"Our food is running out. By the middle of October, everything will be gone"

Assessment on the Impact of the El Niño Event in PNG

October 2015

Crops Affected by Drought in the Eastern Highlands, PNG (September 2015)

Executive Summary

Papua New Guinea (PNG) is currently experiencing the effects of an El Niño event, which includes warmer weather and significantly reduced rainfall. According to the National Weather Service (NWS) in Papua New Guinea and the Australian Bureau of Meteorology, this dry hot spell, which began in May 2015, will continue into early 2016[1].

In order to better understand the needs and capabilities of affected communities, CARE International in PNG (CARE PNG) undertook a series of assessments in three drought-affected provinces between September 21 and October 2 2015. In parallel to the needs assessments, CARE PNG did a rapid gender analysis on the differing impact of the drought on women, men, girls and boys. The assessments were done in Obura-Wonenara (Eastern Highlands Province), Menyamya (Morobe) and Gumine (Chimbu) districts in communities not yet covered by National Disaster Center (NDC)-led assessment teams.

The CARE community needs assessment clearly identified immediate unmet needs in food security and Water, Sanitation and Hygiene (WASH) as well as potential health impacts. The key findings of the CARE PNG assessments include the following:

Food Security: Households are currently experiencing food insecurity with the majority of household reporting that they either have only a short-term supply of staple food or have already run-out. As the current El Niño conditions are expected to continue until 2016, the food security situation could deteriorate even further over the coming months.

WASH: Women and children are travelling further to collect water and there are concerns over the water quality with animal and faecal material visible on the riverbed, which is impacting on the hygiene practices and increases the risk of water-borne diseases.

Livelihoods: Since garden yields have been so poor, there is little in terms of food surpluses to sell. As a result, households do not have cash available to purchase food or other essentials to meet their basic needs.

Health: Community members are reporting an increase in a number of diseases, diarrhoea, fever and respiratory illness in particular, although we were unable to verify this information with local surveillance data. However, based on the experience of the 1997- 98 drought there is an increased risk of diseases related to food and water scarcity.

Coping Strategies: Households are already using a variety of coping mechanisms as a result of the food shortages, such as eating only one meal per day and eating "famine" or "bush" food. Elderly and disabled household members are receiving significantly less food from their families.

Recovery Challenges: Even if the rains arrived today, families could not expect to harvest food from their gardens for at least four months. The extended dry period has also resulted in the desiccation planting materials which could impact the capacity of communities to recover.

These assessment findings are being used to inform CARE programming – in order to better address the needs of men, women girls and boys affected by the drought and frost. However, given logistical challenges of providing assistance over many districts and provinces, and the expected duration of this El Niño event, a concerted effort will be needed to meet needs, including those of persons affected in remote and difficult-to-access communities.

[1] PNG UN Sit Rep #1

Background

El Niño affects the weather in large parts of the world, depending strongly on location and season. The strongest effects on lowering precipitation are in South- East Asia and the western Pacific Ocean, especially in the dry season (August-November) where severe droughts can prevail (OCHA, 2015).

The last devastating El Niño experienced in PNG was in 1997 and 1998. At the time it was found that virtually everyone in rural PNG was affected to some extent with an estimate 40% seriously affected. Analysis from a survey in November-December 1997 found 260,000 people in a critical, life threatening situation and an additional 1.9 million consuming limited food. Water scarcity was also a problem with 5,000 people in a critical, life threatening situation with extremely limited water supplies and 363,000 people with minimal amounts of poor quality water available. This was caused by a severe reduction in crop yields due to below average rainfall with up to 80% in many areas.

The 2015 El Niño is projected to be worse, or of a similar scale to that of 1997-98. As a result of the these projections, CARE began closely monitoring the potential impacts of El Niño in its areas of operation in EHP, Goroka and Bougainville in July 2015, tracking indicators such as rainfall, river levels, food crop yields, social indicators and market trends in discussions and cooperation with government and other key stakeholders.

PNG has been experiencing erratic weather patterns since May 2015, including hail and frost in some regions, with the Enga province being particularly hard hit. Much of the rest of the country has been experiencing a significant reduction in rainfall and unusually hot weather, with the highlands particularly affected. In August 2015, the PNG National Weather Office reported that El Niño had peaked earlier than predicted and that this reduced rainfall could be expected to continue until at least February or March 2016.

