In the past some people would bring soap and batteries in to the village for sale but none of the villages we visited had any sort of a market where people could access soap, even if they had the money to buy it.

Another mitigating factor inhibiting hygiene promotion and wider health promotion is staff within the health system to communicate with individuals and communities. In some locations there were no health staff at all and in others Village Health Volunteers to support outreach conducted by CHWs did not exist. There is scope to identify, train up and support outreach in the area of Hygiene and wider Health Promotion. In addition to seeking out potential Village Health Volunteers the assessment team identified other respected individuals in the community who could be utilised, even in the short term to deliver intensive promotion. Those identified included Pastors and Teachers in addition to existing Health Staff present in some communities.

Even for those CHWs we met delivering outreach on health and hygiene promotion there was a distinct lack of Information, Education and Communication (IEC) materials to help them deliver key messages such as handwashing. We only saw one leaflet on hygiene pinned to a
wall in a teacher’s house. Communities spoken to indicated their preferred route of communication is face to face via CHWs and/or VHWs supported with IEC materials.

Note: We later learned that the Christian Radio Missionary Fellowship (CRMF) radio broadcast can be picked up in the targeted communities but we saw no evidence of radios in homes which would enable people to pick up the message broadcast via CRMF.

In addition to the supply of hygiene related NFIs the assessment team would recommend the training of key hygiene promoters, within and outside the formal health system supported with IEC materials relevant to the context.

It is recommended that the same cadre of people deliver both hygiene and wider health promotion messages. Specific health messages may include continued promotion of breastfeeding, nutrition advice, family planning advice, promotion of vaccination, prevention of STIs etc.

Suggested Priority **Hygiene** Messages to communicate via Health Workers and the Mass Media are as follows:-

- Boil water (a rolling boil for about 5 minutes) to render it safe for human consumption.
- Store water of a drinkable quality in closed containers until the point of consumption
- Use a latrine, cover squat holes with lids and put ash into the pit after each use
- Wash hands with soap/ash at critical times – after going to the toilet, before preparing and eating food and after handling a child’s faecal waste.
- Wash one’s body and clothes frequently to combat skin infections
- Sleep under a mosquito net and fill in pools of standing water in and around community
- Stay warm to help prevent respiratory infections such as pneumonia
- Keep away from the smoke produced by cooking fires

Note: The boiling of water is suggested over other forms of disinfection such as aquatabs. There is an abundance of firewood and is easily within the means of communities to sustain this form of disinfection in the long term and thereby enhance resilience to future shocks.

Note: The high rate of respiratory infections is most likely linked to the high levels of particulate matter produced from hugely inefficient cooking fires that are often located indoors. In addition to promoting behaviours that limit the exposure of people and children in particular to particulate matter the recovery programme should look to promote more fuel efficient stoves, better ventilation and promotion of cooking in separate areas outside the home where feasible, notwithstanding the fact that in some areas the fires are a source of heat, to ward off respiratory infections.
Hugely inefficient cooking fires inside dwellings produce huge quantities of smoke injurious to the health of all occupants and young children in particular.

**Vector Control and Waste Management** – The primary vectors of disease in the communities assessed are mosquitoes responsible for the transmission of malaria and flies who play a role in the transmission of diarrhoea, two of the more common diseases reported as present in the communities. Background prevalence was reported as high but at elevated levels since the earthquake perhaps due to the added risk of exposure due to the loss of infrastructure and materials alongside other factors.

As detailed earlier a highly demanded item in terms of WaSH related NFIs are mosquito nets. Mosquitoes and the use of nets was observed in most of the locations visited except Huiya which sits at 2,400 ft above sea level, an elevation that needs to be checked to see if it can support the breeding of the mosquito responsible for the transmission of malaria in the highlands of PNG. Households had a preference for one family sized net and one individual sized net per household. Vulnerable members such as pregnant women and children could sleep together under the family sized net.

