

2012 JANUARY FLOOD REPORT



(Moto Bridge, Ba)

Prepared by:

NATIONAL DISASTER MANAGEMENT OFFICE
(Ministry of Provincial Development & National Disaster Management, Suva, Fiji)

February 2012

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1.0 Executive Summary

- 1.1 A “Declaration of a State of Natural Disaster for Parts of the Western Division” was proclaimed by Cabinet, and gazetted on 25 January, 2012, for a period of 15 days (refer **Appendix 1**). The decision by Cabinet was based on the advice of the National Disaster Council. The declaration was the result of adverse weather conditions that prevailed over the Fiji Group and which caused severe flooding in certain parts of the Western Division. The continuing wet weather condition hindered disaster response and relief efforts hence, at the expiry of the initially declared disaster period on 08 February, a decision was reached by Cabinet for the extension of the disaster period by another 10 days (refer **Appendix 2**) to ensure the better coordination of governments response and relief work, to allow for the development of rehabilitation plans, and to ensure that necessary measures were put in place to guard against the possible outbreak of flood related diseases.
- 1.2 The trough of low pressure brought heavy rain, and with the weather forecast predicting the persistence of rain, together with fast rising water levels in major rivers, the National Disaster Management Office deemed it necessary to activate the National Emergency Operation Centre (NEOC) in Suva and Western Division Emergency Operation Centre (DEOC) based at the Officer of the Commissioner Western Division on Saturday 21 January, 2012. The declaration by Cabinet was announced on the following Tuesday, by which date, District Emergency Operations Centre (EOC) in Nadi, Ba, Tavua and Rakiraki were in full operation.
- 1.3 The National Emergency Operation Centre (NEOC) coordinated the whole disaster operations and was guided by the “Operations Order” (refer **Appendix 3**) which was development, and endorsed by the National Disaster Council, specifically to facilitate and streamline disaster operations. The “Operations Order” was premised on the operations guiding principles advocated by the National Disaster Controller. These are *Speed* (in responding to the needful), *Cooperation* (internally and with external stakeholders) *Communication* (to ensure better coordination), *Economise* (minimise costs), *Concentration* (focus efforts where much needed), *Flexibility* (allow for effective response to arising situations) and *Accountability* (operate within the bounds of regulations).
- 1.4 From the commencement of operations, the District EOC provided eight hourly Situation Reports (SITREPS) to the DOEC which collated those reports and in turn forwarded them to the NEOC. This allowed the NEOC to assess and monitor the situation and provide briefings to the National Disaster Council, chaired by the Minister for Provincial Development and National Disaster Management Office, to provide public advisory to affected areas, and more importantly to attend to the needs of people particularly those that have been displaced and had sheltered in Evacuation Centres.
- 1.5 This report therefore presents a summary of the operations together with the assessment of the damages sustained from the heavy rain and flooding, and associated incidences such as landslides. The report also details the response and relief arrangements effected to assist citizens and communities affected. Agencies and other arms of government had been working together and with external partners to develop rehabilitation and reconstructions plans and device implementation strategies to bring normalcy of life back to the affected areas as soon as possible. These are also factored herein. Some ways forward in terms of disaster response and disaster mitigation are also offered in the report.

2.0 Chronology of Significant Events

<i>Friday 20th Jan 2012</i>	<ul style="list-style-type: none"> Adverse weather condition that brought heavy rain and flooding prompted the National Disaster Management Office to start monitoring the weather situation.
<i>Saturday 21st Jan 2012</i>	<ul style="list-style-type: none"> Prevailing weather conditions necessitated the activation of the National Emergency Operation Centre (NEOC) in Suva and the Divisional Emergency Operation Centre (DEOC) in the West.
<i>Tuesday 24th Jan 2012</i>	<ul style="list-style-type: none"> The NEOC and the DEOC commenced full operation with reinforcements from government agencies and the disciplined forces and continued monitoring of the weather situation throughout the full 24 hours. District Emergency Operation Centres in Nadi, Ba, Tavua and Rakiraki also proceeded to full operation. People started sheltering in Evacuation Centres and Disaster response mechanisms activated.
<i>Wednesday 25th Jan 2012</i>	<ul style="list-style-type: none"> National Disaster Council convened to consider a submission from the Commissioner Western Division for the declaration of parts of the Western Division as Disaster Areas. Declaration of Natural Disaster for Parts of the Western Division announced by Cabinet and Gazetted. Massive landslide at Tukuraki Village in Yakete, Ba damaged a house claiming the lives of a family of four.
<i>Thursday 26th Jan 2012</i>	<ul style="list-style-type: none"> Development of "Operations Order".
<i>Friday 27th Jan 2012</i> <i>Tuesday 7^d Feb 2012</i>	<ul style="list-style-type: none"> Prime Minister met with the National Disaster Council and was briefed on the disaster situation. "Operations Order" endorsed by the National Disaster Council, and implemented. Prime Minister briefed at the National Disaster Council meeting on the disaster response and relief arrangements, and the outcomes of the damage assessments.
<i>Thursday 9th Feb 2012</i>	<ul style="list-style-type: none"> Extension of Declaration Period for a further ten days announced by Cabinet.
<i>Sat 18th Feb 2012</i>	<ul style="list-style-type: none"> Expiry of Disaster Period

