Government - Humanitarian Partners Joint

FLOOD CONTINGENCY PLAN

FOR

2007 MAIN RAINY SEASON IN ETHIOPIA

AUGUST 2007
ADDIS ABABA

Acronyms

AWD	Acute Watery Diarrhoea
CMG	Crisis management Group
DPFSB	Disaster Prevention and Food Security Bureau
DPPA	Disaster Prevention and Preparedness Agency
DPPB	Disaster Prevention and Preparedness Bureau
DSA	daily subsistence allowance
EEPCo	Ethiopian Electrical Power Corporation
EFSRA	Emergency Food Security Reserve Administration
EMWAT	Emergency Water Kit
HNE	health and nutrition emergency
IOM	International Organisation for Migration
ITSH	inland transport, storage and handling
LTSH	landside transport, storage and handling
MoARD	Ministry of Agriculture and Rural Development
MoH	Ministry of Health
MoWR	Ministry of Water Resources
MoME	Ministry of Mines and Energy
MoND	Ministry of National Defense
MT	metric ton
NDPPC	National Disaster Prevention and Preparedness Committee
NFI	non-food item
NGO	non governmental organization
NMA	National Metrological Agency
RFTFs	regional flood taskforces
SNNPR	Southern Nations, Nationalities and Peoples Region
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNOCHA	UN Office for the Coordination of Humanitarian Affairs
USD	United States Dollar
WASH	water, sanitation and hygiene
WES	water and environmental sanitation
WFP	World Food Programme

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EXECUTIVE SUMMARY

A flood risk alert was issued in June 2007 by DPPA's Early Warning Department in collaboration with the Flood Taskforce of the Early Warning Working Group in order to raise awareness of the serious flood risk in the catchment areas of the Awash, Abay-Tana, Omo-Gibe, Baro-Akobo and Wabisheble Rivers, among others, during the current *kremt* season. The alert, based on the seasonal forecast by NMA and other hydro-metrological data, warns that flood prone areas are expected to have a higher than normal risk of flooding in different places and the magnitude of flooding will be greater than *kremt* 2006, in which nearly 500,000 people were affected, of whom more than 600 people lost their lives and nearly 200,000 others were displaced temporarily, with the exception of those in Diredawa many of whom have stayed in shelters until their houses get reconstructed.

In order to mitigate the severe impacts of flooding witnessed last year, this Flood Contingency Plan has been prepared to quickly identify and respond to emerging humanitarian needs in all sectors as a result of the foreseeable flooding incidence. Two possible scenarios have been identified– the Mid-Case Scenario (most likely) and Worst-Case Scenario (less likely). In the Mid-Case Scenario, the overall impact of flooding is assumed to be 25 percent less than that of *kremt* (main rainy season) 2006 presumably due to the introduction of better preparedness and prevention measures. While in the Worst-Case Scenario, the overall impact of the flooding is taken to be as high as, or similar to, that of *kremt* 2006. Sectoral requirements are identified for the most likely scenario– the Mid-Case. Resource requirements for the Worst-Case Scenario can be roughly calculated by simply adding 25 percent over what is estimated for the Mid-Case Scenario.

For the Mid-Case (most likely) Scenario, a total of US$ 21,096,762 is estimated to be required to address the potential emergency relief and recovery needs as summarized below by sector/component.

Sector	Cost (USD)
Emergency Relief/Response	
Food Sub-total	**2,487,736**
Nonfood Requirement	
• Shelter and Other Related Items	618,190
• Water and Environmental Sanitation	2,004,155
• Health and Nutrition	674,917
• Agriculture and Livestock:	
o Seed	262,220
o Livestock Health	819,051
• Logistics, Search and Rescue	6,528,500
Sub-Total Non-Food	**10,907,033**
Sub-Total Emergency Relief (Food and Nonfood)	**13,394,769**
Early Recovery Sub-Total (50% Emergency-Relief)	**6,697,385**
Total Cost	**20,092,154**
Contingency (to take care of administrative/running and other unforeseen costs)(5%Total)	**1,004,608**
Grand Total	**21,096,762**

1. BACKGROUND AND SITUATION ANALYSIS

Ethiopia has a rugged and mountainous topography with altitudes ranging from 4,620m above sea level (asl) at Mount Ras Dejen in North Gonder to as low as 110 m below sea level in the Dalol depression in the Afar Region. Its highlands are mainly located in central while the lowland areas lie on its outermost borders. The topographic nature of the country has created 11 river basins, namely Abay, Awash, Ayisha, Afar Denakil, Baro-Akobo, Central Rift valley, Genale-Dawa, Ogaden, Omo-Ghibe, Tekeze, and Wabishebele. The drainage system of the country originates from the central highlands to these major river basins.

During the main rainy season that extends from June to September, the major rivers and their tributaries carry high levels of discharge, which can create severe flood disasters. Past experiences show that the country normally faces two types of floods: flash and river floods. Flash floods are formed from excess rains falling on the upper parts of the river basins and run to the lower parts with high concentration, speed and force, often resulting in considerable losses of human life and property. The 2006 incident that Dire-Dawa City experienced is the most typical example of flash flooding. On the other hand, many flood disasters relate to rivers that overflow, bursting their banks and inundating the low-lying plains. The 2006 events in South Omo Zone of SNNP, Gode and Afder zones of Somali, and most parts of Gambella regions are recent examples of river flooding.