The communities were not aware nor familiar with Indoor Residual Spraying as a malaria control strategy and therefore it seems the key control mechanisms are the use of mosquito nets (permanently impregnated) and control of breeding sites. Under clinical health Intermittent Presumptive Treatment for pregnant women is also a control strategy. Further research is needed on the types of breeding sites preferred in this context which links to the way waste is managed in communities. With the added input of materials such as tinned fish in recent months there are accumulations of waste now that may support vector breeding.

As referred to earlier the control of flies is closely allied to the poor quality of pit latrines and the promotion of effective food hygiene will also need to be promoted to limit diarrhoea transmission by flies through food.

**No. 3 – Health and Health Care**

The health issues identified are numerous and were reported, at least by the health care staff in Dodomona, as the same issues but seen in greater numbers since the earthquake. The key health problems of a communicable disease nature and affecting mainly children included Diarrhoea, Skin Infections and Respiratory Infections (described as “simple cough”). Simple cough was the most numerous in terms of incidence. This burden of disease indicates the underlying problems faced by householders with respect to access to safe water in sufficient quantities, lack of resources including knowledge to engage in safe hygiene practices and overcrowding for those displaced in shared/communal shelters. The communities remain traumatised and in fear of another earthquake as tremors continue to be felt. The assessment team experienced a mild tremor in Dodomona on one of the days they spent there.
CHWs reported that Sexually Transmitted Infections are a big problem in the catchment area but little is done by way of prevention including an absence of sex education in the schools.

Outside of the communicable disease burden other significant health challenges are present in these communities. Accidents and injuries were quite prevalent including open sores/ulcers and services to support family planning were limited (many women will have between 7 – 11 pregnancies spaced very close together) as were services to support maternal health. There was no vaccine service as they simply had no cold chain.

Many of the key elements of an effective health system are missing. In Huiya there was no aid post. No building, no staff and no drugs or equipment. In Dodomona for example the building was too small and not fit for purpose in the long term. They had no delivery room/area. They lacked a source of energy such as solar lighting to provide light and run a vaccine fridge (which they didn’t have). They lacked a regular supply of essential drugs and equipment. In Walagu the infrastructure and drugs supply for example was better but many problems exist around handwashing facilities, solar lighting and communications.

At the time of our visit to Dodomona they had little or no drugs to treat STIs, TB or malaria plus little or no antibiotics to treat infections. They lacked family planning materials and materials for maternal health.

They lacked an independent supply of water, sanitation facilities and handwashing facilities including soap. They had no means to incinerate clinical waste nor did they have the means to sterilise equipment. Communications in the absence of reliable mobile phone coverage was difficult and not supportive for the making of referrals or medical evacuations.

The problems witnessed in Huiya and Dodomona were NOT mirrored in the other two locations of Wagalu and Mougulu. Both locations had adequate facilities and effective delivery of basic health care services.

*Picture 18: Dodomona’s Aid Post with limited room and facilities*
Photo 19: The limited treatment and insecure drug storage facilities at Dodomona Aid Post

Photo 20: Exterior view of Walagu Aid Post
No. 4 – Livelihoods

Photo 21: The displaced have begun gardening at the new settlement sites as seen here in Dodomona. The crop here is Kau Kau otherwise known as Sweet Potato.

Before the earthquake livelihoods opportunities were limited to subsistence agriculture and a small amount of trading. Since the earthquake and the reduced access into and out of these communities the opportunity for trading is even less. Therefore, the immediate issue is the establishment of gardens to sustain food security. In Huiya and Dodomona land is available and has been allocated to families who have relocated. In Wagalu land is available for the displaced but they have to relocate back to their places of origin to access it and therefore shelter provision will enable return to re-establish gardens.

Outside of land the key gaps are seeds and tools. Financial capital is not an asset the affected communities possess nor can they access finance. Therefore, the response should physically supply the seeds and tools required. Linking to the observed chronic malnutrition there is an opportunity to diversify the crops grown to enhance the nutritional content to boost protein and micronutrient intake. Plants such as beans or small livestock such as chickens could be introduced. Note: some chickens were observed in Dodomona but in very small numbers.

The types of crops community members listed as crops they wished to grow and the seeds they needed included the following:

- Corn
- Beans
- Peanut
- Taro
Banana suckers
Pumpkin
Sweet Potato
Cassava
Pak Choi
Chinese Cabbage
Capiscum

Note: In the context of social capital it is common for householders to share tools among themselves though sharing can cause delays for some waiting on tools.

