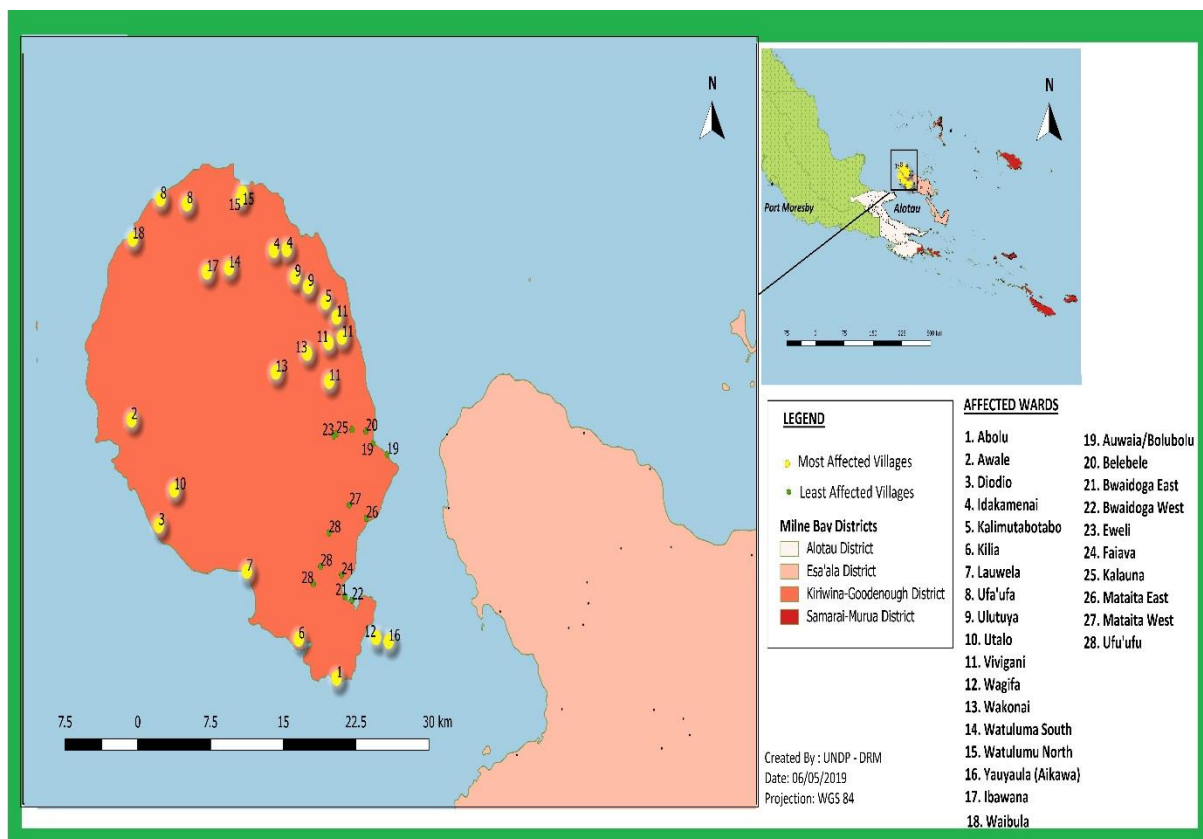


# Impacts of Cyclone Trevor on Goodenough Island, Milne Bay Province

## Background

- A tropical storm (later named Cyclone Trevor), passed over Goodenough Island in the Milne Bay Province on the 15-16 March triggering Strong Winds, Flood and Landslide causing damages to house, food gardens, water, electricity, communication, education and health facilities including other basic infrastructure.
- The Island's, total population of over 27,000 people and divided into 28 wards were entirely affected. The areas hit by the strong winds, flood and landslide are mainly from Watuluma, Ufaufa, Diodio and Wagifa from the Western and the South Western part of the main Island<sup>1</sup>.
- The Initial Assessments were conducted by the Goodenough Rural Local Level Government Administration on the 19 – 22 March following the disaster. This report was verified by the NAST team by conducting interviews and focus group discussion with the Provincial Administrator and the Disaster Coordinator in Alotau as well as focus group discussion with key informants in Ufa'ufa which is one of the most affected Ward on the Island. The team also had a discussion with the Goodenough Rural LLG Area Manager and his team after visiting the disaster affected sites.

