

Zambia Vulnerability Assessment Committee (VAC)

VAC MAY 2004 RAPID FLOOD ASSESSMENT

Final Report

May 2004

Lusaka



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ACRONYMS

CBPP	Contagious Bovine Plural Pneumonia
CSO	Central Statistical Office
DMMU	Disaster Management and Mitigation Unit
EDRP	Emergency Drought Recovery Programme
FAO	Food and Agricultural Organisation of the United Nations
FEWSNET	Famine Early Warning Systems Network (FEWSNET)
GRZ	Government of the Republic of Zambia
IFRC	International Federation of Red Cross and Red Crescent Societies
MACO	Ministry of Agriculture and Cooperatives
MT	Metric Tonnes
NEWU	National Early Warning Unit
NGO	Non Government Organisation
OCHA	Office for the Coordination of Humanitarian Affairs
TT	Tetanus
UN-ORC	Office of the United Nations Resident Coordinator
VAC	Vulnerability Assessment Committee
WFP	World Food Programme
WHO	World Health Organisation
WVI	World Vision Zambia
ZRCS	Zambia Red Cross Society

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EXECUTIVE SUMMARY.

Western and North Western provinces of Zambia, which experience “normal” seasonal floods, ~~have experienced~~ extensive flooding due to “above normal” rains in the region. The Flooding, which normally starts around February, started as early as December. Among the areas affected are Senanga, Mongu, Kalabo, and Lukulu in Western Province and Chavuma and Zambezi in North Western province. Some areas, such as Kalabo, received record-breaking rainfall of 1480mm compared to a 30-year normal of 906mm (as at 31st March 2004). The flooding levels are similar to those last seen in 1958, 1968 and 1978.

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The floods have affected 39,277 households and caused damage to homes, roads, bridges schools, health centres and crops, especially in the flood plains and low lying areas. The water and sanitation situation ~~has deteriorated~~ considerably with increased seasonal water-borne and vector spread diseases such as malaria. Although data collected from central points of some districts suggested a minimal difference from the situation last season, which in itself was also a high rainfall season, health, water and sanitation issues were found to be critical. Incidents of malaria have in some instances reached as high as 130 per 1000 cases. There are serious concerns that the observed slow rate at which waters are subsiding is likely to stretch this period.

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With regard to Food security, early floods destroyed most crops before they reached maturity, especially in the low-lying areas. In Kalabo, indications are that as many as 75% of households lost their food crops. The loss of crops has brought the lean period forward to as early as June in some instances. As many as 39,277 households across the areas visited will need food assistance in the months to come. The floods also disrupted Contagious Bovine Pleural Pneumonia (CBPP) livestock disease control program. The movement of cattle to higher grounds has also heightened concerns of further spread of the disease.

Immediate needs in the affected areas are in health, water and sanitation, food and agriculture. Access to clean water, control of malaria and other water-borne diseases is critical. With regard to agriculture, the provision of inputs for “winter farming”, to start as soon as waters subside is encouraged. In the meantime, food aid amounting to 9,547 MT of cereal needs to be provided for a period of 2-4 months ending October 2004, by which time harvest from “winter” farming should be ready. The development and operationalisation of Disaster Preparedness plans at District and community levels is also critical, especially given the chronic nature of some of the hazards that have affected the country in the past.

The expected delay in the receding of water, which should normally have receded by the end of May, will prolong prevailing concerns regarding health, water and sanitation and food security

1.0 INTRODUCTION

1.1 Context

Following several reports of above normal rainfall and early flooding received from affected Western and Northwestern provinces, a multi-sectoral team was constituted to carry out a rapid assessment of the impact of the floods. Historically, the type of floods that happen in these areas are categorized as “major” or seasonal floods. It is worth noting that most soils in the plains are alluvial with a high water holding capacity. Furthermore the absence of drainage routes contributes to late receding of water, exacerbating the flooding situation. The affected areas, which are just emerging from a major drought in 2001/2 season and floods in 2002/3, have seen increased vulnerability to shocks and excessive pressure on traditional coping strategies.