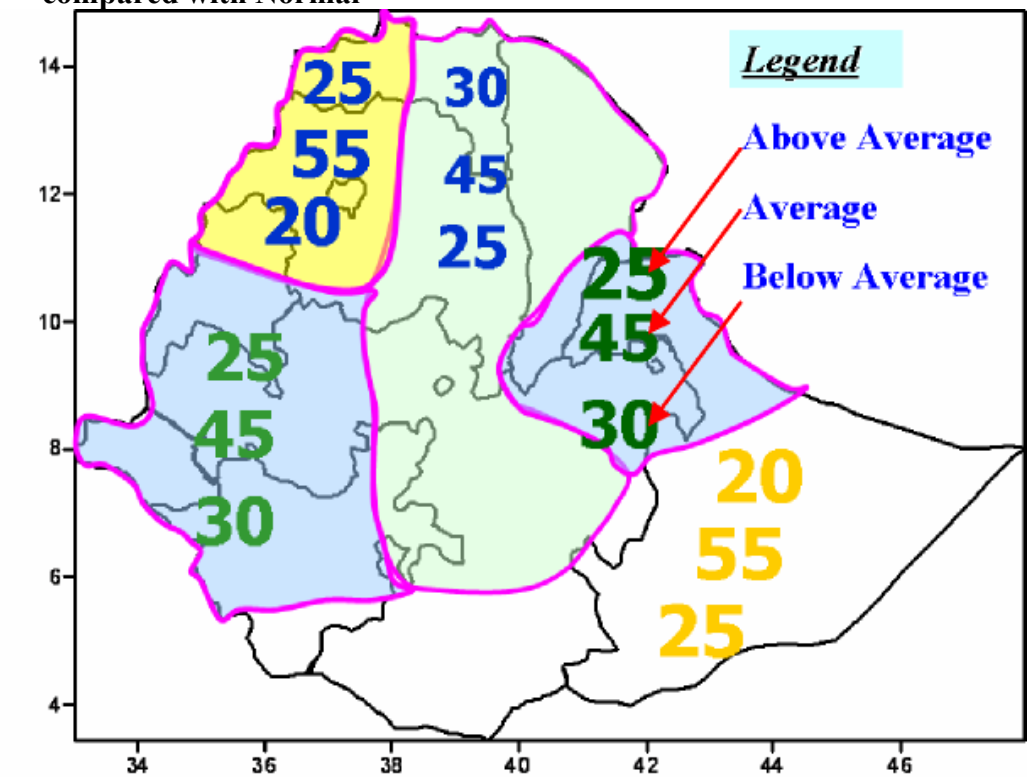
Flooding in some areas of the country is inevitable when the main rainy season has high water quantity and distribution compared to usual seasonal patterns. However, flooding at the scale of the 2006 *Kremt* season, which affected 428,800 people (Table 1) with over 600 deaths is uncommon. Further flooding during the *Deyr* season (minor rainy season, October to December) affected over 360,000 people in Gode zone of Somali Region.

According to climate forecasts by the National Metrological Agency (NMA), the current *Kremt* rainy season will be analogous to those observed in 1970, 1978, 1995 and 2005. According to the report, the country should expect a weak to moderate *La-Nina* episode, in which case, the effects on the seasonal rainfall compared with normal conditions would most likely result in:

- Normal onset and cessation,
- High rains over central, southern, north and northwest Ethiopia,
- Occasional heavy rains during July and August
- Erratic rains prevailing only over the southwest, northeast and eastern parts of the country (See map below for the details).

This prospect is anticipated to increase the risk in flood prone areas, the scale of which is expected to be worse than the 2006 *Kremt*.

Probability (in Percent) of Expected *Kremt* Rain (June to September 2007) compared with Normal



Source: NMA seasonal weather forecast

According to NMA's forecast of hydro-meteorological conditions, the Tekeze, Abay, Omo-Gibe, Baro-Akobo, Rift Valley and Awash catchments will also have high moisture conditions, especially from July to September. If the forecast holds true, flood prone areas of the country will be at high risk of flooding again this year.

The rainfall in June normally starts low in amount and gradually increases, extending from South and West to the North with a break of four to five weeks between the end of the *Belg* and the start of the *Kremt* rains. However, this year's *Belg* rain started early in June and continued with no sufficient gap, merging into the *Kremt* in some parts of the country. Some areas have also received unusually heavy rainfall (over 30mm) ranging from 30-104.4 mm in a single day.

As illustrated on Annex 1, the amount and intensity of rain during the month of June was much higher than normal. As a result, soil saturation levels are very high, increasing fears of landslides and flash flooding. The level of soil saturation currently observed is also associated with high intensity flooding, as the soil cannot absorb excess rainwater. Flooding and landslides have already occurred in South Omo, Gamo Gofa, Wolayita and Kafa Zones in SNNP, Zones one and Two in Afar and Nuwer and Agnuwak of Gambela Regions affecting over 33,000 people as of July 2007.

Furthermore, flooding in the lower catchments of the dams normally occurs during the dams' peak water levels in August and September. This year, however, maximum dam water levels are anticipated to reach earlier than usual.

2. SCENARIOS FOR THE CONTINGENCY PLAN

Based on the prevailing weather conditions mentioned above, three scenarios have been developed for possible flooding during the 2007 *Kremt* season.

Scenario One: Best-Case Scenario (Unlikely)

This Scenario considers the following fundamental assumptions:

- Flooding will take place along the river basins of Abay-Tana in Amhara Region, Omo-Gibe in South Omo Zone of SNNPR, Baro-Akobo in Gambella Region, as well as flash floods in some parts of the country with magnitudes **not exceeding** that of *Kremt* 2006.
- Based on the lessons learned from last year's experience, there will be **adequate** levels of awareness, preparedness and mitigating or safety measures (e.g dam management, dyke strengthening, evacuation, etc) by the concerned bodies at different levels and by the vulnerable population at large.
- The overall impact of flooding will be **well below** (about **50 percent less** than) that of 2006 as a result of the above-mentioned preparedness and prevention measures.

However, given that:

- no strong upstream conservation or catchment rehabilitation works, which are believed to offer a lasting solution to major flooding problems, have been undertaken between the last *Kremt* season and the current one;
- the current season began earlier than normal, immediately extending from the *belg* (without a lapse in between) and with higher than normal amounts of rainfall in some parts of the country;
- flooding and landslide events due to heavy rains have already been reported in some areas (e.g South Omo, Gamo Gofa,Wolayta and Kafa Zones of SNNP, Zones One and Two of Afar and Nuwer and Agnwak of Gambela Regions) at this early stage, which is uncommon at this point in the season;
- the meteorological forecast is sending alarming signals for more flood-bearing rains to come ahead; and
- the level of preparedness and proactive measures is not adequate;

The probability of having a Best-Case Scenario appears unlikely. In other words, in light of the overall prevailing situation, no flood condition or incidence less than the Mid Case Scenario defined below is expected in this *Kremt* season. Therefore, Scenario One has not been considered in the estimation of possible emergency-relief requirements.