## Map of the affected area



<sup>1</sup> The details of the villages affected are listed in the full report from the Goodenough Rural Local Level Government.

## **Situation Overview**

Following Cyclone Trevor that impacted Goodenough Island, the PNG Joint Interagency Needs Assessment Team (NAST) comprised of NDC, UNDP, FAO and IOM were deployed to verify and confirm the situation and the current needs as reported by Milne Bay Provincial Disaster Office. The team led by NDC with the support from Milne Bay Provincial Disaster Office was deployed on the 01 – 04 May 2019. The team confirmed that the total population of 33, 704 people (7, 230 Households) of which 591 houses were partially damaged and 463 houses fully damaged. These people remain affected but slowly recovering from the disaster as evident in people rebuilding shelter and replanting food gardens and at the same time resorting to famine food. The priority needs as confirmed during the visit are Food, Water, Sanitation and Hygiene, Education, Shelter and Health and Nutrition.

Ufaufa Primary School was affected by the strong winds causing damages to the 3 x permanent and 2 x semi-permanent staff houses, curriculum materials, electricity and main pipe that pipe water from the nearby water sources to the school benefitting 236 students and teachers. According to the Head Teacher Mr Job Tiwen, the classes from grades 3 – 8 have not resumed following the disaster until the week of the 29 April when grade 8 was recalled resuming classes. The school has commenced work on rebuilding the staff houses and classrooms within its capacity but could not complete what it has started due to lack of funds and materials. Even the parents and citizens of the school cannot be able to assist as they are busy rebuilding their homes. Other schools in the area that were affected are Waibula Community School that has 1x permanent double classroom that was destroyed by the string wind while Yauyaula Primary School experienced destruction of 1 x permanent teachers house as well as 2 x classrooms at Iawana Elementary School<sup>2</sup>.

It is estimated that over 20% of food gardens have been totally and partially destroyed by the cyclone (strong winds, flood and landslide), the people are resorting to young banana blown to the ground by the wind. In some parts of the Island, they are feeding on this whist in others they have started to feed on famine foods. There was indication that in some parts of the Island, they have begun to replant new gardens of food crops. However, it is most likely that they will feed on the famine food until the current crops that are being planted are ready to harvest. This will take more than six months as most of the crops they are replanting are not early maturing varieties. With the dry conditions experienced in the area, the people will be more vulnerable to hunger. This is the time when people will really need the food while waiting for the newly planted gardens to be ready for the harvest. It is also anticipated that there will be high absenteeism in school among the children as a result of lack of food. At this time, people are feeding on the rice that was delivered during relief, but this seems to be insufficient because a 10 Kilogram bag of rice is shared between 3 families which is way below the minimum requirements of standard food basket. Fish ponds on the island were reported to have been destroyed by flooding. Before the disaster, women have never thought so much about looking for food but after the disaster, their chores have been doubled as they are pressured to look for other alternative means and ways for food to feed their families.

Among this was the Ufaufa and Yauyaula Aid Posts. Ufaufa Aid Post have no lighting system and has ran out of essential antibiotics such as amoxicillin, anti-malarial drugs, among others following the

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<sup>2</sup> This is covered in the full report from the Goodenough Rural Local Level Government.

disaster while Yauyaula Aid Post on the other hand experienced damages to the staff houses. In addition, a semi – permanent church building at Kilia Ward was destroyed by the strong winds. The main water source that the people of Ufaufa rely on is a river. The river has been contaminated with mud, debris of tree branches and leaves making it very unpleasant and stinky and not recommended for human consumption. Heavy rains cause hygiene and sanitation issues with human wastes from the pit toilets overflowing that makes the communities more vulnerable to the disease outbreak.

After the disaster, there has been an increase in the number of diseases such as diarrhoea, dysentery, malaria, pneumonia and skin diseases. Malaria cases has resulted in one patient being resistant to anti-malaria drug (Mala 1). According to Community Health Worker Mr Lawrence Lowa, the malaria cases at Ufaufa and Aikwa has increased from less than 100 per month to 300 cases per month. This is now a concern at this stage because a lot of children and women will be severely affected as a result of shortage of drugs at the Aid Post. In addition, there were 2 deaths recorded as a result of water borne diseases and starvation. Mr Lowa further added that he is unsure as to when he is expecting new medical supplies from Alotau because Watuluma Health Centre that provides drugs to the Aid Post has also ran out of drugs. It will take two months for the medical drugs supply to reach Watuluma and Ufaufa respectively from Alotau.