The flooding is localized in the upper Zambezi basin and spreads to the Barotse flood plains, a seasonal “normal” occurrence when many of the households in the lowlands migrate to the uplands. Major livelihoods are therefore a combination of upland and wetland activities. The migration is signified by the famous cultural “Kuomboka” ceremony when the King of the Lozi people moves from the wetland to the highland royal capital. It is also worth noting that communities in the North Western Province do not traditionally migrate and this compounds their vulnerability to the floods.

2.0 GENERAL OBJECTIVE

The general objective of the rapid assessment was to assess and establish the magnitude and degree of the impact of the floods on general livelihoods and key sectors such as food security, health, water, sanitation and education.

2.1 Specific objectives

The specific objectives of the assessment were as follows:

- Establish the number of households affected by the floods
- Establish the impact of floods on key sectors such as health, water, sanitation, education and agriculture.
- Establish the nature and degree of emergency needs in the affected areas
- Establish current relief programmes, if any, focusing on emergency needs of the flood affected households.
- Recommend appropriate interventions.

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3.0 METHODOLOGY

A multi-sectoral team of the Zambia Vulnerability Assessment Committee was put together to carry out the assessment in Western Zambia over a 7-day period starting 10th -17th May 2004. A checklist was developed to guide information collection. The teams also collected secondary data and employed intelligent observation techniques.

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The team split into two, with one visiting Western Province and the other North Western Province. Information was obtained from local authorities, district health, agriculture and education officials, church organisations, NGOs, traditional leaders, community members and other stakeholders. Members of the team also visited areas in the plains and on the west banks of the Zambezi River. Crop fields, schools and health centres were randomly visited in the affected areas.

4.0 CONSTRAINTS/ LIMITATIONS

Among major constraints faced by the assessment team were the following:

- Limited time to carry out a comprehensive assessment.
- Accessibility to the flooded areas was a major challenge.

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5.0 MAIN FINDINGS

5.1 Current Situation

Western Zambia, which usually experiences “normal” seasonal floods, has experienced extensive early flooding due to “above normal” rains in the region. The flooding was reported to have started as early as December as opposed to February during a “normal” season. Kalabo District, for example, had received 1480mm as at 31st March 2004 in contrast to normal levels of 906mm.¹ The flooding has had severe impact on health, water and sanitation, food security and education, especially in areas lying on the west of the Zambezi River. Despite starting to recede, current water levels are still high and only expected to completely drain out towards the end of July 2004. During normal flooding, the waters subside by the end of May.

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5.2 Livelihoods

The major livelihoods of communities in the areas visited are subsistence crop production, fishing and cattle rearing. The latter used to be a major livelihood but has since become less prominent as the cattle population has greatly diminished, mainly due to Contagious Bovine Pleural Pneumonia (CBPP).

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¹ FAO May 2004 Monthly Crop Monitoring Survey

With regard to staple food, maize is predominant in the Western Province Districts than in North Western where cassava is more prominent.

All Districts visited have two distinct crop production seasons; the main rainy season production (November-April) and the “winter”/off-season production (August-November). The majority of communities carry out the “winter” cropping in the dambos and wetlands. During “normal seasons” major production of staple foods is on the plains and the highlands East of the Zambezi River whereas cattle rearing and fishing dominate on the west banks.

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Table1. Major Livelihoods ranked by importance