3.0 Introduction

- 3.1 The 2012 floods began on the 21st of January and ended on the 12th of February after a trough of low pressure causing heavy rain was experienced over the Western parts of the Fiji. At the height of the flood a total of 64 evacuation centre's were active, accommodating 4,561 people.
- 3.2 Damages were also caused to infrastructure, agricultural sector and public utilities. Nadi, Lautoka, Ba, Tavua and Rakiraki were the worst affected districts where damage concentrated. The total population of those districts, and who were, in some way affected by the floods, is 178,153.
- 3.3 The purpose of the report is to present the mode of operations from 22nd January to 19th February 2012. The results of the Damage Assessments conducted are also highlighted together with the implementation of the Logistics and Emergency Relief Operational plans.
- 3.4 The report also highlights the assistance rendered by the Development Partners, Private Sector and Civil Society. This included the attachment of two technical support staff providing expertise in logistics coordination and Water and Sanitation Health (WASH) from the UNDP and UNOCHA
- 3.5 Finally the report presents the Financial Report of the Emergency Relief Operations and the details of the Strategies for Rehabilitation and Reconstruction, and propose Ways Forward to better respond to, and mitigate natural disasters.



4.0 Situation Reports

- 4.1 There were a total of seventy one (71) Situation Reports issued by the NEOC from Saturday 21st January, 2012 to the expiry of the disaster period on 18th February, 2012. The situation reports, which were issue on eight hourly basis, covered the following areas; the latest weather bulletin and update, relief assistance, food relief ration distribution, casualties and the situational updates. The situation reports were distributed to the relevant government departments via electronic mail in line with the Standard Operation Procedures. Situation Report was issued on an eight hourly basis from the NDMO.
- 4.2 Areas of focus in the situation reports were Education, Health, Agriculture and Public Utilities which included water, electricity and telecommunications. Some key areas of concern that frequently appeared in the situation reports were the prevailing adverse weather condition, sanitation, cleaning up campaign and evacuation centres. The number of evacuation centres continued to fluctuate in the reporting period.
- 4.3 A major challenge faced when compiling the situation report were the timely collation of data and relevant information from the district to the divisional level. This was crucial for decision making at the national level. The use of mobile telephones and electronic mail eased communication between EOCs.

5.0 Damage Assessments

- 5.1 The damage assessments for the 2012 Flood is tabulated below. The table details the damage costs estimated by government ministries and amounts to **\$45,790,618.00** while other agencies, including government owned entities, estimated their costs at **\$4,256,726.00**.

NO	MINISTRY/SECTORS	DATE OF EST	ESTIMATES (\$)
1	Ministry of Transport, Works & Public Utilities	31/1/2012	18,993,592.00
2	Ministry of Sugar	26/1/2012	16,342,000.00
3	Ministry of Primary Industries	31/1/2012	7,242,988.00
4	Ministry of Education	31/1/2012	1,789,038.00
5	Ministry of Health	26/1/2012	298,000.00 (Revision in the cost of damage to Lautoka Dental Clinic & Loma Nursing Station)
6	Ministry of Provincial Development & National Disaster Management	23/2/2012	\$1,125,000.00 (Cost estimate is as follows : 64 houses x\$15,000.00 and 33 houses x \$5,000.00)
	Subtotal		\$45,790,618.00
6	Fiji Electricity Authority	26/1/2012	183,000.00 (CWD Report page 137)
7	Telecom Fiji Limited		Damage estimate not received
8	Water Authority of Fiji		1,630,000.00
9	Housing Authority		70,026.00
10	Municipal Councils		2,373,700.00
	Subtotal		\$4,256,726.00
	GRAND TOTAL		\$50,047,344.00

6.0 Relief Arrangements

6.1 *Relief Operations*

Evacuation centers were activated from Monday 23rd January, 2012 through Public Advisories issued from the National Emergency Operation Centre. Residents in low lying areas in Nadi, Ba, Tavua and Rakiraki were advised to move to higher ground due to rising flood levels in the area.