## Impacts

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**Table A:** Most Affected Areas (that need are in need of food relief supply and seedlings, clean and safe drinking water, Medicine and Health Care and Building Materials etc)

Areas Affected	# of H/Holds	# of Adults	# of Children	Total
Ufa'ufa	267	675	573	1,248
Watuluma North	150	470	386	856
Ibawana	145	323	395	718
Yauyaula(Aikawa)	92	213	325	538
Watuluma South	168	452	315	767
Diodio	391	985	1,026	2,011
Utalo	287	759	796	1,555
Awale	190	424	367	791
Lauwela	297	684	1,091	1,775
Kilia	432	948	1,034	1,982
Abolu	280	626	619	1,245
Wagifa	346	1,066	528	1,594
Idakamenai	249	618	565	1,183
Ulutuya	323	671		830
Kalimutabotabo	167			787
Vivigani	370			1,937

Wakonai	198			691
<b>TOTAL</b>	<b>4,422</b>	<b>8,914</b>	<b>8,020</b>	<b>20,818</b>

**Table B:** Less Affected Areas (where food supply and planting materials are needed)

Areas Affected	# of H/Holds	# of Adults	# of Children	Total
Bwaidoga East	492			2,081
Bwaidoga West	197	135	492	800
Eweli	234			1,028
Faiava	333			1,282
Ufu'ufu	395			1,964
Mataita West	426			1,994
Kalauna	301			1,589
Belebele	140			779
Mataita East	144			625
Auwaia/Bolubolu	146			743
<b>TOTAL</b>	<b>2,808</b>			<b>12,885</b>

Based on the extend of the damages caused by the cyclone, the most affected areas listed in the Table A above be given the priority over the less affected areas listed in Table B.

### **Responses and Funding**

As of 04 May 2019, the local Member for Kiriwina Goodenough Mr Douglas Tomuriesa provided support to the villages affected<sup>3</sup>. The Goodenough Rural Local Level Government provided food supplies to the 250 households. Apart from that, the Milne Bay community in Port Moresby supported through the Catholic Diocese of Alotau provided food to the Students of Watuluma Secondary School. A nearby school from Kiriwina provided store food and yams as well. It is noted that the support provided was insufficient to meet the needs of all the people affected by the disaster.

### **Humanitarian Response**

#### **Education**

##### **Needs:**

- Rebuilding/Maintenance of 5 x Staff Houses at Ufa'ufa Primary School, 1 x Permanent staff house at Yauyaula Primary School, 1 x permanent double classroom at Waibula Primary Schools as well as 2 x classrooms at Ibwana Elementary School
- School curriculum and learning materials
- 2 x 9000 Litres Water Tanks for the teachers and students at Ufa'ufa Primary School

<sup>3</sup> The support provided by the Local MP has not been documented and shared with the Provincial Disaster Office for information and records.

- Rebuilding and reconnection of electricity for Ufaufa Primary School
- Awareness on Nutrition, WASH, DRR and Child Protection

**Response:**

- At this point in time, there is no response on the needs identified above apart from what each of the schools has managed to do repair and maintenance of disturbed infrastructure based on the local capacity.
- The NAST provided 100 disaster awareness information flyers/pamphlets on different hazards to Ufa'ufa Primary School.

## **Water, Sanitation and Hygiene**

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**Needs:**

- Establish clean drinking water for the communities for Ufa'ufa by connecting the damaged water pipes from the river source to the nearby communities, Primary School and the Aid Post<sup>4</sup>
- Continuous Water, Sanitation and Hygiene Promotion Awareness emphasizing on people having access to clean safe drinking water, Hygiene and Sanitation in the communities

**Response:**

- Awareness on Water, Sanitation and Hygiene Promotion was carried out in the community by the Community Health Worker (CHW) and the established committee. There are plans for follow up awareness in the affected communities

## **Health and Nutrition**

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**Needs:**

- Basic Drugs for the Aid Posts and Health Centers
- Public Health Awareness due to the increase in the number of Water borne diseases, diarrhea, pneumonia and malaria cases
- Safe Drinking Water and Key WASH Messages to the affected communities using an integrated community health outreach activities
- Counselling and Psychological First Aid to the Health Workers and Women under stressed
- Screening of malnutrition at community level for early case identification and referral treatment
- Distribution of essential nutrients for the children
- Providing skilled training to volunteers on SAM and on infant and young child feeding

**Response:**

- Management of Water Borne Diseases, diarrhea, pneumonia and malaria cases at the nearby Aid Posts and Health Centers
- Public Health Awareness on the reduction of water borne diseases, diarrhea, pneumonia and malaria cases

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<sup>4</sup> Rain water harvesting can be considered for Schools, Aid Posts and Health Centre while Gravity Fed & Well Water System and be considered for the affected communities.