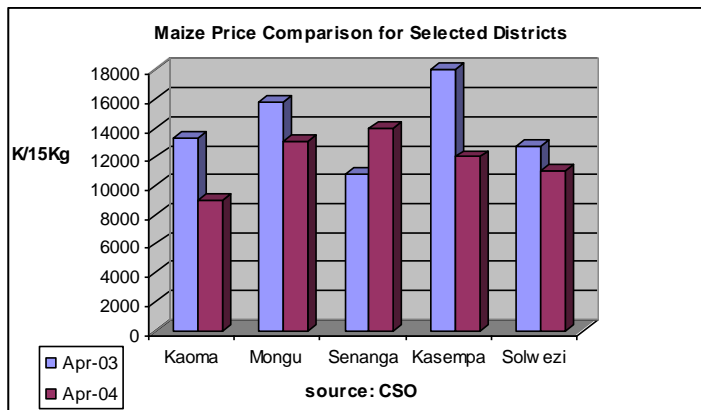
District	Primary	Secondary	Main Staple
Chavuma West	Cassava Production & Fishing	Cattle Rearing and Rice Production	Cassava (1) Maize (2)
Chavuma East	Cassava and Maize Production	Trading	Cassava (1) Maize (2)
Zambezi West	Cattle Rearing & Fishing	Cassava, Maize, Bulrush Millet and Rice Production	Cassava (1) Maize (2)
Zambezi East	Cassava and Maize Production	Cattle Rearing and Trading	Cassava (1) Maize (2)
Lukulu West	Fishing and Cattle rearing	Maize, Cassava and Rice Production and Beer Brewing	Maize (1) Cassava (2)
Lukulu East	Maize and Cassava Production	Sweet Potato Production	Maize (1) Cassava (2)
Kalabo	Maize and Cassava Production	Cattle Rearing, Fishing and Rice Production.	Maize (1) Cassava (2)
Mongu	Maize Production and Cattle Rearing	Cassava and Rice Production, Fishing, Wages.	Maize (1) Cassava (2)
Senanga West	Maize Production and Cattle rearing	Cassava Production, Cattle Rearing and Fishing	Maize (1) Cassava (2)
Senanga East	Maize Production	Cassava Production, Cattle Rearing and Fishing	Maize (1) Cassava (2)

5.3 Price Situation in affected Districts

Generally, prices of maize in almost all districts have dropped in response to increased supply following availability of the new harvest. As a result of the loss of cassava/maize from own production, households in affected areas will depend on markets (exchange/cash) much earlier than usual.

The prices of maize in these districts started reducing in May 2004, suggesting low immediate stress in the affected areas. In Lukulu District for example, maize prices fell by 50% (From K12, 000/15Kg to K6, 000/15Kg) between January and May 2004. Compared to April 2003, prices in the areas visited and neighbouring districts were lower in April 2004, except for Senanga District. (See figure 1.)

Figure 1.



5.4. FOOD SECURITY

5.4.1 Crops

The impact of the floods on crops has been extensive, especially for those grown in the wetlands and areas west of the Zambezi River, which got submerged. Late delivery of inputs and the late receding of last season's waters compounded the situation. Most of the crop was at knee-high level when the floods commenced.

The greatest crop loss has been recorded in Kalabo District where at least 14,000 households are said to have lost most of their crop. Waterlogging, mainly caused by high rainfall, also affected some cassava fields on the highlands where most tubers are rotting. Other areas where crop loss has been high include the west banks of Chavuma, Lukulu and Zambezi, as shown in the table.

Table 2. Estimated Crop Failure in the Flood Affected Areas.

District	Main Crops (% loss)		
	Maize	Cassava	Rice
Chavuma West	Little grown.	75	Negligible
Zambezi West	70	75	Negligible
Lukulu West	80	75	Negligible
Kalabo	80	50	80
Mongu	60	5	10
Senanga	60	10	60

5.4.2 Fishing

The flood situation has had a positive impact on fishing activities as the broadening of areas covered by water has increased fish catches. The development has enabled more households to exchange fish for staple foods and other essentials. Indications are that fishing has become increasingly more important, especially after the loss of crops. In areas such as Chavuma, Kalabo and Lukulu, this activity was more pronounced.

5.4.3 Livestock

Most communities in the plains have moved their livestock to higher land. This development has put pressure on grazing land. In addition, the rate of spread of CBPP is expected to increase. The floods have also disrupted CBPP vaccinations, as most areas are impassable. The market value of livestock in far-flung areas has considerably reduced as floods have made access to markets difficult.