6.2 Churches, Church Halls, Schools, Community Halls and Village Halls were used as evacuation centres. Throughout the twenty five days of operation a total number of 64 evacuation centres were opened by the District Officers which accommodated a total of 4,561 evacuees. The table below list the number of ECs in the areas affected by the floods and the number of evacuees that were accommodated.

NO.	DISTRICT	DIV	SCHOOLS	ADULTS	CHILDREN	TOTAL
1	Ba	13	7	424	304	728
2	Lautoka	14	4	473	413	886
3	Nadi	24	6	973	651	1,624
4	Nadroga	7	0	276	229	505
5	Tavua	6	4	460	358	818
	TOTAL	64	21	2,606	1,955	4,561

Schools that were used for evacuation centres were the prioritised to be vacated as soon as practicable so as not to disrupt school programmes.

6.3 Cleaning Up Campaign

Heavy silt deposits and debris were major obstacles to the relief stage including the effort to return evacuees to their home. Environment and Health concerns needed to be addressed to guard against the possible outbreak of water borne and vector related diseases.

The last evacuation centre to be cleared and closed was the Lautoka Gimit Centre with a total of 147 evacuees, 100 adults and 47 children as at Saturday 17th February, 2012. The reason for this is that the last evacuees at the centre were the residents of Bila Settlement, one of the worst affected areas in Lautoka.



A positive development in the management of Evacuation Centers is the establishment of a register that captured the details and particulars of all evacuees including individuals and families. Evacuations Centres were now being closely monitored by the police personnel.

6.4 Ration Distribution

Emergency (food) rations were distributed in the Western division beginning from the 23rd of January. Food relief continued after the collection of damaged assessments on the Emergency (Food) Rations was distributed to the ECs, villages and settlements in the affected areas.

The ration that were distributed included food items, clothing, footwear, blankets, water purification tablets and medical supplies. Apart from the water purification tablets and medical supplies all the other rations were



donated by business houses, exporters and civil society.

Emergency food and supplies distribution was undertaken by the Western Divisional and District Emergency Operation Centres.

Assistance received from the Fiji Red Cross Society, Adventist Development and Relief Agency and the Global Compassion, the humanitarian arm of the Christian Mission Fellowship Church must be acknowledged contributed significantly to the relief efforts.

6.5 Logistics

6.5.1 The logistics of the Emergency Relief Operations focused primarily on delivering the right supplies to the right people at the right place at the right time and in the right quantity. Therefore during the initial stages of relief operation the Logistic team focused on capabilities in terms of resources provided by agencies and correctly identifying the people in the affected areas that needed relief assistance.

6.5.2 Initial assessments were been received therefore the Logistics team began planning to support the relief operations by mobilizing available stores, food rations, clothing, kitchen utensils to the forward operating bases. The details of the items that were donated and dispatched to the forward operating base is attached as **Appendix 4**.

6.5.3 The Logistic cell also assisted NGOs by transporting items required to assist flood victims to the various areas requested by the NGOs. This allowed us to obtain information on the content of the items and locations it was delivered, which was useful in planning our distribution plans.

6.5.4 Concurrent to the relief operation were clean up operations that required the logistic team to mobilize personnel in the Western Division and in Suva including equipments available. The French government offered their assistance by sending a surveillance aircraft to assist the agencies with the damage assessments. All the logistical arrangements for the mission were arranged by the Logistic Cell which included arrangements with Ministry of Civil Aviation, AFL, ATS and other agencies involved. The surveillance photos are attached as **Appendix 5**.

6.5.5 There were many challenges faced by the logistic cell however the major challenge faced was receiving accurate assessments to answer major logistical questions which include “*what is needed, how much is needed, where is it needed and when is it need?*”, however during the relief operation, assessments were slowly received and verification were done by officials from Suva.

6.6 Assistance from International Partners, Private Sector, NGOs and Civil Society

6.6.1 The first two countries to provide assistance were Australia and New Zealand. Relief funds offered by the two countries were granted to NGO’s viz-a-viz The Fiji Red Cross, Rotary International and the Adventist Development and Relief Agency. The first Pacific Humanitarian meeting was held exclusively with members of the pacific humanitarian team to highlight and capture the needs of the different sectors. A template was developed by members of a team including representatives of the United Nations Office for the Coordinating of Humanitarian Assistance (UNOCHA) and the National Disaster Management Office (NDMO). The outcomes of that meeting which reflected the relief assistance needs was tabled in the meeting of Heads of Foreign Missions in Fiji. The response of that request is given in detail at **Appendix 6**. At the same time commitments was made by other neighbouring

communities such as Tuvalu and Vanuatu while far north Russia also made personnel contribution to Fiji Red Cross Society. The total recorded contribution made was F\$ 2,566,382.17.