## Shelter

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### Needs:

- Maintenance and reconstruction of Education (classrooms, staff houses etc) and Health (staff houses) facilities damaged/destroyed by the wind
- Provision of basic building tools (nails, hammers, saws etc)
- Identify and strengthen safe shelter with necessary light and WaSH facilities

### Response:

- At this point in time, there is no response on the needs identified above

## Food Security & Livelihoods

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### Needs:

- Affected communities need food supply for at least the next 3 months
- Affected communities will need seeds and planting materials early maturing crop varieties of both staple and vegetables

### Response:

- The Goodenough rural local level Government provided food supplies to the 250 households.
- The Catholic Church in Alotau through the Missionary Sisters of Immaculate (MSI) at Watuluma Provided food to the Students of Watuluma Secondary School
- the local Member for Kiriwina Goodenough Mr Douglas Tomuriesa provided support to the villages affected
- The Goodenough LLG cluster schools supplied 11 baskets of garden food to support Ufa'ufa Primary School
- Families and relatives in town have supported in sustaining the community for the period of two months

## Protection

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### Needs:

- Ensure targeted response reach the most vulnerable people such as women, children, elderly and people living with disabilities
- Awareness on DRR including local hazards and their mitigation measures

## Challenges

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The main challenges identified are:

- Accessibility – the areas affected far apart from each other and can be accessible by boats and dinghies only.
- The logistics is very expensive in terms of fuel and transportation
- Unfavorable weather conditions hampering quick assessment, resource mobilization and response
- Communication remains a major problem. The only digicel tower that served Goodenough Island and nearby islands was destroyed during the strong wind.

- There is no established Ward Disaster Committee as such that people lack so much knowledge in disaster preparedness, prevention and mitigation

## Recommendations

### Food Security & Livelihood

Immediate Needs	Budget	Assistance Required From
<p>Immediate supply of food relief and seedlings/early maturing crops for the next 3 months to 7, 230 Households (33, 704 people) who need food.<sup>5</sup></p> <p>Food supply The minimum required food items needed per daily intake are: rice 400g, tin fish 60g, oil 25g, sugar 15g and iodized salt 5g</p> <p>Seeds/Planting Materials The recommend food crops are corn (open pollinated seeds), bean, pumpkin and sweet potato. Yams, banana and cassava should also be considered as they are drought tolerant crops.</p>	<p>K11,583,060.00</p> <p>K60,000.00</p>	<p>National Government through NDC/Development Partners and Donors</p>
<p>Milne Bay Provincial Disaster Office to raise awareness for the local communities who were not affected by the disaster to mobilise local food (yams, bananas, seedlings etc) to support the people affected by disaster</p>	<p>K5,000.00</p>	<p>Provincial Disaster Office</p>
<p><b>Long Term Needs</b></p> <p>In terms of Livelihood, the crops such as cocoa, coffee, beetle nut trees, coconuts and sago palm including timber that are often sold for cash have been totally and partially destroyed.</p>	<p>K5,000.00</p>	<p>National Government</p>

### Water and Sanitation

Immediate Needs	Budget	Assistance Required From
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<sup>5</sup> Refer to Annex 4 for the break up and other details.