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5.4.4 Other Factors contributing to food insecurity

Food security in western Zambia is also affected by other factors which, if not address, will always undermine efforts to improve food availability and access. Among these factors are the following:

- **Lack of/Inadequate Draught Power:** High mortality of cattle as a result of outbreaks of CBPP has greatly disrupted this once major traditional livelihood, especially in Chavuma. CBPP outbreaks have also compelled households to sale their cattle. In Chavuma, cross-border sales of cattle to Angola were observed to be high.
- **Delays in Agriculture Inputs delivery:** The late availability of inputs has greatly contributed to late planting of “winter crops”. This not only extends the lean period but also exposes harvests to annual floods.
- **Inappropriate Inputs:** non-delivery of suitable crops for particular areas and also the appropriateness of varieties in regard to the maturity period. Rice has not been included in the food security pack yet it is the crop most suitable for flood prone areas

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- **Lack of food storage practices:** (mainly in North-western) – It was widely observed that most households did not have traditional food storage facilities. This is particularly true for Chavuma where the facilities were hardly seen in the Communities visited.
- **Poor Infrastructure:** Access to markets is constrained by poor roads that become impassable during the rainy season. Poor maintenance of pontoons has also contributed in accessibility. Pontoons at Lukulu, Chavuma and Senanga, for example, are currently not operational.
- **Absence/Ineffective agricultural extensions services:** – Agricultural extension services are not being adequately delivered due to serious absence of personnel and resources. In Lukulu, only seven out of 45 camps are manned while the entire Chavuma West has no extension personnel.

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Table 3. Households affected and food aid requirements

District	District Households	% Households Affected	Number of households affected	Duration of* food assistance (months)	Period*	Food aid requirements (MT)**
Kalabo	23970	75%	17978	4	July - October	5,178
Lukulu	13448	65%	8741	3	August - October	1,888
Mongu	32054	10%	3205	2	September - October	462
Senanga	20956	25%	5239	3	August - October	1,132
Chavuma	6,298	25%	1575	3	August - October	340
Zambezi	12698	20%	2540	3	August - October	549
Totals	109,424		39,277			9,547

*The duration of food aid intervention will be subject to a good harvest of the winter crop, which in turn depends on the rate at which waters recede and the availability of inputs (Calculated using 400g/person/day).

5.4.6 Households Affected by floods

Findings indicated that a total of 39,277 households would need food assistance for a period of 2 to 4 months. A total of 9,547MT of cereal will be required to meet these needs. These estimates were arrived at after considering, among other factors, the following:

- The annual activity calendar for the affected areas, which takes into account major livelihoods and coping strategies of communities. For instance, the availability of “winter” harvest starting November implies that food assistance should not go beyond October.
- Increased fish catches, especially on the west banks where it is a major activity

6.0 WATER AND SANITATION

6.1 Current Situation

Information from the District Health Management Team (DHMT) and the community indicated that the whole west bank from Chavuma through to Lukulu, Kalabo and Senanga is poorly resourced with potable water sources during the dry season. In Senanga District only 34% of the population have access to safe water supply. Recently, Care International sunk some boreholes in Senanga district to improve the provision of safe water supply. Only one of the rural health centres has a borehole while the rest have shallow wells. In general, however, the bulk of the population in all the districts draw their water from shallow wells and/or rivers. Most of the shallow wells in the plains invariably get submerged during floods.

The situation is similar for Mongu, Lukulu, Zambezi and Kalabo. One is likely to find a borehole at a school or a rural health centre. Even where these boreholes exist, most of them are not functioning as was observed in Kaungalweti in Senanga and Mize in Zambezi West.

The situation is the same in the case of sanitation facilities. A few people use pit latrines such as teachers and health workers while the majority still use traditional human waste disposal methods. During this period therefore, drinking water and food contamination are an almost certain. Even where pit latrines exist, these tend to overflow during the flood period.

7.0 HEALTH

7.1 Infrastructure

Damage to health infrastructure was only reported in Senanga at Nalolo RHC. The floods have over the years weakened the infrastructure of the health centre and the general safe keeping of medicines during the flood period is hampered. In Mongu District, Lealui Health centre's admission ward was partially submerged and no admissions are taking place although the centre is still open. In addition, Namushakende Rural Health Centre has been partly submerged.