- 6.6.3 In the initial stages, and in the final reconstruction/rehabilitation assistance initiatives negotiated approximately \$4,772,610.32 in Fiji dollars was pledged.
- 6.6.4 As the key technical agency for health, the World Health Organization (WHO) focused on the provision of technical support and guidance on communicable disease control including vector borne diseases, food/water safety and environmental health. As the 'health cluster' lead, coordination was provided among the Ministry of Health and key partners including Fiji Red Cross, International Federation of the Red Cross, UNICEF and the United Nations Population Fund (UNFPA).
- 6.6.5 WHO support to the flood response included direct financial support to Ministry of Health in carrying out health assessment including personal protection equipment, an emergency generator, alcohol gel hand disinfectant and dispensers. Supplies and equipment already provided in-kind include: presence and absence test kits for bacteria in drinking water along with the companion "Keeping Your Drinking Water Safe Toolkits", drinking water testing and chlorination monitoring equipment, and rapid tests for dengue and leptospirosis.
- 6.6.6 UNOCHA worked closely with the NDMO to coordinate Pacific Humanitarian Team partners, including WHO, UNICEF, OHCHR, FAO, and key donors, for effective planning and resource mobilisation in support of the national flood-response efforts. In addition, at the request of the NDMO, OCHA supported information management and coordination in Ba district from the third week of the flood response.

6.7 **UNICEF RESPONSE TO THE FIJI FLOODS 2012**

WASH/Health

The water supplies to various parts of Western Division, and in particular the Ba area was adversely affected by the floods. UNICEF responded by giving to the Ministry of Health and the Fiji Red Cross Society WASH kits from the, AUSAID funded, prepositioned stocks were utilized to alleviate the immediate suffering of the people.

These included:

1	10ltr collapsible water containers	5,000
2	Water Purification Tablets 33mg pkt/50s	6,000
3	Protex soap	10,000
4	Oral rehydration salts 1Ltr formula 22.5g sachets x 1000/carton	30,000
	Flyers for Water Purification Tablets	5,000
	Emergency Helping Hands Flyers	1,000
	Emergency Pocket Guide (English)	10,000

TOTAL Estimated Cost so far =\$20,000.00 USD

UNICEF also responded to the NDMO request for support to WASH coordination, through the provision of one specialist deployed under contract between Red Cross Australia and UNICEF for 4 weeks.

EDUCATION

Following the floods many schools became Evacuation Centres. However, government quickly recognised the need to encourage householders to move back to their homes, or to other designated temporary Evacuation Centres. This enabled the Ministry of Education, with the Ministry of Public Works, to restore the school buildings in order to get the children back to school to minimise the long term effects of the flood on their education. UNICEF's donation to the Ministry of Education is tabulated below:

1)	School in a box (approx)	17	
2)	Recreational kits (approx)	41	
3)	ECD Kits (approx)	15	

Total Estimated Cost - \$20,000 USD

CHILD PROTECTION

Protection of women and children before, during and after both the emergency is paramount. Key messages in booklet form and flyers aim to address the issues for children and parents are being prepared. As well as addressing the immediate concerns, the IEC materials will also assist with on-going development work to mainstream protection and child protection in Fiji. Broader protection issues will involve other programs including health, HIV, Education messages.

COMMUNICATIONS

Following the floods in Northern and Western Divisions, the major health concerns raised by the Ministry of Health were for outbreaks of Leptospirosis, dengue fever and typhoid. As a result, a awareness campaign was immediately launched by Ministry of Health with radio spots developed and broadcast on major radio stations. The Ministry of Health requested financial and technical support to assist with the supplementation of this campaign as the situation progressed. As a result, UNICEF agreed to support funding of a mass media campaign in partnership with Fiji Broadcasting Corporation. Radio scripts have been developed around Leptospirosis, Dengue fever, and typhoid. The boiling water, hand washing, safe food and rubbish disposal as prioritized by the Ministry of Health. These are being broadcast on national radio through FBC's radio, with cross promotion through its television and print mediums respectively over a period of three months, with the possibility of extending through till December. Activities will be monitored with the assistance of FBC, Ministry of Health and UNICEF.

Media Campaign for Public Health (Radio, Television, Print).	\$24,000 USD
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- 6.8 Business Houses firms contributed significantly to the relief effort through cash donation directed to Prime Minister Relief Funds account. On one end, Social community organization completely come out in numbers in providing assistance by means of food items, clothing's and shelter materials that serves as an immediate relief for those seriously affected by the floods (see **Appendix 7**). Apart from the

tangible assistance provided, religious groups through social communities provided sincere psychological recesses through organized prayer meetings, joyful social entertainment and person to person counselling.