As a result, Government-led teams began undertaking assessments throughout the country, analyzing the impact of both the unusual frost and drought conditions. At this

time, the NDC estimates that more than 2.4 million people in PNG are affected by this year's El Niño event[2]. Many of the provinces hardest hit are the agricultural bread baskets of the country; with agriculture accounting for 30-40% of the GDP of PGN and employing about 70-80% of the countries' labour force (FAO, 2014), the food security and financial repercussions of the El Niño event will therefore eventually be felt country-wide.

Assessment Plan / Methodology

Methods and Locations: In order to obtain input from as many communities as possible, CARE deployed four assessment teams concurrently to ten different sites. Each team consisted of one focal point for each of WASH, Gender and Agriculture/Livelihoods sector's and were equally made up of both male and female staff. In total, the assessment teams covered six sites in Obura-Wonenara, Eastern Highlands Province (Hau'a, Asara, Aziana and Sindeni), two sites in Menyamya, Morobe Province (Kome and Wapi) and two sites in Gumine, Chimbu Province (Digini and Gumine). An effort was made to select some sites accessible only by air and others accessible by road to provide a broader range of information.

Assessment Tools: Two principal tools were used for data collection: the Drought Assessment Form provided by NDC and Key Informant Interviews. The NDC form provided the overview of demographics, community information and the effects of the drought on health, access to food and water supply. The Key Informant Interviews allowed for open ended responses, with a focus on obtaining more detailed information and viewpoints disaggregated by gender and age.

In addition to the NDC forms and the Key Informant Interviews, CARE also conducted small group discussions and collected individual case studies of men and women affected by the drought. Finally, CARE staff undertook Observation Walks in villages, gardens and to water sources to triangulate the findings of the interviews. In all, more than 200 questionnaires (NDC forms), key informant interviews, small group discussions and case studies were held over the two week period.

Although this is a relatively small geographical sampling in terms of overall affected areas, the communities covered by this assessment had not been previously assessed and therefore these findings contribute to the concerted assessments efforts underway in PNG by the government and other stakeholders.

CARE local partner CDA facilitated introduction to targeted communities and these community leaders provided assistance with coordination of the needs assessment and supported the distribution of WASH items in their communities.

Acknowledgements: CARE would like to take this opportunity to thank all of those who assisted in this assessment by sharing information and assessment tools, including the Government of Papua New Guinea for sharing the NDC Drought Assessment Form. Finally, we would like to thank those who so generously contributed to our knowledge by sharing their time and individual stories.

[2] Ibid

Humanitarian Situation

Scope and Nature of the Emergency: The driver of the current humanitarian situation is the unusual, erratic weather patterns caused by the El Niño event – including frost and drought. The government drought assessments resulted in provinces and districts being categorized from 1-5 on the drought scale with five being the highest. The areas assessed by CARE are categorized as follows: Gumine district (Chimbu) is categorized as 4; Menyamya (Morobe) is also categorized as a 4; Obura-Wonenara district (EHP) has not yet been categorized by the government,[3] but International Organisation for Migration (IOM) from their recent situation report have categorized the district has being in severe drought.[4] In the CARE assessment areas, two communities have been affected by frost and all communities have been impacted by the drought, with little or no significant rain since May 2015. As a result of the long dry spell and the accompanying heat wave, communities are facing reduced crop (garden) yields and, as a consequence, food scarcity. ***Remote communities, accessible only by foot or air, are facing distinct challenges, as these villages rely almost entirely on their own food production for survival;*** they have significantly reduced access to urban based support networks and government services and reduced garden yields means reduced food consumption, as well as possibility of selling surpluses for income-generation.

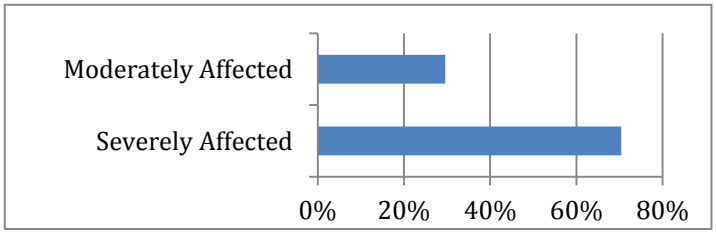
The reduced rainfall has also significantly lowered water levels, affecting quantities and quality of water supply. As an example, the Lamari River typically runs at about shoulder level on an adult (150cm), going down to 130 cm during the dry season. Currently, the Lamari River is knee-high (about 50 cm).