In some places, infrastructure related to water provision (shallow wells) and excreta disposal (where available) were destroyed. Some school pit latrines located on the lower parts of southern Lukulu in Western Province were flooded. Health personnel are closely monitoring the learning institutions with a view of closing them should the situation worsen.

7.2 Health Supplies

In most of the Districts visited, a system of pre-positioning rural health centre and community health worker kits in selected Rural Health Centres (RHC) and Community Health Posts (CHP) that are difficult to reach during the flood period is in place and working satisfactorily. Where medical supply shortages have occurred, the

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District Health Management Boards have resorted to transporting medical supplies by using hired canoes.

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The challenge facing rural health service delivery this season is the “extended” flood period as pre-positioned stocks are only meant to last for 4 months from the time of delivery in December. Ordinarily re-supply to many health centres in the plains should be possible by April but it may be as late as July for this year.

While the kit system seems to be working well, those commodities that are not part of the kit have been difficult to distribute. Specifically, vaccines (distributed monthly) have not been distributed to almost all the health centres in all districts covered during the assessment. In Lukulu, only one (Mitete) of the two RHCs on the west bank was supplied because it was accessible by boat. In Chavuma, both health centres were not supplied with the vaccines since January 2004 (Nyatanda and Lukolwe). For districts that share borders with Angola where an imported case of poliomyelitis was reported in 2001, this situation raises serious concern. If not rectified, it could also potentially undo the good results beginning to be observed from 2003 national measles campaign.

7.3 Access

Access to health facilities has been greatly hampered, especially for those that elect to remain in the plains during floods. This is true for Chavuma and Zambezi were most communities that move from one high land to another in the plains instead of moving to highlands on the east. During the floods, access to health centres has been by canoe and because of the risks involved in using canoes, households only consider serious cases for transportation to health centres.

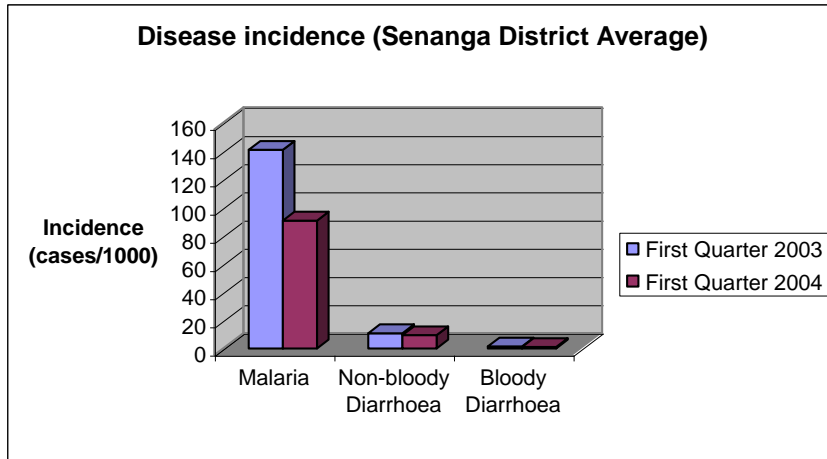
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The floods have also affected reference of patients to district hospitals, especially antenatal cases. Delays in referral for maternal cases have increased. In some cases, district health workers have resorted to giving instructions over radio communication facilities, and only in cases where these are available.

7.4 Malaria and Diarrhoea Incidence

In all the districts visited, except Kalabo, discussions with communities and the District Health Management Teams (DHMTs) revealed that diarrhoeal diseases, particularly dysentery, are at “normal” expected levels (See table below). In Kalabo, however, indications were that cases had increased and were higher than the same time last season. The prolonged duration of the floods entail that cases of dysentery are likely to continue until waters completely recede. Another usual occurrence during the floods is malaria. Although high and rising malaria incidences were reported, the data obtained suggested that the levels are not significantly different from the previous year.