Note: Other sources of food are available outside of the crops people grow through foraging of wild fowl eggs, collection of coconuts and hunting of wild pigs.

**No. 5 – Food and Nutrition**

Communities are currently in receipt of food assistance in the form of a general ration. The types of foodstuffs supplied listed in the 3 W data include rice, tinned fish, salt and oil plus others. It is not known how long this will continue. Communities complain that some staple foods like Sago and cooking banana to provide carbohydrates will take a long time, perhaps years to recover to levels needed to sustain the population. There were clear signs of malnutrition especially in young children. Evidence in the form of distended stomachs and stunted growth indicate chronic malnutrition. The near complete absence of protein sources in the diet is another indicator of problems in this area. A question remains over the availability of micronutrients but in the absence of fortified foods available one can speculate that people are deficient in micronutrients.

Further information to inform the assessment in this area could be gained via Unicef’s nutrition section as well as PNG Government sources.

**It should be noted that food is still being airlifted into these communities. At this time it is not known when food supplies will end but when they do one can expect food to be a higher priority than currently. Latest information is that food distributions may end in June 2018**

**No. 6 – Capacity Building**

While not directly expressed as a need the assessment team felt some capacity building support should be provided. An example would be to establish and train Village Health Volunteers in each community to support health outreach and behaviour change communication. This could also be expanded to include Village Birth Attendants or VBAs. Pastors spoken to in Huiya also expressed a willingness to deliver health education through church services and therefore may require some training.

As referred to earlier householders may benefit from some instruction on how to strengthen their new homes to be more resilient to earthquakes through cross bracing. In the area of livelihoods some level of training will be required if new crops and livestock are to be introduced.
Community members who will have the responsibility to ensure equitable distribution of inputs may also require some training on gender, protection and ensuring accountability to those being assisted. Perhaps CARE staff too will require training in monitoring, post distribution monitoring, accountability mechanisms including a Complaint Response Mechanism and evaluation.

Perhaps more detailed capacity assessments could be carried out with CHWs and maybe teachers to see what additional support could be provided to enable them to be more effective in the protection of public health.

Note: CHWs are often rotated out to other locations every 2 years and therefore it might make sense to work with others to ensure all CHWs in the affected area are trained up.

No. 7 – Gender and Protection
As with capacity building the issues of gender and protection did not arise directly during consultation with key stakeholders during the assessment process until prompted. The general finding, as reported by communities, was that gender and protection issues are no worse now than they were before the earthquake. However, protection issues often go unseen as they commonly occur in the domestic sphere. Further, it is well documented that disaster and displacement result in increased protection risks, and so it is recommended that these risks be subject to ongoing monitoring, supported by an integrated education and training program with defined, but realistic, avenues for assistance and support where needed. Detail regarding protection risks that should be continually monitored are discussed in the Rapid Gender Analysis previously completed by CARE.

In the communities assessed there was a real sense that tasks such as water collection and land cultivation are shared equally among men, women and children. Therefore, it is recommended that all sectoral activities focus on supporting the family unit, with a particular focus on encouraging a continued sharing of workloads within the household.

As noted in earlier sections of the report, it is recommended that sectoral response plans consider the specific needs of women, girls, men and boys, as well as other vulnerable groups such as people living with a disability, the elderly, single headed households and widows. For example, nutrition activities should prioritise children under five and pregnant or lactating women. The needs of the elderly and people living with disabilities needs to be considered in relation to placement and design of shelter and latrines. Similarly, protection concerns should be integrated into all shelter and WaSH infrastructure work.

No. 8 – Disaster Risk Management and Resilience Building
Awareness of the common hazards in these highland communities was high with earthquakes, floods and drought listed as the risks to manage. In Mougolu at the time of the assessment the area had been affected by a flood. In some communities political or tribal violence might be a risk but apparently this risk is not present in these communities.