Scenario Two: Mid-Case Scenario (Most Likely)

This Scenario considers the following fundamental assumptions and facts:

- In addition to the river basins mentioned under Scenario One, major flooding will also occur along rivers basins of Awash in Oromiya and Afar Regions, and Genale, Dawa and Weyib in Liben and Afder Zones of Somali Region, as well as flash floods and lake overflows in some other parts of the country with magnitudes **well over** that of *Kremt* 2006.

- No strong, long-term flood prevention works have been undertaken on the catchments of the river basins.
- The current season began earlier than normal, immediately extending from the *belg* (without a lapse in between) and with higher than normal levels of rainfall in some parts of the country.
- Flooding events have already been reported in some areas at this early stage, which is normally uncommon at this point in the season
- The meteorological forecast is sending alarming signals for more flood-bearing rains to come ahead.
- Based on the lessons learned from last year's experience, there are better levels of awareness, preparedness and mitigating or safety measures (e.g planned relocation of people, dam management, dike strengthening, evacuation, etc) by the concerned bodies at different levels and by the vulnerable population at large.
- The overall impact of flooding will be significant but about **25percent less** than that of the 2006 occurrence as a result of the above mentioned proactive measures.

This appears to be a more likely or realistic situation.

<u>Scenario Three</u>: Worst-Case Scenario (Less Likely)

This Scenario considers the following fundamental assumptions and facts:

- In addition to the river basins considered under Scenarios One and Two, major flooding will also occur along rivers basins of Wabishebelle in Somali Region and Tekeze River in Tigray Region, as well as flash floods in some other parts of the country. Therefore, the overall magnitude of flooding will be **substantially higher** than that of *Kremt* 2006.
- No strong long-term up-stream conservation or catchment rehabilitation works, which are believed to offer a lasting solution to major flooding problems, have undertaken between the last *Kremt* season and the current one.
- The current season began earlier than normal, immediately extending from the *belg* (without a lapse in between) and with higher than normal levels of rainfall in many parts of the country.
- Flooding events have already been reported in some areas at this early stage, which is normally uncommon at this point in the season.
- The meteorological forecast is already sending alarming signals for more flood-bearing rains to come ahead.
- The preparedness, awareness, and other proactive measures in place may not be compatible or commensurate with the possible high magnitude of flooding in different areas.
- Hence, the overall impact of the flooding will be nearly as high as, or similar to, that of the incidence in 2006.

This is a condition to be considered as second-degree probability.

The anticipated beneficiary size for Mid-Case (most likely) and Worst-Case (less likely) Scenarios are summarized on Table 1 below taking the 2006 flooding incidence between July to September as a benchmark or reference.

Table 1: Estimated Beneficiary Size

Region	Flood Affected People in 2006 (Reference)			People Likely to be Affected and Displaced in 2007					
				Mid-Case Scenario (most likely)			Worst Case Scenario (less likely)		
	Total Affected	Displaced		Total Affected People	Displaced People	Displaced Households	Total Affected People	Displaced People	Displaced Households
		People	H.Hs.						
Somali	105,400	55,000	9,200	79,100	41,400	6,900	105,400	55,000	9,200
DD	19,800	9,000	1,500	15,100	7,000	1,100	19,800	9,000	1,500
SNNPR	107,100	47,500	7,950	80,600	35,700	6,040	107,100	47,500	7,950
Amhara	98,300	38,000	6,420	74,500	28,800	4,900	98,300	38,000	6,420
Afar	42,100	26,000	4,400	31,600	20,000	3,400	42,100	26,000	4,400
Gambella	31,000	31,000	5,100	23,300	23,300	3,800	31,000	31,000	5,100
Oromiya	20,400	3,400	600	15,800	2,600	600	20,400	3,400	600
Tigray	1,200	1,200	200	900	900	200	1,200	1,200	200
Harari	3,500	0	0	3,000	0	0	3,500	0	0
Grand Total	**428,800**	**211,100**	**35,370**	**323,900**	**159,700**	**26,940**	**428,800**	**211,100**	**35,370**

3. PROPOSED INTERVENTIONS

3.1 MITIGATION AND PREPAREDNESS

3.1.1 Early Warning Information on Excessive Rains and River Levels

The National Meteorological Agency employs 90 real-time monitoring stations to observe the climate throughout the country. These data sources are used to prepare the seasonal weather forecast, which serves as a guide for preparedness activities, as well as the mid-seasonal assessment report, which updates the seasonal weather forecast; this provides useful information regarding the characteristics of the rains for the remaining part of the rainy season.

Information from these stations and meteorological satellites is also utilized to create 24 hour and 10-day forecasts, which can be used to identify areas susceptible to heavy rains (i.e. daily rainfall greater that 30 mm). The 24-hour forecasts are broadcast on television, and both forecasts are available through the NMA's website, www.ethiomet.gov.et.

A modality would need to be established or strengthened to ensure communication linkages between woreda officials in highland areas receiving heavy rainfall and those downstream that are at risk of flooding. When intense flood-bearing rains fall in highland areas, concerned woreda officials would alert their downstream counterparts who in turn would alert the communities at risk. This method has proven successful in the case of Dire Dawa, where a forum between the Dire Dawa and East Hararghe Zone Administrations identified rains in the highland woredas of Kersa and Haromaya as most threatening to Dire-Dawa. They have now established an effective communication exchange modality, which has successfully warned the people of Dire Dawa when flooding is expected. The modality consists of assigned focal persons in the Bureau of

Agriculture and the police station in Kersa and Haromaya woredas that alert the police office in Dire Dawa.

So as to apply this approach more effectively and widely, the MoWR will instruct and ensure that its river gauge observers or workers assigned especially in flood prone areas generate and provide high risk real time information on river levels and possible flooding threats to the local administrative authorities and to the Ministry simultaneously. The local authorities would, on their part, relay the information/alarm as a matter of urgency to the downstream vulnerable woredas or communities so that the latter can take the necessary precautionary measures before the flood hazard creates havoc to them.