Figure 2. Comparison of Malaria and diarrhoeal incidence in Senanga: 2003/4



As can be seen from the above graph, Malaria presents the biggest health challenge in these areas. It also indicates that the incidence of malaria for the first quarter of 2004 is marginally lower than that for 2003. On the other hand, the incidence of non-bloody diarrhoea and blood diarrhoea appears not to have changed much in the first quarter of 2004 compared to the same period last year.

7.5 Service Delivery

Tables 4.5 and 6 show performance of indicators related to a selected number of services normally provided by the health centres. An indication of the status of nutrition in the under five-age group is also provided. For Lukulu, the figures are aggregated by district while for Zambezi; health centre catchment area data were available and are shown for two areas (Chinyingi and Chinyama-litapi) in the table.

The explanation for the apparent drop in the percentage of underweight children ratio in the first quarter of 2004 is not exactly clear, as one would expect the reverse to be the case.

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Table 4: Service Provision in Lukulu District (First Quarter 2003 and 2004)

Indicator	Lukulu Quarter 1, 2004			Lukulu Quarter 1, 2003		
	Expected Demand	Service Delivered	% Coverage	Expected Demand	Service Delivered	% Coverage
TT Coverage	809	515	64%	785	568	72%
Supervised Deliveries	779	488	63%	756	510	67%
Fully Immunized Children	639	248	39%	619	306	49%
Availability of Basic Drugs	348	263	76%	348	290	83%
	Under 5s Weighed	Under Weight	% Under Weight	Under 5s Weighed	Under Weight	% Under Weight
Underweight Ratio	6,509	958	15%	6,262	1,124	18%

Source: Lukulu DHMT HMIS Quarterly Reports 2003 & 2004.

Table 5: Service Provision in Chinyingi, Zambezi District (First Quarter 2003 and 2004)

Indicator	Chinyingi Quarter 1, 2004			Chinyingi Quarter 1, 2003		
	Expected Demand	Service Delivered	% Coverage	Expected Demand	Service Delivered	% Coverage
TT Coverage	64	46	72%	64	44	69%
Supervised Deliveries	62	32	52%	62	81	131%
Fully Immunized Children	47	39	83%	47	43	91%
Availability of Basic Drugs	27	21	78%	27	24	89%
	Under 5s Weighed	Under Weight	% Under Weight	Under 5s Weighed	Under Weight	% Under Weight
Underweight Ratio	394	59	15%	392	103	26%

Source: Zambezi DHMT HMIS Quarterly Reports 2003 & 2004

Table 6: Service Provision in Chinyama-litapi, Zambezi District (First Quarter 2003 and 2004)

Indicator	Chinyamalitapi Quarter 1, 2004			Chinyamalitapi Quarter 1, 2003		
	Expected Demand	Service Delivered	% Coverage	Expected Demand	Service Delivered	% Coverage
TT Coverage	71	No data	No data	71	19	27%
Supervised Deliveries	68	No data	No data	68	12	18%
Fully Immunized Children	52	No data	No data	52	11	21%
Availability of Basic Drugs	27	No data	No data	27	18	67%
	Under 5s Weighed	Under Weight	% Under Weight	Under 5s Weighed	Under Weight	% Under Weight
Underweight Ratio	1,570	10	15%	291	56	19%

Source: Zambezi DHMT HMIS Quarterly Reports 2003 & 2004

Chinyama-litapi is one of the hard to reach facilities so no returns had been received by the time of the assessment.

Although poor performance in the service indicators is expected during the first quarter of each year on account of the flood-related access problems, the observed difference between indicator figures for the same period in 2003 and 2004 suggests that 2004 floods were more disruptive to health service provision. Chinyingi recorded 89% on the availability of basic drugs indicator in 2003 as opposed to 78% in 2004. Fully immunized children indicator dropped from 91% in 2003 to 83% in 2004. This drop in immunization coverage has been observed in all the districts and is of great concern

In Chavuma and Zambezi, no vaccinations have taken place because the vaccines could not be transported to some rural health centres due to floods. Another reason has been shortage of skilled medical personnel in certain rural health centres. Staff from the District could not be sent to such areas due to floods.