- 6.9 The local government (municipality) contributed in terms of deliveries of fresh rations to evacuees, providing accesses to public building and storage centers for relief areas. They extensively participated in the cleanup campaign co-ordinated through district and divisional office. To some extend the local government in co-operation government agencies notably the discipline forces RFMF, NFA and FPF who provided the much needed manpower for the cleaning up campaign in all major areas, especially in the devastated areas of flooding and landslides in the Ba, Nadi and Tavua provinces.
- 6.10 The private firms who contributed cash in kind also made an effort of providing food items, agricultural equipments and household accessories in quantities based on their capacity offer towards the NDMO and the Commissioner Western Logistics team that is bases in the western division (Lautoka FPO bulk store). A unit that is in control of distribution of relief supplies in the western division incorporated with the NGO effort based on the detail assessment made by the District officers in the area. Private firms also played a vital role in the movement of relief supplies and evacuation during the disaster when they provided their own firm vehicles and properties to be used or partial used during the emergency period.
- 6.11 Other government agencies namely Water Authority of Fiji, Fiji Development Bank and Reserve Bank agencies also provided extensive amount of cash donations as tabulated in the attached **Appendix 8**. The effort was not only seen in cash donation towards PMRHF but also in the direct assistance to people affected in the flood. Some direct assistance such as available of loan from FNPF for those who suffered in damaged structure (residential) and for crown lease holders who have lease rental to pay, where waived payments for more than two months depending on the devastation of their agricultural crops. Sincerely other agencies through their own programs have assisted those devastated from the flood in terms of seedlings, building materials, mechanical plants.etc.

7.0 Finance

7.1 Expenditure and Commitment for Flood Rehab Exercise as at 16/02/2012

National Emergency Operations Centre Expenses:

Admin Cost	-	\$2,730.50	
Fuel	-	\$2,667.00	
Refreshments	-	\$2,525.27	
Telecommunications	-	<u>\$126.00</u>	
Total Commitment & Expenditure	-		<u>\$8,048.77</u>

Western Division Expenses:

Admin Cost	-	\$5,774.11	
TV and Antenna for EOC	-	\$409.00	
Fuel	-	\$26,142.77	
RFMF Gas	-	331.90	
Ration	-	9,514.24	
Equipments	-	1,851.00	
Refreshments	-	<u>3,319.07</u>	
			\$15,016.21

Gift French Embassy	-	\$245.28
Gumboots	-	\$3,407.85
Hire of Equipment	-	\$489.90
Hire of Helicopter	-	\$2,950.00
Ration	-	\$16,450.84
Refreshments	-	\$6,438.10
Telecommunications	-	<u>\$2,290.19</u>
Total Commitments & Expenditure	-	\$79,614.25 (Figure as at 16/22/2012)

The total cost has increased to \$247064.00 as at 24th February 2012

7.2 **Donations to Flood Appeal – BSP Account # 4706578 - \$563,000.24**

<u>Date</u>	<u>Total Deposits</u>
27/01/2012	\$3,358.10
28/01/2012	\$270.00
30/01/2012	\$41,746.00
31/01/2012	\$9,383.30
01/02/2012	\$98,201.90
02/02/2012	\$62,383.75
03/02/2012	\$27,762.62
07/02/2012	\$6,118.05
08/02/2012	\$45,007.85
09/02/2012	\$39,736.24
10/02/2012	\$15,488.30
13/02/2012	\$133,114.98
14/02/2012	\$48,400.15
15/02/2012	\$1,336.00
16/02/2012	<u>\$30,693.00</u>
	<u>\$563,000.24</u>

Total Collected as at 16th Feb 2012 \$F563, 000.24

(Sum calculated from the balance brought forward against the current balance as at 16th Feb 2012)

8.0 Rehabilitation/Reconstruction

8.1 We are currently working on the Tropical Cyclone Tomas 2010 Housing Rehabilitation Programme planning to be completed

8.2 The estimated damage costs for flood 2012 stood at **\$50,047,344.00** Rehabilitation and reconstruction plans for these sectors are attached as **Appendix 9**.



8.2.1 Table 1 summarises the rehabilitation cost for the badly affected sectors within Government and Table 2 summarises the Rehabilitation cost for the other sectors including Municipalities, Fiji Electricity Authority, Telecom Fiji Limited, Housing Authority and Water Authority of Fiji, as these entities will finance their own rehabilitation programmes.