Information about water levels and flood threats could also be disseminated both through electronic and print media (television, radio, newspapers) as necessary by MoWR.

3.1.2 Release of Water from Dams

Water levels in the major dams of the country are continuously monitored by the Hydrology Department of the MoWR and MoME/EEPCo. This information will be shared with the Early Warning Department of DPPA on a daily/twice daily basis when risk is high. DPPA's Early Warning Department will then share this information with members of the Early Warning Working Group and other concerned bodies.

The Koka Dam Committee, coordinated by the MoWR, closely monitors reservoirs and provides recommendations for the release of water from major dams. The Committee, comprised of concerned organizations such as MoWR, NMA and EEPCo, works on the management of major dams in the country (not just Koka Dam) especially related to flood and minimum flow releases. The Committee started its duties at the end of June and will meet as required throughout the rainy season.

Seasonal reservoir level forecast is undertaken based on analogous years which are determined using NMA rainfall forecasts and measured water levels for major reservoirs such as Koka, Fincha, Melka Wakena, Gilgel Gibe and Lake Tana. This is done by conducting water balance studies for major reservoirs and natural lakes and devising a system for optimum release of water in order to minimize the risk of high/serious flooding downstream of the dams while ensuring sufficient water reserves for hydropower and irrigation uses during dry season. Based on such forecasts, the release of water from the reservoirs is proposed.

3.1.3 Strengthening Flood Protection Structures

All relevant institutions, in collaboration with MoWR, would need to intensify their flood preparedness measures including the maintenance or reinforcement of damaged/weak flood-protection dykes or building of new ones, as necessary, along major rivers where the risk of overflow is common and foreseeable.

Flood management measures such as widening, deepening and clearing of the existing channels and constructing dykes/levees have to be done mainly along the floodplains of major rivers (such as Awash, Omo, Wabishebele, Baro, etc) where human settlements and major investment schemes are located . To this effect, efforts are already underway in different places including South Omo and Afar.

For more safety, concerned woredas and communities would have to closely monitor the condition of the dykes and immediately report to relevant higher bodies of government (mainly to MoWR) when such structures get damaged or face a significant risk of damage.

In addition, based on the requirements during the *kremt* 2006, approximately 100,000 sand bags at a total cost of US $22,000 are estimated to be required for flood protecting dyke construction and maintenance. In this regard, the MoWR is expected to promptly inform the DPPA of the critical sites where bags would be needed and should be dispatched to for this purpose as soon as possible.

3.1.4 Evacuation Plan

Regional Flood Taskforces (RFTFs) should monitor the rainfall and flood situations in their respective areas and prepare evacuation plan as deemed necessary. Furthermore, the Early Warning Department of DPPA is expected to collect pertinent information from the NMA and MoWR on a regular basis and communicate regions for their timely actions. DPPA will also ensure that RFTFs are reconvened and effectively operational.

3.2 SEARCH AND RESCUE AND LOGISTICS

3.2.1 Potential Impacts

Flooding often engenders a devastating effect on the infrastructure and logistical facilities, and inhibits or blocks access to the most at-risk areas. This results in large populations being stranded or trapped in villages, causes mass displacement and sizeable property damage and hampers the supply of food and non-food items to affected areas due to road traffic closure as a result of heavy rains.

Considering the Mid-Case Scenario, it is estimated that about 323,900 people would be affected by flood, out of which some 160,000 would be displaced, requiring immediate humanitarian assistance. And, some of these people, especially those residing along the low-lying floodplains of Awash, Wabishebele, Baro and Omo Rivers, are anticipated to be in need of emergency rescue services.

3.2.2 Requirements

It is anticipated that there would be a pressing need for using various means of transportation, including trucks, helicopters, boats, and aircrafts both for the supply of emergency resources and for rescue operations in most critically flood affected areas. All deployment alternatives will be explored by the Government and its humanitarian partners.

Helicopter based operations are assumed to take place at two hub locations of Gode and Arbaminch. For each hub location, two helicopter crews, providing 60 hours air service totaling 240 hours of air time, are considered in this contingency plan. However, it would be necessary to have flexibility on the deployment of helicopters, as usage and need will depend on the extent of the flood impact and as other flood prone areas such as Awash, Afar or Gambella, for example, may call for more priority action than others.

About 20 motor boats and 50 manual boats and other life saving materials will be needed for search and rescue operations. In addition to rescuing, boats will also be used for supplying emergency items to population stranded by flood waters. Reportedly, some eight boats are available at Lake Tana in Bahirdar city and at Baro River in Gambella town. They are, however, in poor operating conditions. Therefore, a minimum of about 14 additional new motor boats and 50 manual boats would be required and need to be procured. The cost of boat requirement including operational inputs such as fuel is estimated to be US$ 257,830.

The total financial requirements for search, rescue and logistical operations under the Mid-Case Scenario are estimated at over US$ 6.67 million as summarized in Table 2 below. This takes into account the total road transport costs, covering the overland and inland transport, storage and handling costs for food distribution.\