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8. EDUCATION

The floods disrupted learning in a considerable number of schools. In Kalabo alone, 4 schools were closed as waters entered classrooms and generally made access to the schools difficult. In at least one school, high waters also submerged pit latrines at posing a health hazard thereby forcing premature suspension of learning. There were also reports of damage to learning materials at some schools

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There are fears by school authorities that school attendance is likely to be affected by food insecurity, especially during the lean period. They indicated that communities usually use children, especially during the lean period.

9.0 CURRENT INTERVENTIONS

9.1 Water and Sanitation

Zambia Red Cross Society (ZRCS) is already on the ground in Chavuma and Zambezi implementing water and sanitation activities and is providing water maker sachets to purify contaminated water as result of floods. The society has received a contribution of US\$43,000 from OCHA through the Office of the UN Resident Coordinator to boost its activities in this regard. Other support has come from IFRC amounting to US\$19,500. ZRCS is also providing washing soap, 20 litre containers plastic sheetings, blankets and poles for the construction of pit latrines. Besides this intervention there is also need to boost sensitisation in public health (safe sex, safe water, proper excreta disposal, domestic and personal hygiene).

9.2 Food Security

The Government has pre-positioned maize grain in the districts affected and is currently developing modalities of its distribution. There are also on-going programmes in some Districts targeting vulnerable groups and farmers with food assistance as is shown in Table 7. Food interventions in these areas will need to take the existing programmes into account.

Table 7. Current Food Aid programmes in the affected areas

District	Type of Relief Program	Current Status	Total HHs Targeted	Source of food	Implementing Partners
Chavuma	Food Assistance	Pre-positioned		DMMU	(ZRCS)
Kalabo	-Food For Assets	-On-going	9,000	WFP	WVZ
	-Food for Vulnerable groups	-On-Going	5,000	C-SAFE	
	-Food Assistance	Pre-positioned		DMMU	
Lukulu	Food Assistance	Pre-positioned		DMMU	(ZRCS)
Mongu	Food Assistance	Pre-positioned		DMMU	(WVZ)
Senanga	Food Assistance	Pre-positioned		DMMU	CRS
Zambezi	-Supplementary Feeding	-On-going	960	C-SAFE	CRS
	Food Assistance	Pre-positioned		DMMU	(ZRCS)

****Government Pre-positioned foods is awaiting outcome of assessment. (Note that all IPs in brackets are intended to be used)**

10.0. CONCLUSIONS

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10.1 Food Security

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- Crops have been adversely affected by the floods, especially on the west banks and in the plains
- The movements of animals from the plains to upland areas is likely to accelerate the spread of CBPP and also put pressure on the pasture

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10.2 Education

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- Floods disrupted learning in a number of schools and destroyed learning materials in some instances.
- Food insecurity may affect school attendance, especially during the lean period.

10.3 Health, Water and Sanitation

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- The floods have compounded lack of access to safe water and sanitation facilities.
- High incidence of Malaria and other diseases may be prolonged by the “extended” flood period.
- The prolonged floods may lead to RHCs running out of pre-positioned medical kits.
- Immunisation services have been severely hampered by floods in all the assessed districts especially Chavuma and Zambezi.
- General health service provisions such as supervised deliveries were severely affected.
- Lack of sanitation facilities is likely to exacerbate incidence of diarrhoea diseases.
- Floods have contaminated sources of drinking water.