There appeared to be an absence of Disaster Risk Management. This was most obvious by the fact that communities did not know who they should contact if and when a disaster struck.
They did not know who to go to for assistance either within Government or Outside Government. One assumes there is no Early Warning System, no mitigation plans, no preparedness plans, no contingency stocks, no evacuation plans in these communities.

The assessment team felt there was scope to support wider Disaster Risk Management in these communities alongside the resilience building to be integrated into the shelter, WaSH, Health, Livelihoods and possibly Nutrition responses. However, this will require work to connect these communities into wider disaster risk management actions up the administrative line to provincial and national level.

Schools, Aid Posts, Churches and other Community Structures

*Infrastructure:* Some of the existing infrastructure at schools, aid posts and other buildings have been damaged (mostly the permanent buildings made of materials brought in from outside) or destroyed (made from bush materials)

![Permanent school buildings partly damaged or unaffected by the earthquake. On the left is a damaged school building in Dodomona. On the right is the elementary school building in Huiya which was undamaged apart from some broken blackboards.](image)

*RWH:* As community structures often with substantial roof coverage (often made of iron sheeting) it was observed that there is potential scope for the harvesting of rainwater for use by the particular institution or wider community principally for drinking water and/or handwashing water. One suggestion made was to utilise the 4 x 5,000 litre bladder tanks in storage in Mount Hagen for RWH purposes.

*Sanitation:* The general finding was that these institutions lacked sufficient sanitation facilities. In some cases there were no sanitation facilities at all or they were inadequate in number and/quality. It is proposed to support Schools and Aid Posts in particular to achieve sanitation coverage suitable to the demand in those institutions. If feasible the quality of facilities should be improved and suggestions would include the use of plastic latrine slabs (CARE has 100 of these slabs in storage in Mount Hagen) to aid cleaning and maintain hygiene, upgrading to VIP (Ventilated Improved Pit) latrines, the inclusion of latrines that are accessible by the disabled (inclusion of ramps, guard rails and seats for example) and possible utilisation of urinals, especially for boys in the schools.
**Handwashing**: Particularly in aid posts the inclusion of handwashing facilities as a means to support infection control is an absolute necessity. Likewise, in schools. The recovery programme should aim to ensure suitable handwashing facilities are included in sufficient numbers and that these facilities can be maintained and operational.

**Overlaps and Gaps**
It was observed in each community that a significant number of non-food items have been distributed already. Different stakeholders such as Oil Search, Provincial Governors, ECPNG, WFP and others have supported communities with these materials since the earthquake struck. Many items were viewed including collapsible jerrycans, rigid jerrycans, plastic buckets, water barrels and water tanks for RWH, mosquito nets, solar lights as well as tools (bushknives and spades for example).

The consensus view was that these items were not universally provided to all families and therefore significant gaps remain. Part of the continued assessment process will be to liaise with these other organisations to establish what exactly has been provided, who it has been provided to and where has it been provided. From there CARE will be able to work out the gaps to be filled and avoid unnecessary overlaps.

**Wrap Up**
As the above assessment highlights the situation in the assessed areas is one of dire need. The levels of poverty before the disaster were clearly significant have been exacerbated by the earthquake. The next stage is to develop detailed sectoral response plans for each of the four communities assessed. Attach to this report are some more specific data sheets for each of the four communities visited.

**Key Informants Met and Available Contact Details.**
1. Kevin Dofona, Councillor Ward 13 Aiya and Igiriba Safo, Huiya. He is also one of two volunteer/trainee teachers at the Huiya Elementary School.
2. Gideon Kome, Health Teacher (since 2009), Dodomona Primary School
3. Gabie Gogopaiya, Health Teacher, Dodomona Elementary School
4. Pepson Uriti, CHW, Dodomona Aid Post Ph: 70271533
5. Michael Maimana, CHW (volunteer), Dodomona Aid Post Ph: 79564488
6. Michael Soso, Ward Councillor, Dodomona Ward,
7. Michael Hawi, CHW, Walagu Ph: 73536567
8. Paul Isilawa, CHW, Mougulu Aid Post Ph: 71215443
9. Sally Lloyd, ECPNG, Mougulu, Ph: 70365158