As mentioned above, the NDC reports that more than ***2.4 million are currently affected by the El Niño event***, with the highland provinces among the most affected. CARE's own assessments confirm the deepening impact of the drought in the ten sites visited. All households assessed by CARE were experiencing hardships to varying degrees, with the most vulnerable literally running out of food and facing increasing water scarcity.

Food Security

Food production: In Papua New Guinea, about 85% of people grow their own food[5] so garden yields are directly related to household food security. In the communities visited as part of the CARE assessment, the current drought and heat spell had a significant impact on garden yields. "Insects have eaten everything", recounted a woman working in her garden, pulling up dead plant after dead plant to show CARE staff. All respondents reported being affected by the drought to varying degrees, as follows.

The impact on the drought on crops was clearly visible during Observations Walks through the gardens. Although most people spoke of kaukau or taro, other crops affected included bananas ("burnt by the heat") and to a lesser extent coffee trees (losing leaves).



As of the middle of September, ***approximately 89%*** **of households assessed reported having** ***less than 1-2 months roots/tubers (the staple food)*** before their supply ran

[3] DMT: MoM September 29
[4] IOM: Papua New Guinea Drought IOM Preparedness and Response Situation Report, 11 September, 2015
[5] NARI: Drought Response On Farm Coping Strategies Report

out entirely**.** The largest number of respondents described their situation as "difficult with food short and some famine or unusual foods ***being eaten".***

At this time, it is forecasted that the drought might continue until March 2016 or later. Even once the rain starts, quick growing crops take approximately four months to grow. Following the El Niño 1997-98 event, the first crops were unusually poor due to the high level of nitrogen in the soil. All of the factors combined indicate a prolonged food gap, increasing the possibility of more severe food and nutrition crisis during this El Niño event.

An overwhelming majority of respondents reported that their ***ability to purchase food (i.e. income)*** *are* ***severely affected or moderately affected*** by the current drought (88%).

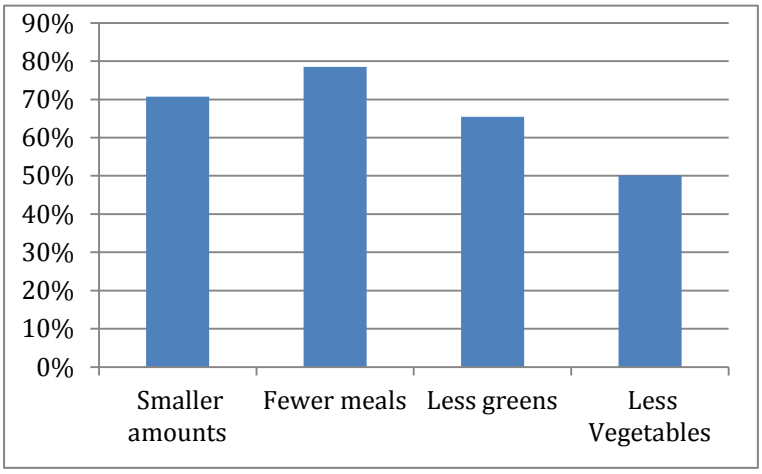
Food Consumption: Households have initiated a series of coping mechanisms to deal with the growing food scarcity over the last few months, with the most common being eating fewer meals (see table below). Many respondents reported feeling dizzy or weak as a result of reduced food consumption.

"After eating the famine food, I will have nothing to eat. And if the drought continues, I have no hope."

Teacher in Obura Wonenara

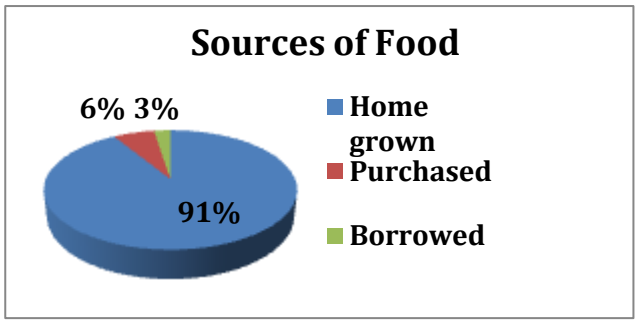
Members of the community that expressed particular vulnerabilities in terms of access to food include:

- The elderly and widows, as they typically receive food from family members, who may not be able to provide
- Pregnant women, who are unable to access adequate high-nutrient foods commonly food in the region, such as greens and vegetables
- Lactating women, who feel weak themselves and unable to produce sufficient milk to feed their babies



Many parents reported that their priority is to provide food for the children. Although prioritizes are in terms of food consumption**,** ***children are directly impacted by the current drought and food security situation in a variety of ways***. Many children have increased responsibilities in terms of water collection; as usual water sources have dried up. Some schools have closed, and many are functioning only ½ days, since there is no water and food available at school. Even if schools were functional, many children are not going to school due to school fees or to take on additional responsibilities at home. In the 10 sites assessed by CARE, there are no

schools open full time or at reported pre-drought attendance levels. Many typical activities for children, such as sports events and socializing, are no longer taking place due to the hot weather.



Surpluses and Future Harvests: In the rural areas assessed by CARE, the vast majority of persons interviewed grow their own food.

In more bountiful years, gardens in these provinces produce surpluses, providing some income (to varying degrees), allowing households to purchase other necessities. However, as the quantity of food produced is insufficient to meet immediate food needs, the families are not in a position to sell the surplus and find themselves with little or no income.

One of the most visible consequences of the heat and dry spell is ***the condition of the soil, which is visibly dried and cracked.*** Villagers are no longer able to dig with their hands or digging sticks, but are using spades or other metal tools instead. The drought has left the soil in the most affected regions in poor condition for planting. In addition, plant cuttings are traditionally used for planting new crops, as opposed to seeds. Respondents said that, with plants dying as a result of the drought, they had been unable to save sufficient cuttings to plant once conditions became favourable once again. Therefore, the current drought is affecting both immediate food security, as well as food security over the next several months (or the next successful harvest).

In regards to the impact of the drought on market prices, an increase in price of commodities has been noted in larger communities. As an example, the cost of 1 kilo of rice had increased by about 20% in some locations in Chimbu (from 4 Kina to 5 Kina).

Water

All communities reported that the water levels were significantly lower than in previous years due to the reduced rainfall. ***Many creeks had dried up completely,*** which was not the case in the 97 El Niño event, where the creeks levels lowered, but were still running.

As a result of usual water sources drying up, many persons interviewed have changed their water collection habits, fetching water at larger sources (such as rivers) as opposed to nearby creeks and streams. Pre-drought, the average time spent fetching

water was estimated at 37 minutes. Over the past months, ***the average time to collect sufficient water has increased to approximately 72 minutes, representing an increase of 95%.*** Most families undertake water collection at least twice a day. This has resulted in additional workload and hardship in households, particularly for women and children who traditionally collect the water on behalf of the family.

It is interesting to note that, some men have also begun collecting water with their wives and children. This is linked to security concerns, as the long distances expose the women and children to more risk.

CARE did not test the water quality in the river but respondents did note that the same water sources (the big rivers) were being used for drinking, cooking and washing. Mothers also reported washing their diapers in this same water and CARE noted sewage (feces and other waste) close to and upstream from the main water sources. This of course heightens the possibility of the spread of water-borne diseases, putting the health of these communities at risk.

We are not happy to drink from the big river but there is no way to get clean, safe water. We are now using the main river for all purposes (bathing, drinking, cooking, laundry, etc.)"