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11.0 RECOMMENDATIONS

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11.1 Food Security

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- Timely provision of early maturing maize seeds for winter cropping in the plains, preferably by July.
- Targeted food assistance taking into account on-going relief programs (consideration of cassava for Chavuma and Zambezi since it is their staple food) and only lasting up to October 2004
- Provision of a Cassava variety known as “Nakamoya”, which matures in 9 to 10 months, should be considered for Senanga District.
- Cassava cuttings should be locally sourced (within districts).
- Canal construction to facilitate early drainage of water from the plains.
- Up-scaling and intensification of CBPP programs
- Promotion of fish farming.
- Food Security Pack should include rice seed.
- Active extension service provision.
- Concept of storage to be introduced and promoted in North-western province

11.2 Health, Water and Sanitation

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- Up-scaling and intensification of Malaria control measures
- Hard to reach areas in the west bank should be considered for district-Based pre-positioning of kits so that the DHMT does not create drug deficits for those health centres where kits for advance distribution are obtained
- The use of purification tablets and water maker sachets to treat drinking water should be promoted
- Water testing and purification in schools and health centres, and other public places such as palaces and markets must be promoted.
- A Supplementary Immunization Activity (SIA) should be considered for the west bank areas, especially Zambezi, Chavuma and Lukulu. (*Estimated target under five population, Chavuma: 3,800; Zambezi: 4,470; and Lukulu 4,800*)
- Promotion of public health awareness messages in the flood-affected districts should be strengthened (Hygiene, Safe sex, Safe Water, proper excreta disposal).

| 11.3 Education

Deleted: 8.3

- Implementation of programmes that would mitigate the impact of food security on school attendance, particularly during the lean period.
- Provision of teaching materials for those schools where they were lost to floods

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| 11.4 General

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- Develop and operationalise disaster preparedness plans at District level

ANNEXES

Annex 1, Specific areas affected by floods in Districts visited.

Deleted: ***

District	Villages/Areas
Mongu	Loma, Imalyo, Nakato, Lwatembo, Sikongo, Ushaa Nalyei
Senanga	Litambya, Itufa, Lukanda, entire Nalolo Constituency (west bank)
Lukulu	<p>West Bank Kashiji, Nyala, Matala, Mitete, Lutembwe, Lupuyi, Kakwacha</p> <p>East Bank Likapayi, Mbanga, Kawayia Lukau</p>
Kalabo	Liuwa, Nyango-Makoma plains, Simunyange, Ndoka, Nengu
Chavuma	Nyatanda, Nyagumbila, Salikishi, Nakutemba, Sefu, Samutala, Lingandu, Luzu, Kainda
Zambezi	<p>West Bank Nyawanda, Kucheka, Lungevungu, Chinyama Litapi, Matondo, Likungu, Milomboi, Muyembe, Mize, Chinyingi, Chihongo</p> <p>East Bank Lwatembo, Kakong'a, Kakeki</p>

Annex 2. Input Support Programmes

District	Programme	Total Households Targeted	Type of Input Distributed
Chavuma	-Fertiliser Support Programme	-375	Fertiliser and Maize
	PAM-EDRP	840	Seed, Lime and Fertiliser
	PAM-FSP	1,100	Maize, G/nuts, Fertiliser and Lime
Kalabo	Fertiliser Support	100	Maize, Fertiliser
	PAM-EDRP	3,103	Maize, Rice and Fertiliser
	PAM-FSP	3,130	Maize, Beans, C/Peas and Fertiliser
	WVI (FFA)	9,000	Sorghum, Maize and G/nuts
Lukulu	Fertiliser Support	4,500	Maize and Fertiliser
	PAM-EDRP	2,196	Maize, Fertiliser, Rice and Lime
	PAM/MCDSS	3,024	Maize, Beans, Lime and Fertiliser
	ADC	500	Maize, Fertiliser and Tools (Hoes, ploughs)
Senanga	Fertiliser Support	173	Maize and Fertiliser
	PAM-EDRP	3,405	Maize, Fertiliser, Rice and Lime
	PAM/MCDSS	1,253	Maize, Fertiliser, Beans and Rice
	OXFAM (KZF)	1,200	Maize, Sorghum, Rice, C/peas and G/nuts
Zambezi	EDRP-DMMU	3,225	Maize, Fertiliser, Millet and Sorghum
	Fertiliser Support	625	Maize and Fertiliser
	PAM	1,412	Maize, B.Millet, Rice, Beans, G/nuts and Fertiliser.

Source: May 2004 FAO Crop Monitoring Report