Table 1 - Rehabilitation Cost for the badly affected sectors within Government

NO	DISTRICT/MINISTRIES/SECTORS	DATE OF EST	ESTIMATES	REMARKS
1	Ministry of Works & Public Utilities	31/1/2012	18,993,592.00	<ul style="list-style-type: none"> Washed out approaches to culverts and bridges, landslides and re-surfacing of sealed and gravelled roads.
2	Ministry of Sugar	26/1/2012	16,342,000.00	<ul style="list-style-type: none"> To assist in the rehabilitation of crops, washed out approaches to culverts & bridges, Drainage clearance, Rail Bridge, Tramline and the cleanup & overhaul maintenance of Rarawai Mill.
3	Ministry of Agriculture	31/1/2012	555,739.16	<ul style="list-style-type: none"> For crops rehabilitation and livestock in the Western Division. LWRM Infrastructures maintenance and repairs Animal Health Production
	Ministry of Education	31/1/2012	754,500.00	<ul style="list-style-type: none"> For school repairs and maintenance, 13 schools in the Ba & Tavua corridor. 7 schools in Lautoka/Nadi/Yasawa. 4 schools in Ra and

4				<ul style="list-style-type: none"> Schools in Nadroga/Navosa.
5	Ministry of Health	26/1/2012	350,000.00	<ul style="list-style-type: none"> Construct retaining wall, due to landslide @ Loma Nursing Station in valley Road. Construct retaining wall for the Old Dental Clinic – Lautoka Hospital. Post Flood Response, Vector Control, Water & Hygiene Treatment, Disinfectant Spray, Food Condemnation, Health Promotion Works.
6	Ministry of Provincial Development & National Disaster Management	23/2/2012	\$1,125,000.00	<ul style="list-style-type: none"> Construction of destroyed and damaged houses - Nadi 2, Nadroga 10 and Ba 4
TOTAL			\$38,120,831.16	

Table 2 - ***Rehabilitation cost for the other sectors including Municipalities, Fiji Electricity Authority, Telecom Fiji Limited, Housing Authority and Water Authority of Fiji***

NO	OTHER SECTORS	DATE OF EST	ESTIMATES	REMARKS
1	Fiji Electricity Authority	26/1/2012	300,000.00	<ul style="list-style-type: none"> Maintenance and Repairs to network and substations Restoration works Labour and Contractors
2	Telecom Fiji Limited			<ul style="list-style-type: none"> Costs not available
3	Housing Authority of Fiji		70,026.00	<ul style="list-style-type: none"> Cost of damage properties 26 houses, 2 retaining walls and one community hall
4	Water Authority		9,209,000.00	<ul style="list-style-type: none"> Materials, plants and labour for Western and Northern division. For western major works for the Vaturu main
5	Municipalities		\$2,373,700.00	<ul style="list-style-type: none"> Lautoka City, Rakiraki, Ba and Nadi Town Council. Work involve roads, water/culverts, drainage, heavy silting.
	TOTAL		\$11,952,726.00	
	GRAND TOTAL REHABILITATION		\$50,073,557.16	

8.3 Rehabilitation and reconstructions plans submitted from main government sectors.

8.3.1 Agriculture

The Ministry of Primary Industries have put forward the following recommendations:

- Rehabilitation to only start when the silts on the fields dry out.
- Food security will remain the priority of the rehabilitation program
- Community outreach on sustainable, integrated farming practices should be encouraged.
- Land use and farm practice on sloping land will be closely monitored.
- Food ration distribution to be determined by the extent of damage sustained in respective tikina's.
- Rehabilitation programme will be closely monitored by field staff to ensure that all seedlings and planting materials supplied to affected farmers are planted.

These recommendations are made in relations to the amount of \$555,739.16 for rehabilitation to the primary industries sector.

8.3.2 Education

In the initial assessment findings 18 out of 26 schools that was identified to be damaged by the intensity of the flooding. The student's attendance in the affected area was reported to be low even after the arrangements of alternative schools were offered to the students of affected schools. Apart from infrastructure damages, teaching materials and student facilities were seriously damaged.

Schools were also used for Evacuation Centers; in the western division 52 schools were recorded as evacuation center for flood affected communities in the declared areas. Similarly the ministry undertook a lead role in reinforcing the education cluster including AusAID, UNICEF, SCF and AQEP. As the result it has been confirmed that

Floods have also washed away cloths, uniforms, equipment and books for students in the affect areas. In some schools assistance to levy will need to be considered. School uniforms and sandals were also affected similarly proper footwear is essential as road conditions to and from schools have become deplorable.

Social protection needs analysis identifying key areas of support for students badly affected by the flood. In these supply of exercise books, stationery, text books, bags and lunch. This is included in total rehabilitation cost as in above.

8.3.3 Ministry of Health

The ministry of Health experienced a serious of significant events made in response to the depression and the declaration caused by NDMC that initiated the National Health Emergency Operation Center (NHEOC) on Friday, 27th January 2012. This is not only to assist in the monitoring of situation from health perception but to also coordinate health related activities and deployment of assessment teams to determine the cost of damages.