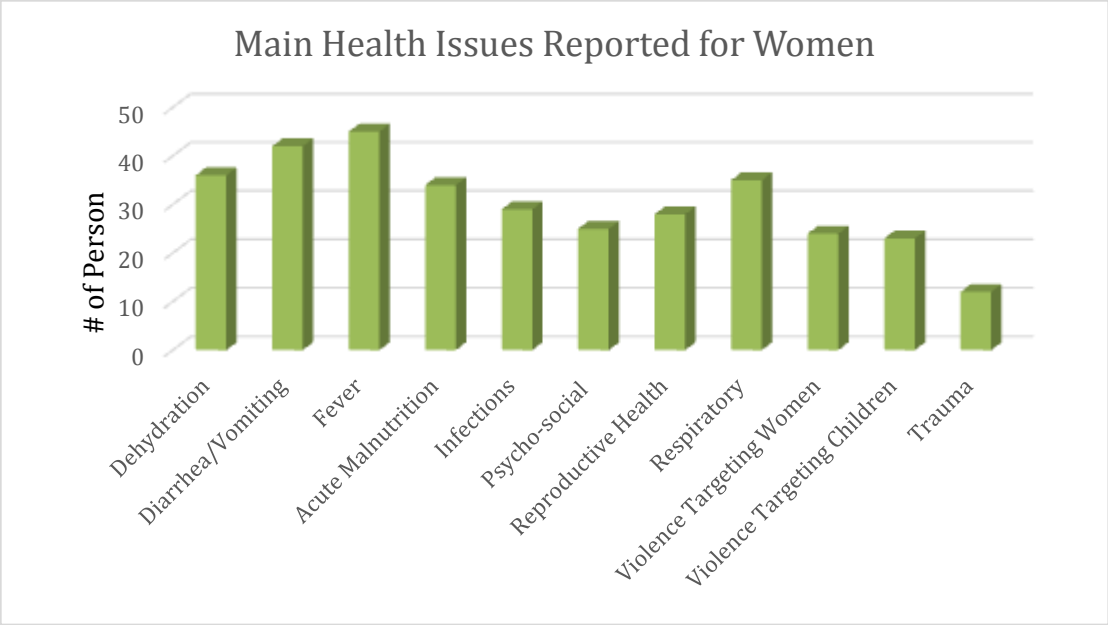
Village Health Promoter

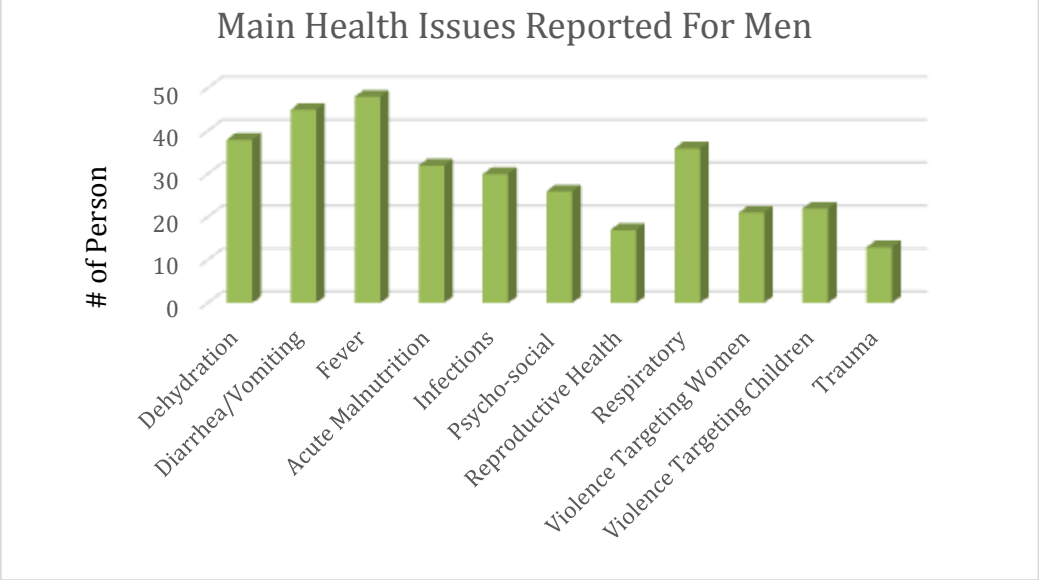
When asked, approximately 10% of respondents reported always boiling water, while 18% reported "sometimes boiling water". Many did report washing their hands before cooking or handling food and after going to the latrine. Most washed their hands with water only, as opposed to using soap and water. Water storage is also a significant challenge***. 73% of the households surveyed indicated limited water storage capacity (20 litres or less).***

Some gardeners had set up irrigation pipes (using bamboo, etc.) in previous years to pipe water from streams down into their gardens if they were located near a river or a stream. However, this was more challenging in the current situation as these systems rely on gravity, and the streams and creeks running from the top of the mountains are drying up.

Health

Health concerns were mentioned in both focus group discussions and key informant interviews. The issues most widely cited for men, women and children under 5 are as follows:





In terms of health concerns for babies, dehydration, vomiting, fever, malnutrition and respiratory problems were cited as the major health issues.