Table 2: Emergency Logistics, Search and Rescue (LSR) Requirement

S.N.	Cost Item	Unit	Quantity			Cost for Gap (US$)		Remark
			Required	Avail-able	Gap	Unit	Total	
1	Helicopters rent	Hour	240	-	240	7,000	1,680,000	4 helicopters @ 60 hr each
2	Aircraft fuel (Jet A1)	lt	214,000	-	214,000	0.96	205,432	
3	Fuel transport by cargo aircraft to the two hub locations			-		CR	264,000	Chartered rate (CR)
4	Miscellaneous (accommodation, airport charges and fees)	lump sum	lump sum	-			30,000	
5	Air transport service♣			-			3,132,800♠	for food and NFIs ♣
	Sub-total (Air Transport)			-			**5,312,232**	
6	Motorized boats* purchase cost	No	20	6	14	8,637	120,918	
7	Manual boats* purchase cost	No	50	-	50	1,700	85,000	
8	Fuel for boats	lt	11,250	-	11,250	1.13	12,713	10 boats @ 25lit/boat/day for 45 days
9	Boat maintenance (25% fuel)	L. sum					3,200	
10	Boats rental including fuel	boat-trip	450	-	800	45	36,000	8 boats @100 trips per boat (assumed for 30 days)
11	Life saving jacket*	No	150	-	150	67	10,050	
12	Walkie-talkie	No	30	-	30	282	8,460	
	High capacity torches	No	100	-	100	24	2,400	
	Sub-total (Boats + Lifesaving and Emergency Equipments)						**278,741**	
13	Food– road transport & handling	MT	8,876	-	8,876	113	1,002,988	444 truck-trips needed
14	NFI – road transport & handling	MT	714	-	714	113	80,682	36 truck-trips needed
	Sub-total (Truck/Road Transport + Handling)						**1,083,670**	See Table 3 for the detail
	TOTAL						**6,674,643**	

* Boat services and lifesaving jackets are assumed for 25% and 5% of the would-be victims, respectively.

♣ Approximately 25% of the emergency tonnage (20% food and 5% nonfood) is assumed to be moved by air transport from the central warehouses (say Diredawa) to intermediate hub locations having air strips (say Gode), from which the commodities would be shuttled by helicopters to the affected (or nearby) sites for distribution to the victims.

♠ If aircraft (S.№ 5) is not used for commodity transport from central warehouses to intermediate locations, the TOTAL requirement for logistics, search and rescue operation will be reduced to **USD 3,405,742**.

A detailed breakdown of truck allocation and its associated costs by central warehouse location for food and non-food items is shown on Table 3 below.

Table 3: Requirement of trucks and operational cost estimate summary

Central Warehouse	Commodity (MT)		Total Tonnage (MT)	Unit Cost (LTSH Rate*) (USD/MT)	Operation cost (Total LTSH*) (USD)	Truck Trips (@20MT/truck)
	Food	Nonfood				
Gode	2,190	176	2,366	113	267,358	118
Diredawa	389	31	420	113	47,460	21
Shashemene	1,206	97	1,303	113	147,239	65
Sodo	117	9	126	113	14,238	6
Arbaminch	828	67	895	113	101,135	45
Woreta	1,200	97	1,297	113	146,561	65
Kombolcha	807	65	872	113	98,536	44
Nazreth	794	64	858	113	96,954	43
Gambella	1,295	104	1,399	113	158,087	70
Mekele	50	4	54	113	6,102	3
Total	**8,876**	**714**	**9,590**	**113**	**1,083,670**	**480**

3.2.3 Available Resources and Gaps

Availability of boats in country is limited. There are four boats in South Omo under the custody of the DPFS Bureau of SNNPR (3 recently purchased and 1 previously sent by DPPA). Moreover, two boats have been procured by UNICEF. Although in poor operating conditions, six boats are available for rent in Lake Tana/Bahirdar and two others in Gambella. These boats can not be relocated to other affected areas within the country but can be used for any eventualities that may occur in the areas. Also, three rentable private boats are available during an emergency in Arba Minch area. To fill the anticipated requirement, an additional 14 motor boats and 50 manual boats will need to be procured.

Air and road transport services are to be fulfilled on rental basis from contracting agencies. Obviously, the availability of aircrafts and trucks depend on the availability of funds, and hence this is the only limiting factor to meeting the requirement.

3.3 FOOD, SHELTER AND OTHER RELATED ITEMS

3.3.1 Food

3.3.1.1 Potential Impact of Floods

Flooding often destroys houses and other properties resulting in the displacement of the population residing in the flood-prone areas. The displaced would require immediate basic food assistance until they resume their normal activities. Beneficiaries of this

* Note that LTSH cost/rate covers overland and inland transport by road and warehouse/commodity handling and storage costs; meaning it includes ITSH.

operation will be people who are displaced by flooding and would otherwise have no or limited coping mechanisms in terms of meeting daily nutrition needs. The duration of the operation is assumed for three months. This assumption may, however, be on the lowest side as it assumes only temporary displacements and the resulting relief operations. It does not consider outlier or exceptional cases such as the flood-induced displacement and relief operation in Diredawa which has stayed for a year, still now. Therefore, there may be situations that compel the extension of the relief requirement beyond the stated three-month period.

3.3.1.2 Requirements

Of the estimated total 428,800 potentially flood affected people in the Mid Case Scenario, 160,000 people would be displaced and require relief food assistance. In order to address the emerging food needs, a total of 8,877MT would be required while the gap stands at 6,115 MT that would cost close to US$ 2.5 million as summarized in Table 5 below.

Table 5: Food Requirements for Mid-Case Scenario

Commodities	Ration (Kg)	Beneficiaries (People)	Quantity (MT)			Cost for Gap (US$)	
			Required	Available (WFP)	Gap	Unit	Total
Cereals	15.0	159,700	7,187	1,800	5,387	272	1,465,264
Oil	1.50	159,700	216	1,972	0	904	0
Pulses	0.45	159,700	719	6,469	0	463	0
Blended food (CSB)*	4.50	159,700	755	27	728	429	312,312
Total Food	**16.95**	**159,700**	**8,877**	**10,268**	**6,115**	**-**	**1,777,576**
External transport							710,160
Grand Total **							**2,487,736**

* Calculated for 35% of the displaced population.

** Note that other operational costs such as transport are included under emergency logistics requirement (section 3.2, Table 2).

Under the situation of mass displacement triggered by severe flooding, it is preferable to supply flour rather than whole grain to the victims.

In order to respond to potential emergencies as quickly and effectively as possible, food as well as non-food items should be pre-positioned to areas where heavy rains will severely limit accessibility. In this regard, flood prone areas in Gode zone of Somali Region, the whole Gambella Region and South Omo zone of SNNPR need to be accorded special attention, where pre-positioning of at least a one-month ration should be considered. However, this proposal presupposes or calls for donors and other humanitarian partners to avail the necessary resources, both food and non-food, timely. On the other hand, the central strategic warehouses at Shashemene, Woreta, Dire Dawa and Nazareth will be used for responding to the emergency needs of the remaining flood-prone but relatively better accessible areas in SNNPR, north-western Amhara, eastern Ethiopia and Awash basin, respectively.