Towards the end of the declaration period a team of environmental health officers consisting of municipality workers, disciplinary forces and i-taukei (Tuaraga ni Koro) on awareness of communicable diseases. The NGO in the WASH sector assisted in terms of materials and packages of tool kits that were delivered to the affected areas, however constraints of shortage of equipment and transportation continue to be a challenge.

Summary of the estimated cost of rehabilitation are as follows;

a.	Construction and repairs to Lautoka dental clinic	\$120,000.00
b.	Construction and repairs to Sigatoka nursing clinic	\$64, 000.00
c.	Media Awareness	\$25,000.00
d.	Public Health Measures	\$140, 000.00
	Total rehabilitation	\$350, 000.00

8.3.4 Ministry of Sugar

There were not much recorded from the Ministry of Sugar in the damage sustained however their report was confined to their proposed rehabilitation cost as at Table 1 above.

8.3.5 Telecom Fiji Limited

No damage assessment reports were received from the TFL. However, we are aware that there were damages to telecommunications transmission facilities but these has been rectified.

8.3.6 Fiji Electricity Authority

The restoration on damage were conducted during the relief phase was around \$200,000.00 while their rehabilitation costs was within the vicinity of \$300,000.00.

Fiji Electricity Authority has put forward its risks mitigation strategies learnt from the experience of 2012 flood in the West and will implement cost effective strategies to ensure that power supply should be able to be restored as quickly as possible after a natural disaster.

8.3.7 Housing Authority of Fiji

1. The Authority Chief Executive Officer, Mr. Alipate Naiorosui and Actg. General Manager Lending, Mr. Jagdish Prasad visited the Western Division from 8th to 10th February 2012 to inspect flood damaged properties belong to the Authority's customers.
2. The HA team organised with its current underwriter, New India Assurance Co. Ltd (NIA) to depute their loss adjusters, McLarens Young International to accompany the team during the formal field visitation.
3. That NIA deputed their loss adjuster, McLarens Young International despite the lodgement of formal claim forms completed.

4. That on 9th & 10th February 2012, the HA Team and the Loss Adjuster from McLaren's Young International visited the damaged properties in all our village housing schemes from Nadi to Tavua. The other customers affected by the flood damage to their properties were visited as well. Joint inspections and assessment of damages were carried out by the HA Team and Loss Adjustors.
5. That it was concluded that for all these claims notified a formal claim be lodged. Our customers are now in the process of filling in the required claim forms with the assistance of our designated officials in the Lautoka Office and the same will be lodged with NIA probably by this end of month for the required reinstatement works to commence by next month.

8.3.8 Local Government – Municipal Councils

It is to be noted the enhanced partnerships that the National Disaster Management Office has established with the Municipal Councils in light with their response and support for this flood. A notable concern with municipalities lies in the drainage and waterways structural systems. Bad drainage is a major cause of flooding in towns.

9.0 Recommendations from Government

9.1 *Commissioner Western Division Policy Issues and Recommendations*

- 9.1.1 Landuse practices need to be reviewed – it has been witnessed that the flooding and landslide are very common in the areas where pine had been harvested and the land left barren.
- 9.1.2 Food ration for another month in those areas that have received for the first month.
- 9.1.3 Rehabilitation and reconstruction work of the major roads, bridges and major infrastructure affected by the flood.
- 9.1.4 Review of alternative long term flood mitigation measures that would buffer any natural disaster like flooding in the future.

9.2 *Logistics Headquarters*

- 9.2.1 A base line data must be compiled and updated bi-monthly. This information will assist the planning cell in planning relief operations.

9.3 *Ministry of Education Assessment Team*

- 9.3.1 In light of the mentioned findings, the team has the following recommendations:
 1. That the children's circumstances in terms of protection and safety may be given some consideration and a holistic approach of analysis be adopted before they are sent back to school.

2. That the system and terms of identification of affected communities be clearer as some communities appeared more vulnerable than the 27 schools identified for the assessment.
3. In terms of prevention, the community, schools and other relevant government authorities (UNKs, Rokos and District Administrators) strengthen awareness on preparedness and disaster risk reduction.
4. Psycho social support is provided for children and parents not only in the evacuation centres, but affected communities. This service could be provided by trained social welfare officers in psycho social support during emergencies.
5. Health and Water issues be addressed immediately by authorities concerned (donors included).
6. Evacuation Centres are given attention in light of the mentioned issues.
7. The identified schools serving as Evacuation Centres are strengthened in their capacity to accommodate future evacuees in disasters to come.