Improve/rehabilitate existing water sources	K60,000.00	Development Partners and Donors
Continuous Educational Awareness on Safe water and basic hygiene promotion	K 2,000.00	National and Provincial Government through Department of Health, WHO and IOM
<b>Long Term Needs</b>		
Awareness on Toilet facilities should be built away from water sources to prevent underground drainage contaminating water	K10,000.00	Provincial Disaster Office/IOM
Establish sustainable water source designs such as water wells as early preparedness mechanisms.	K5,000.00	Provincial Disaster Office/IOM and Development Partners
Promote strong cohesive community participation in maintaining environmentally friendly water, sanitation and hygiene program.	K5,000.00	Provincial Disaster Office/IOM and Development Partners

#### Education

<b>Immediate Needs</b>	<b>Budget</b>	<b>Assistance Required From</b>
School curriculum materials (text books) for the Elementary and Primary School Students	K50,000.00	National Department of Education and UNICEF
<b>Long Term Needs</b>		
Rebuilding of 3 Permanent and 2 Semi-permanent teachers' houses at Ufa'ufa Primary School, 1 x Double Classroom at Waibula Community School, 1 x Permanent Teachers House at Yauyaula Primary School. <sup>6</sup>	K 880,000.00	National Government

#### Shelter

<b>Immediate Needs</b>	<b>Budget</b>	<b>Assistance Required From</b>
Tools such as nails, hammers, saws, spades, knives for rebuilding of 1,054 homes destroyed by the cyclone <sup>7</sup>	K144,187.00	National Government/Development Partners and Donors

<sup>6</sup> The costs of rebuilding of these staff houses and classrooms are as per the Assessment report from Goodenough Rural Local Level Government

<sup>7</sup> Refer to Annex 4 for the break up and other details.



<b>Long Term Needs</b>		
Identify and strengthen safe shelter with necessary light and WaSH facilities	K25,000.00	National Government/Provincial Disaster Office/IOM and Development Partners

### Health

<b>Immediate Needs</b>	<b>Budget</b>	<b>Assistance Required From</b>
Supply of medical drugs such as anti-malarial drugs, Paracetamol, Antibiotics, Albendazole, vitamins (tablets) for children etc.	K50,000.00	National/Provincial Health/Development Partners and Donors
Improve lighting system for Ufa'ufa Aid Post	K 5,000.00	National and Provincial Government/WHO
Public Health Awareness at the community and household level	K 2,000.00	Provincial Health/WHO
<b>Long Term Needs</b>		
Rebuilding of staff house at Yauyaula Aid Post	K120,000.00	NDC through Department of Health

### Basic Infrastructure i.e Communication

<b>Immediate Needs</b>	<b>Budget</b>	<b>Assistance Required From</b>
Reinstallation of Digicel Tower	K25,000.00	National Government

### Protection

<b>Immediate Needs</b>	<b>Budget</b>	<b>Assistance Required From</b>
Ensure targeted response reach the most vulnerable people such as women, children, elderly and people living with disabilities	K5,000.00	Provincial Disaster Office and IOM
Awareness on Disaster Risk Reduction	K5,000.00	Provincial Disaster Office and IOM
<b>TOTAL</b>	<b>K2,086,000.00</b>	

The NAST team highly recommended that the support to the affected communities should go through the Milne Bay Provincial Disaster Office.

## Budget

Description	Total Costs	Remarks
Food Security and Livelihood	PGK 11,648,060.00	
Water, Sanitation and Hygiene	PGK 82,000.00	
Education	PGK 930,000.00	
Shelter	PGK 169,187.00	
Health	PGK 177,000.00	
Communication	PGK 25,000.00	
Protection	PGK 10,000.00	
Logistics	PGK 486,000.00	
<b>Total</b>	<b>PGK 13, 527,247.00</b>	

This report was put together by the NAST Team Members on mission namely:

- |                          |             |      |
|--------------------------|-------------|------|
| 1. Mr Andrew Oaego       | Team Leader | NDC  |
| 2. Ms Helmtrude SikasIha | Team Member | FAO  |
| 3. Ms Gracia Moliola     | Team Member | IOM  |
| 4. Mr Michael Sembenombo | Team Member | UNDP |
-