3.3.1.3 Available Resource and Gaps

In the event of an emergency, cereals are readily available from the Emergency Food Security Reserve (EFSRA) on loan basis. This facility makes grains available for immediate dispatch once repayment is guaranteed by donors or by the Government. The

Reserve has a capacity of 405,000 MT in seven strategic locations in the country and is intended to serve about 5.2 million people for 6 months at a time. Current stocks of the EFSRA, as of 06 August 2007, stands at 102,600 MT.

WFP has 10,268 MT of food in store available for emergency needs consisting of: pulses 6,469 MT, cereals 1,800 MT, oil 1,972 MT and blended food 27 MT. Therefore, this stock shows that only cereals and blended food are short of the requirement while oil and pulses are in excess of the requirement.

Similarly, as per the status of the July 2007 national relief pipeline, the DPPA has a total of 60,700 MT of food commodities in stock consisting of cereal 53,000 MT, pulses 6,500 MT, supplementary food 8,800 MT and oil 2,400 MT. However, the stock at DPPA is recommended to be used for responding to other imminent needs of non-flood emergencies on the basis of case-by-case assessments, as depleting the existing stock for flood emergencies, without replenishment possibilities, would have a risk of relief resource shortfall for other emerging critical needs.

3.3.2 Shelter and Related Items

3.3.2.1 Potential Impacts

Flooding often destroys houses and other properties resulting in the displacement of the flood-affected population. The overall objective of non-food relief provision is to minimize human suffering resulting from the displacements as the displaced loose their household belongings and assets to the floods.

With the objective of protecting displaced people from avoidable risks and vulnerabilities associated with lack of shelter among other things, the plan provides distribution of shelter and related items sets to the displaced population.

3.3.2.2 Requirements

The most basic non-food relief items sought include, among others: plastic sheets and tents for sheltering, blankets, and household utensils, such as cooking pots, ladles, jerry cans, jogs, plastic plates, cups and bowels, etc. The type and quantity of the items along with the available stock is summarized below. In the Mid Case Scenario, it is anticipated that 26,840 displaced households (160,000 people) would need shelter and other related items assistance. A total of US$ 618,192 is estimated to meet these needs as summarized in Table 6 below.

Table 6: Shelter and Related Items for Mid-Case Scenario

Description	Unit	Requirement		Available Stocks			Gaps	Cost [USD]	
		160,000 People	26,840 HHs	UNICEF	DPPA	Total		Unit	Total
Shelter Materials:									
Plastic Sheet 4x5	pcs	-	26,900	6,000	5,120	11,120	15,780	9	142020
Tents (Family Size)	"	-	100	-	150	150	-	-	0
Rubb Halls	"	-	1	-	1	1	-	-	0
Blankets	"	-	53,800	19,892	25,897	45,789	8,011	6	48,066

Household Utensils:									
Cooking pot	pcs	-	26,900	5,000	3,000	8,000	18,900	3.5	66,150
Ladles	"	-	26,900	10,000	1,000	11,000	15,900	1	15,900
Basins	"	-	26,900	11,000	-	11,000	15,900	0.2	3,180
Jerry can*	"	-	26,900	27,739	6,000	33,739	-	-	0
Jugs	"	-	26,900	10,000	-	10,000	16,900	0.2	3,380
Plastic Plates	"	160,000	-	5,000	3,000	8,000	152,000	0.2	30,400
Plastic Cups	"	160,000	-	5,000	4,000	9,000	151,000		**309,096**
Total Cost*									**618,192**

* Note that other operational costs such as transport are included under emergency logistics requirement (section 3.2, Table 2).

3.3.2.3Available Resources and Gaps

Available shelter and related items in DPPA and UNICEF stocks, as well as outstanding gaps, are indicated in Table 6 above. Moreover, it would be vital to mention here that some very basic non-food items are available in EFSRA stock which humanitarian operators can access on loan or borrowing basis. More information on these items can be obtained directly from EFSRA or DPPA's website: http://www.dppc.gov.et/.

3.4 HEALTH AND NUTRITION

3.4.1 Potential Impacts

Flooding has the potential to deteriorate the health and nutrition situation of affected populations. Severe floods damage safe water and sanitation facilities, create poor hygiene particularly in temporary shelters, and establish conditions conducive for vector borne diseases. This amplifies the risk of endemic and epidemic diseases such as acute respiratory illnesses, malaria, measles, relapsing fever and water borne diseases such as acute watery diarrhoea (AWD). Some roads and other infrastructure usually become inaccessible by flooding, decreasing the already limited access to health services in many of the flood prone areas and increases the challenges to the prevention and control of communicable diseases.

AWD epidemic: Flooding and heavy rainfall will exacerbate the ongoing AWD epidemic which currently poses a major challenge in flood prone and other areas. Flooding conditions will also create conducive conditions for the rapid spread of the disease.

Malaria: According to MoH, approximately 75 percent of the country is classified as malaria prone. Most of the flood affected areas are located within these areas and flooding is likely to amplify malarial cases.

Other common and communicable diseases: Acute respiratory infections, skin diseases, eye diseases, typhoid fever, shigellosis, poliomyelitis, and hepatitis A and B are other common and/or communicable diseases that will most likely increase in incidence during flooding particularly due to population displacement and overcrowding in temporary shelters.

Malnutrition: Child malnutrition remains high in Ethiopia throughout the year. In times of flooding, a combination of conditions combine to increase vulnerability to malnutrition

including lack of access to food and safe water, increased cases of communicable and diarrheal diseases, and limited access to health facilities in many of the flood prone areas. In times of extensive flooding, malnutrition cases are likely to escalate especially among children, pregnant women and the elderly.

3.4.2 Requirements

In order to address potential flood-induced needs in the health and nutrition sector, a total of US$ 674,917 is estimated to be required for the Mid-Case Scenario, as summarized below in Table 7. The detailed breakdown is illustrated in Annex 4.