9.4.1 Ministry of Health

- 9.4.1 The Ministry of Health seeks the assistance from the office of the National Controller of the State Of Natural Disaster (West) to address the affected Health facilities and also the after flood response.

9.5 Ministry of Agriculture

- 9.5.1 The Ministry of Primary Industries have put forward the following recommendations:
 1. Rehabilitation to only start when the silts on the fields dry out.
 2. Food security will remain the priority of the rehabilitation program
 3. Community outreach on sustainable, integrated farming practices should be encouraged.
 4. Land use and farm practice on sloping land will be closely monitored.
 5. Food ration distribution to be determined by the extent of damage sustained in respective tikina's.
 6. Rehabilitation programme will be closely monitored by field staff to ensure that all seedlings and planting materials supplied to affected farmers are planted.
- 9.5.2 These recommendations are made in relations to the amount of \$555,739.16 for rehabilitation to the primary industries sector.

9.6 Ministry of Provincial Development & National Disaster Management

- 9.6.1 Ninety-seven (97) houses were affected during the flood Lautoka 81, Nadi 2, Nadroga/Navosa 10 and Ba 4. Most of these houses are lean-to, timber and iron, corrugated and fujian bure. The range of damage per house is between \$5,000.00 to \$18,000.00 as there were 64 destroyed and 33 damaged houses.
- 9.6.2 It is to be recommended that government to agree in to assist in the rebuilding of the lost homes. There should be a good assessment on the new sites to rebuild these homes and these, should require consultation on land issues and other natural hazards prevalent on these relevant sites.
- 9.6.3 With the standard Rural Housing Unit 24ft x 16ft Timber frame house the cost for the 97 homes would reach \$1,455,000.00.

10.0 The Way Forward

Flooding is the main natural risk facing us here in Fiji, and it is predicted that climate change will lead to an increase in the frequency and severity of major floods in the future.

Climate change is not the only factor. Land use patterns are changing and urbanization is increasing.

But fighting the risk of flooding is not the responsibility of the government alone – we are an important part of the solution, but not the whole answer. The Government and others have a responsibility for tackling the risk head on, by investing in flood resistance and flood risk reduction and by ensuring that development on flood plains is undertaken responsibly.

And individual property owners need to take action to protect their own properties and businesses. The responsibility for fighting flood risk must be shared between consumers, Government and other stakeholders, to keep people, their homes and their livelihoods safe.

- Early Warning System
- Budget
- Disaster Management Bureau
- Response Management Fund
- Road Structure
- Agriculture
- Water
- Sewerage

10.1 Short-term

Improve the flood forecasting and warning capacity. Better lead time in flood warning is proven to reduce economic damages to property and lives.

With available technology and satellite images forecasting can be much improved giving more lead time for moving people and assets to safer locations during floods and cyclones.

For this purpose, the Flood Forecasting and Warning Center (Fiji Met) should be given a prominent role and its capacity enhanced.

The Government should also make regular budget allocations for the center for preparing forecasting and issuing warnings to the end users.

Strengthening in **Disaster Management Bureau (DMB)** to provide reliable Damage/Needs assessment quickly that can serve as the basis for restoration and recovery programs. It currently takes a long time after a disaster event to prepare damage and needs assessment where often various estimates have large inconsistencies.

A standard methodology for preparing damage assessments is needed allowing the DMB to quickly carry out assessments on a regular basis, not only for extreme floods disasters.

The Government should start a disaster response management fund. Operation and maintenance funds are typically re-directed for restoration and reconstruction of damaged infrastructure. Thus, due to a lack of continued proper maintenance, infrastructure is increasingly more vulnerable to floods.

The disaster response fund would help to streamline the Government response and help donors to respond more quickly by channeling their funds through the same mechanism and based on a consistent and credible damage and needs assessment prepared by the DMB.

10.2 *Medium to Long Term*

Upgrade the standards of construction for roads, particularly rural roads that serve as a lifeline during the flood period, with proper levels and provision of drainage structures. These standards should be made mandatory for all roads constructed in future. A survey initially may be carried out to identify roads lacking these standards.

A systematic program then could be adopted to upgrade these structures instead of restoring in a piece-meal fashion year after year after each flood. This would help reduce the damages considerably and save lives. Roads should also be made multipurpose, where possible.

10.3 *The Planning System and New Developments*

It is vital that there is a robust planning system to ensure that the risk is not increased through unwise developments. In recent years, too many developments have been built in high-risk areas.

Discourages building on the flood plain, and where such development is necessary, requires account to be taken of flood risk both to the property itself and nearby properties.

11.0 Acknowledgement

The Government recognised and acknowledged the support of its people and especially assistance from donor agencies, both local and overseas on the recent flood that affected Fiji.