## Photos



**Above:** Focus group discussion with the staff of Ufa'ufa Primary School, Aid Post and members of the community



**Above:** Staff houses at Ufaufa Primary School destroyed by the strong winds

**Below:** Rebuilding of houses destroyed by the strong winds at Ufaufa Primary School



**Below:** Damages caused by the wind



## Annexes

### Annex 1: Mission Terms of Reference

#### Terms of Reference

##### Background

- A tropical storm (later named Cyclone Trevor), passed over Milne Bay province 15-16 March, causing damage to house and home gardens.
- Goodenough Island, with a total population of approximately 27,000 people and divided into 28 wards, was especially affected. Provincial authorities say 15,000 people in 14 wards remain affected, with priority needs for food, WASH, shelter and health/nutrition.
- The Catholic Church, Kiriwina Goodenough District Development Authority, and local MP, Douglas Tomuriesa, provided emergency food assistance in the weeks following the storm, but it was insufficient to meet the needs of all who were affected.
- The island is beginning to experience El Niño-related dry conditions, which is exacerbating the ability to recover home gardens and is also impacting community WASH and health needs.
- Public access to Goodenough Island is limited to a ferry service with a total capacity of 12 tons. Logistics is costly and a major challenge in accessing all the atoll communities.
- The Provincial Disaster Centre has compiled assessment reports covering Goodenough Island and other atolls affected by the current dry conditions. He will travel to Port Moresby on 5 May to submit the report to NDC seeking funding assistance.

##### Objectives

- Using the NDC's standardized assessment tool as a guide, conduct a joint rapid assessment of the humanitarian needs of communities in Goodenough Island, Milne Bay.
- Familiarize assessment team members with NDC's standardized assessment tool.
- Coordinate with provincial authorities and other provincial stakeholders.
- Contribute to the consolidation of a final assessment report and recommendations.

##### Mission Members

##### Agency/Organization

##### Mobile

Andrew Oaego – lead

NDC

7219 7731 (cell)

Helmtrude Sikas-Iha

FAO

7444 3121 (cell)

000000000000000000 (sat)

Gracia Moliola

IOM (Alotau)

7322 9485 (cell)

Steven Tobessa

Milne Bay PDC (Alotau)

7116 2447 (cell)

Michael Sembenombo

UNDP

7102 6298 (cell)

000000000000000000 (sat)

## Annex 2: Mission Itinerary

Date	Activity	Remarks
<b>Wed 1 May</b>	Travel to Alotau, Milne Bay	PX154 Depart POM 0910H Arrive GUR 1000H Ground transport to PDC provided by IOM Driver Sai Kamnanaya/IOM
	Courtesy Call to Milne Bay Provincial Administrator Coordination and Planning meeting with Provincial Disaster Coordinator and Team Briefing	Steven Tobessa 7116 2447
	Overnight in Alotau	Alotau International Hotel
<b>Thu 2 May</b>	Travel to Goodenough Island	1-hour overland drive from Alotau to East Cape; 2-hour ride in 12-passenger boat owned and operated by PDC. Police escort provided.
	Field assessment in 4 most-affected wards Team Debrief	Approximately 4 hours. Local transportation arranged by PDC.
	Overnight in Goodenough Island	PDC to make arrangements
<b>Fri 3 May</b>	Travel to Alotau	2-hour ride in 12-passenger boat owned and operated by PDC to East Cape; 1-hour overland drive to Alotau.
	Debrief meeting with provincial authorities	Steven Tobessa 7116 2447
	Overnight in Alotau	Alotau International Hotel
<b>Sat 4 May</b>	Travel to Port Moresby	PX155 Depart GUR 1030H Arrive POM 1120H

### 1. Additional Mission Information

#### 1. Safety and Security

- UN staff are responsible for obtaining security clearance through the UNDSS TRIP system.
- Sea travel will need to be on a sea-worthy vessel with the necessary personal floatation devices.

- UN staff must carry a satellite phone throughout the mission.
- Wet-weather attire and footwear suitable for walking on uneven terrain and the use of mosquito repellent and sunscreen is recommended.

## 2. Accommodation

- Participants responsible for reserving overnight accommodations at Alotau International Hotel for 1 and 3 May.

### Annex 3: Names of Key People Interviewed

Names	Position Titles	Organization
Ashan Numa	Provincial Administrator	Milne Bay Provincial Administration
Michael Viula	Deputy Provincial Administrator	Milne Bay Provincial Administration
Steven Tobessa	Provincial Disaster Coordinator	Milne Bay Provincial Administration
Enoka Waukosi	Area Manager	Goodenough Rural LLG
Manoa Noah	a/RLLG President	Goodenough Rural LLG
Smith Samson	a/District Planner	Goodenough Rural LLG
Job Tiwen	Head Teacher	Ufa'ufa Primary School
Lawrence Lowa	Community Health Worker	Ufa'ufa Aid Post

Community focus groups of men and women from Ufaufa and Bolubolu villages were also interviewed.