Table 7: Health and Nutrition Requirements

Items	Mid-Case Scenario			
	Stocks	Requirements	Gaps	Gap value (US$)
Essential drugs and medical supplies	10 EHK; 10 Pneumonia Kit; 10 Lab. Kit; 10 Surgical module; 6 Mother and child maternity module	Annex	Annex	159,934
AWD drugs and medical supplies	20 Cholera Kits	25 Cholrea + Annex	5 Cholrea kits	368,983
Malaria drugs	From Malaria Program (Global fund)	Annex (Coartem, Chloroquine, Premaquine)	0	0
Mosquito nets	From Malaria Program (Global fund)	53,880	0	0
Health staff training and orientation	0			21,000
Community Education	0	50,000	50,000	50,000
Management of Therapeutic Feeding Centers	0	50,000	50,000	50,000
Support of vaccination	0	15,000	15,000	15,000
Monitoring and supervision	0	10,000	10,000	10,000
TOTAL				**674,917**

Planned sectoral interventions include:

Surveillance and case management: Surveillance would be immediately enhanced to track increased health threats and existing health facilities will be used for case management. Where this is not possible, health services will be rendered in temporary shelters. If necessary, mobile health clinics will be set up. Psychological support programmes will also be initiated as the need arises.

Immunisation: For populations displaced by flooding, measles vaccinations may be required for those between the ages of 6 months and 15 years. Vitamin A supplementation will also be needed for the under fives. Other vaccinations may also be required such as polio, tetanus, and meningitis.

Vector control: The distribution of insecticide-treated nets (ITNs), insecticide spray and the destruction of vector breeding would be needed for vector control. The required resource will be covered by the Global Fund.

Advocacy and community mobilization: Good hygiene practice will be promoted in all flood affected areas, particularly in areas with displacement. Communities will be encouraged to seek health and nutrition treatment early and will be sensitized to the dangers of HIV transmission.

Monitoring of the emergency health interventions will be carried out by the Health and Nutrition Taskforce led by MoH.

3.4.3 Available Resources and Gaps

Malaria drugs and mosquito nets have been made available by the global fund and the remaining gaps are indicated in the table above.

3.5 WATER AND ENVIRONMENTAL SANITATION (WES)

3.5.1 Potential Impacts

Severe floods could destroy houses, farmlands and infrastructure forcing a large number of people to leave inundated villages, exposing them to the risk of homelessness, water-borne disease and malnutrition. Also, floods often lead to the contamination of safe water sources and can damage sanitation facilities.

3.5.2 Requirements

In order to provide lifesaving water and environmental sanitation interventions, a total of US $ 2,004,155 would be required as summarized on Table 8 below.

The WES response interventions would focus on the rehabilitation and maintenance of non-functioning water schemes in affected villages, health centers, and schools. In addition, an emergency WES/WASH activities would include water tankering, supply of water purification chemicals, on-site water treatment using EMWAT Kits, and the distribution of plastic squatting slabs as well as body and laundry soaps in temporary shelters. Also, sanitation and hygiene education messages would be provided by the water works technical and vocational schools trainees and health extension workers in affected regions. Details of potential requirements and response strategies are shown by regions in Annex 2.

Table 8: Water and Sanitation Requirements

Region	Required Resources (USD)	Available Resources (USD)	Gaps (USD)
Afar	279,769	0	279,769
Amhara	277,254	0	277,254
Dire Dawa	100,845	0	100,845
Gambella	130,996	0	130,996
Oromiya	87,746	0	87,746
Somali	650,585	0	650,585
SNNPR	461,435	0	461,435
Tigray	15,525	0	15,525
Total	**2,004,155**	**0**	**2,004,155**

3.5.3 Available Resources and Gaps

No available resources have been indicated or identified in the WES sector during the planning process.

3.6 AGRICULTURE AND LIVESTOCK

3.6.1 Potential Impacts

Severe flooding costs human and animal lives and disrupts both crop and livestock production activities as it inundates large areas of crop fields and grazing lands. Obviously, such a damage, destruction or disruption has a direct impact on food, seed as well as the livelihood security of the affected households.

In the crop sub-sector, the major anticipated threat in times of flooding is critical seed shortage or the lack of access to locally available seeds by the affected farmers. A total of 27,000 farming households and agro-pastoralists (Table 1) are anticipated to be exposed to seed shortage and seek emergency seed assistance due to potential flooding in 2007.

In the livestock sub-sector, one of the major anticipated threats is the deterioration of livestock health resulting in productivity losses. Livestock stranded in flood affected areas suffer from shortage of feed, since most of the grazing land is covered with water. Large scale flooding also result in the increased movement of livestock in search of grazing land, which often induces stress, aggravates livestock diseases and parasitic infestations and leads to the outbreak of trans-boundary and vector-born animal diseases.

3.6.2 Requirements

In addressing the crop sub-sector, the aim is to focus on the critical humanitarian needs of the most vulnerable seed insecure farming households who may be affected by flooding, through the urgent provision of seeds and other inputs. This will enable them to rapidly resume farming, restore their agricultural productivity, produce their own food and reduce their dependency on external food assistance. Hence, a total of 474 MT of seeds are required to cover the anticipated critical seed shortage. For planning purposes, the estimated seed based humanitarian requirements are outlined below in Table 9.

The primary purpose of the livestock relief intervention is to restore the production and productivity of livestock through minimizing the effects of diseases and enhancing the coordination of activities. The disease control strategies will mainly focus on prophylaxis and curative treatment since vaccinated and treated animals are expected to better tolerate the impact of disaster and contribute more to household food-security than others.

Approximately 474 MT of seed, at a cost of US$ 262,220, would be required to cover the anticipated critical seed gap, while some US$ 864,000 is estimated to be required for necessary livestock interventions. The respective requirements are summarized below in Table 9 and Table 10. A detail breakdown is indicated in Annex 3.