Due to the quality of records kept at local health facilities, CARE did not obtain health statistics for the regions assessed, so it is difficult to judge the direct correlation between the current drought and the above-mentioned health issues. However, repercussions on health were significant during the El Niño crisis of 1997, and outbreaks related to food and water scarcities remain a risk. The government-led assessment teams have cited surveillance and strengthening of health facilities in areas of outbreaks as priority needs[6]. It was observed that in some areas, people have to travel considerable distance to the nearest health facility, highlighting the importance of

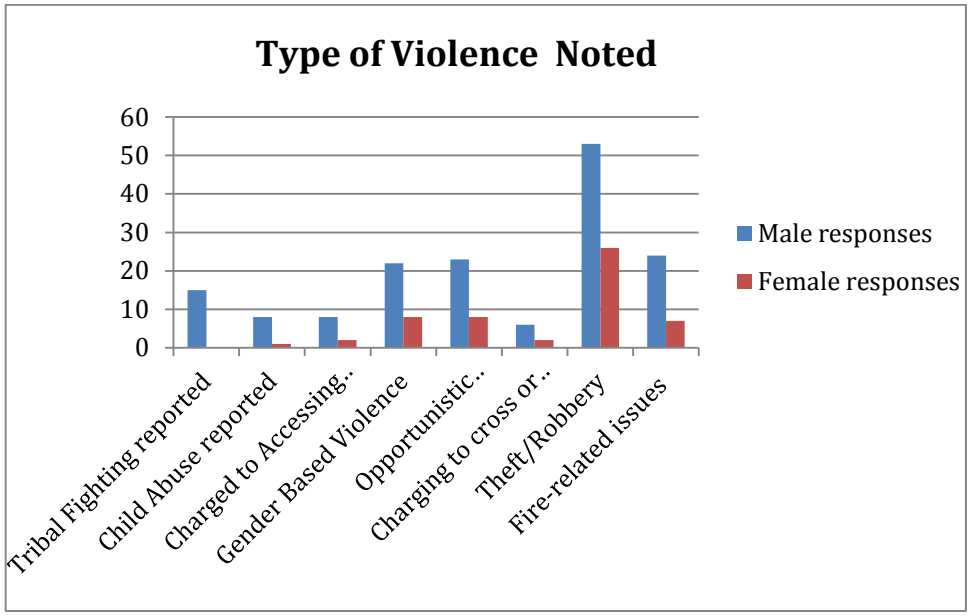
[6] National Disaster Center Situation Report #7

implanting disease prevention strategies through health education, utilizing local health workers and village health workers.

Regarding mental health, both men and women reported increased levels of stress and anxiety associated with being unable to provide enough food for their family to eat. Women in particular felt this stress daily, as they are responsible for food preparation.

Protection/Social Indicators

Both men (93%) and women (77%) indicated that they had noticed an increase in violence since the beginning of the drought***. The most common concern noted by both men and women was an increase in theft*** – in particular, the theft of food from gardens, which is relatively rare under normal circumstances; the full range of responses are listed in the table below disaggregated by sex:



Both men and women noted increased stress in the household, as the family struggled to cope with the drought and the resulting impact on food and water. This stress increased tension and anxiety in the households. Finally, parents expressed worry about the impact of the drought on children – with schools closed or only partially open. This was widely noted in one-on-one interviews, as well as in community focus group discussions.

Response to Date, Coverage and Gaps

At the time of writing, Government assistance not yet been provided in the ten communities assessed by CARE. However, the Government has provided rice in several other regions in the country (regions categorized as 4 and 5 in priority[7]). The Government of Papua New Guinea has allocated up to K25 million (about USD$ 8.7 million) to the drought response.

The Red Cross Movement (PNG RC) is planning to undertake hygiene promotion and distribution of household WASH (water, sanitation and hygiene) kits in the Oro and Highlands region. IOM and UNDP are both looking at early recovery programming.

[7] Ibid

For its part, CARE in parallel to the assessment, has begun providing information and awareness sessions stressing good hygiene and health practices as well as drought coping strategies. Following the training, drought-affected participants received custom WASH kits (jerry cans, soap and water purification tablets). In total, CARE has provided almost 1200 households with training and WASH items, benefitting approximately 6,000 people.

Priorities: Priorities identified by persons in 10 sites in three provinces are food and water, in line with assessments undertaken by the Government of PNG and other stakeholders. CARE's assessment shows that a majority of families in affected areas had reduced their food consumption and that some had already exhausted their food stocks.