### Annex 4: Budget Items Break Up

#### 1. Food

##### Roots Rice

7,230 Household = 1x20Kg/Unit for 2 Weeks = 7,230 bags/2 weeks

Total 20 Kg bags for 12 weeks (3 months) = 7,230 bags x 12 weeks = 86,760 bags

Cost for 1 x 20Kg Roots Rice in Alotau = K71.00

Cost for 86, 760 bags = K71.00x86,760 = **PGK 6, 159,960.00**

##### Flour

7,230 Household = 1x10Kg/Unit for 2 Weeks = 7,230 bags/2 weeks

Total 10 Kg bags for 12 weeks (3 months) = 7,230 bags x 12 weeks = 86,760 bags

Cost for 1 x 10Kg Plain Flour in Alotau = K50.00

Cost for 86, 760 bags = K50.00x86,760 = **PGK 4, 338,600.00**

##### Cooking Oil

7,230 Household = 1x bottles of 2Litres/Unit for 2 Weeks = 7,230 x bottles of 2Litres/2 weeks

Total 2 litres bottle for 12 weeks (3 months) = 7,230 bottles x 12 weeks = 86,760 bottles of 2Litres Cooking Oil

Cost for 1 x 2 Litres Bottle of Cooking Oil in Alotau = K12.00

Cost for 86, 760 Bottles of 2 Litres Cooking Oil = K12.00x86,760 = **PGK 1, 041,120.00**



### **Salt**

7,230 Household = 1x 1kg/Unit for 1 month = 7,230 packets /1 month

Total 1 kg packets for 3 months = 7,230 bottles x 3 months = 21,690 packets of 1 Kg Salt

Cost for 1kg packet of salt in Alotau = K2.00

Cost for 21, 690 Packets of 1 Kg Salt =  $K2.00 \times 21,690 =$  **PGK 43,380.00**

The Total Food Supply for the next 3 months excluding the logistics cost is **PGK 11, 583,060.00**

## **2. Shelter (Building Tools)**

### **Nails (3 inches)**

1,054 Households = 3 packets.

1,054 Households x 3 packets = 3,162 packets of 3 inches of nails

Cost for 1 packet in Alotau = K3.90

Cost for 3,162 packets =  $K3.90 \times 3,162 =$  **PGK12,331.80**

### **Nails (4 inches)**

1,054 Households = 2 packets each

1,054 Households x 2 packets = 2,108 packets of 4-inch nails

Cost for 1 packet in Alotau = K3.90

Cost for 2,108 packets =  $K3.90 \times 2,108 =$  **PGK8,221.20**

### **Nails (5 inches)**

1,054 Households = 1 packet

1,054 Households x 1 packets = 1,054 packets of 5-inch nails

Cost for 1 packet in Alotau = K3.90

Cost for 1,054 packets =  $K3.90 \times 1,054 =$  **PGK4,110.60**

### **Hammers**

1,054 Households = 1 piece

1,054 Household x 1 piece = 1,054 pieces

Cost of 1 hammer in Alotau = K15.30

Cost of 1,054 hammers =  $K15.30 \times 1,054 =$  **PGK16,126.20**

### **Saws**

1,054 Households = 1 piece

1,054 Household x 1 piece = 1,054 pieces

Cost of 1 saw in Alotau = K43.40

Cost of 1,054 saws =  $K43.40 \times 1,054 =$  **PGK45,743.60**

### **Spades**

1,054 Households = 1 piece

1,054 Household x 1 piece = 1,054 pieces

Cost of 1 Spade in Alotau = K31.90

Cost of 1,054 Spade =  $K31.90 \times 1,054 =$  **PGK33,622.60**

**Bush Knives**

1,054 Households = 1 piece

1,054 Household x 1 piece = 1,054 pieces

Cost of 1 Bush Knife in Alotau = K22.80

Cost of 1,054 Bush Knife = K22.80 x 1,054 = **PGK24,031.20**

The total cost for rebuilding the shelter is **PGK 144,187.20**

**3. Logistics Cost**

<b>Description</b>	<b>Unit Cost</b>	<b>Total</b>	<b>Comments</b>
Hire of Boats from Alotau to 28 affected locations	K4000.00/day hire	K4000.00 x 6x28 = K336,000.00	
PDC Operational Costs	Lumpsum	K150,000.00	
<b>TOTAL</b>		<b>PGK 486,000.00</b>	