In terms of food priorities by the assessed population, 92% of respondents, both men and women, cited the provision of rice or cereal as their overwhelming priority. Women also mentioned a need for oil/fat as a priority for cooking.

The assessment also confirmed significant needs in terms of water and sanitation. In addition to increased work load in collecting water from greater distances, the lack of sufficient and clean water poses challenges for the health and hygiene of affected communities. Support such as water storage containers, soap, and hygiene promotion were highlighted.

Related to the reduced access to food and to sufficient and clean water, significant, nutrition and health support is also needed, as little assistance has been provided in these areas of intervention. Finally, beyond this, there will be significant needs in terms of supporting early recovery, to assist affected communities in planting gardens and growing food to meet their own needs once again.

"I have sent word to my husband to send us money to buy food but he hasn't done that. I don't know what to do next"

Community member (Female headed household), Aziana

Related Issues

Demographics: The population in the assessed areas (10 sites in 3 provinces) comprised slightly more males than females. Children and adolescents made up approximately 39% of the population. The elderly comprise only 5% of the entire population, with slightly more men over 65 years old than women in the same age range. Family size varied greatly, but the average was between 5 and 6 per family.

	Female	Male	Total
Ages under 5	12,929	9,887	**22,816**
Ages 5-17	8,219	12,997	**21,216**
Ages 18-65	32,956	31,659	**64,615**
Age Over 65	2,453	2,870	**5,323**
Total	**56,557**	**57,413**	**113,970**

Polygamy is practiced in the three provinces assessed, with many households consisting of more than one wife.

Access to communities/Logistics: Many communities in the highlands are remote, accessible only by air and on foot; others are accessible by road but are not near major centers. For these remote communities, the only practical way to bring in substantial food and non-food assistance is by air. There are a limited number of charter companies that can provide this transport service, and planes are small, limiting the quantities that can be brought in per rotation. Finally, the costs of using this only available option are significant.

A significant logistical surge and a concerted coordinated effort will be needed to address these additional challenges in difficult-to-access locations.

Security: No security incidents were noted during the two weeks assessment. However, in two locations the teams were advised by community leaders to change or cancel the distribution of water containers as there was significant local tension related to anticipated food distributions. In a third location, the community was unwilling to allow the assessment to go forward until the local Member of Parliament intervened and ensured the community CARE was there with his support.

Unrelated to CARE PNG's work, there have already been a number of security incidents in most affected areas and, and as the security situation in these regions can be volatile this could become a working concern, should the humanitarian situation continue to deteriorate.

Findings from Initial Assessment

The CARE PNG assessment found a need for timely interventions to meet more immediate needs as well as longer-term programming to assist communities to recover from the effects of the drought and frost. However, it is clear that there are a number of challenges that are beyond any one agency to respond to this complex emergency.

These are:

1. Large population numbers affected (estimated 2.4 million) over vast geographical area;
2. Costly logistical challenges to reach remote and difficult to access communities;
3. The multiple sectors affected by the drought: WASH, Food Security;
4. The expected duration of the effects of the EL Niño (at least March 2016) and the resulting food gap that means that even when the rains start, there will be a delay of four months before the first crop is harvested.

CARE will contribute to the response with prioritizing the 10 assessed communities in three provinces (dependent on funding allocation) with a focus on remote and hard to reach areas and seek opportunities to collaborate and complement government and other agencies' efforts to ensure that an efficient and effective response is achieved.

Next Steps for CARE

CARE has developed a Response and Recovery Strategy that sets the direction for the emergency and recovery operation and will be the basis for sourcing funds from donors to implement CARE emergency operation.

CARE focus will be to:

- Scale up operations in a timely manner to help prevent an escalation of needs – ensuring we account for the differing needs of women, men, boys and girls.
- Seek out opportunities to complement government food distributions
- Focus on remote and difficult to access communities to ensure they receive assistance
- Begin planning for recovery and rehabilitation as soon as possible.
- Support increased coordination at all levels with strong participation of all actors.
- Continue to document and report on the situation for the areas in which CARE works
- Scale up the WASH distributions to improve access to clean and sufficient water.
- Scale up health and hygiene education to help prevent waterborne disease and other disease outbreak and if required consider health service provision
- Incorporate lessons learned from 1997/8 into the planning and strategies for this response.