Table 9: Emergency Seed Requirements

Region	No of Households in the Mid-Case Scenario	Required		Fund (USD)	
		Seed (MT)	Cost (USD)	Available	Gap
Somali	6,900	77	49,830	45,000*	4,830
Dire Dawa	1,100	0	0	0	0
SNNPR	6,040	242	133,826	0	133,826
Amhara	4,900	18	9,952	0	9,952
Afar	3,400	28	17,941	0	17,941
Gambella	3,800	76	77,222	0	77,222
Oromia	600	24	13,220	0	13,220
Tigray	200	9	5,229	0	5,229
Harari	0	0	0	0	0
Total	**26,940**	**474**	**307,220**	**45,000**	**262,220**

* Available with FAO

Table 10: Livestock Health and Feed Intervention Requirements

Region	Number of Livestock	Cost (USD)			
		Vaccines	Drug	Feed	Total
Somali	265,543	12,786	100,125	127,200	240,111
Dire Dawa	86,550	5,212	30,761		35,973
SNNPR	288,805	15,787	103,709		119,496
Amhara	223,184	13,122	79,473	127,200	219,794
Afar	159,831	8,679	56,850	127,200	192,729
Gambella	82,361	4,669	29,800		34,469
Oromiya	50,795	2,967	18,511		21,478
Grand Total	**1,157,068**	**63,222**	**419,229**	**381,600**	**864,051**

3.6.3 Available Resources and Gaps

FAO has allocated USD 45,000 for emergency livestock drug and vaccine intervention for Somali Region.

3.7 EARLY RECOVERY

3.7.1 Potential Impact and Requirement

Flooding, as a disaster agent, brings about considerable disruption, damage or destruction on household assets and livelihoods, on community service facilities and on major economic/economic infrastructures such as roads, irrigation schemes, municipal water supply systems, telecommunication and electric networks, etc. However, humanitarian response is primarily concerned with addressing the pressing recovery needs of the severely affected households and communities. In this regard, from experience, the most crucial recovery activities for addressing the impacts of flooding on affected households and communities would include:

- minimum restocking especially for households who lost their animals to floods;

- provision of agricultural inputs (seeds, hand tools, etc) for farming households who are left barehanded by flood incidence;
- house reconstruction for those victims whose dwellings are destroyed by floods;
- rehabilitation/reconstruction of community social service giving facilities, e.g: water supply units, irrigation schemes, small schools, clinics (human and animal), etc.

Although recovery intervention, in the disaster management phase, comes in parallel with or next to emergency-relief, it is recommended to think of and reflect the potential recovery needs even at this contingency planning stage. To this effect, the resource requirement for early recovery interventions is very roughly taken as 50% of the emergency-relief operation. The actual details of the needs would be worked out case-by-case after the occurrence of the incidences.

4. IMPLEMENTATION ARRANGEMENT AND OVERALL COORDINATION

4.1 Role of Implementing Organs

The overall leadership for Humanitarian Response will be that of the Government at all levels: federal, regional, zonal and woreda, with full participation of donors, UN agencies, NGOs and communities at large. Overall coordination of the nationwide flood response will rest with the DPPA as per its mandate. The following arrangements are envisaged in the implementation process.

4.1.1 Federal Level

a) National Disaster Prevention and Preparedness Committee (NDPPC), being the highest body in the humanitarian arena, will provide guidance, allocate the necessary resources and oversee coordination of agreed tasks.

b) Disaster Prevention and Preparedness Agency (DPPA) will:
   - Assess, jointly with concerned regional, zonal and woreda bodies, donors, NGOs and UN agencies, the existing situations and extent of damage;
   - Monitor the emergency situation and the response progress through the Crisis Management and Early Warning Working Groups, and through different Task Forces where the international community actively participates;
   - Mobilise the resources required for the successful implementation of the project;
   - Coordinate the humanitarian response initiated by concerned line ministries and NGOs;
   - Receive and consolidate project proposals;
   - Allocate resources on priority basis;
   - Monitor/cause to be monitored implementation of same;
   - Provide regular progress and terminal reports to the NDPPC and donor community.

c) Line ministries will:
   - Assess, in consultation with the concerned regional authorities and in collaboration with relevant donors, UN agencies and NGOs, the specific situations and establish needs, compile them and submit to the DPPA for resource mobilization purpose;
   - Ensure that the necessary support is provided in time;
   - Provide technical support in the implementation process;
   - Monitor progress and report on progress to the DPPA/NDPPC.

d) United Nations Agencies:

   The United Nations Humanitarian Coordinator, supported by United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) and other UN humanitarian agencies, will coordinate UN agencies' response in close consultation with DPPA and line ministries. The Cluster Leads will support their respective sectoral taskforces both at federal and regional levels. The Humanitarian Coordinator will collaborate with DPPA in ensuring the flow of information to donors, NGOs, and other international bodies and assist DPPA in tracking of humanitarian contributions.

4.1.2 Regions at Different Levels

Ultimately, the project will be implemented in the affected regions. Thus, the regions are expected to:

a) Reactivate/strengthen an overall coordination body at regional, zonal and woreda level, led by the government comprised of relevant UN agencies and NGOs. The sectoral emergency taskforces will be convened by the Regional DPFSB/DPPB and the respective zonal offices, chaired by the relevant government office to facilitate on site coordination in affected areas.
b) Prepare plausible plan of action with achievable time frame;
c) Screen and determine eligible beneficiaries and provide them with special identification cards or slips;
d) Determine short, medium and long term needs and establish recovery and rehabilitation packages;
e) Design implementation modality and workable arrangements and provide the necessary support;
f) Make regular monitoring and take on the necessary corrective measures;
g) Prepare/compile and submit regular progress reports to the federal bodies.

4.1.3 Community and Beneficiary Level

a) Support in the identification of eligible beneficiaries;
b) Take part actively in the identification and design of recovery/rehabilitation packages for most affected individual families;
c) Take part in the actual project implementation.

4. 2 Specific Actions and Time Line for Emergency Response

PERIOD	PRIORITY ACTION	RESPONSIBLE	LOCATION
Pre-Flood Period	Develop Flood Contingency Plan	DPPA/Sectoral Task forces/Humanitarian Partners	Addis Ababa
	Reactivate regional, zonal, and woreda level task forces to ensure preparedness if reactivation is necessary	Regional, zonal, and woreda level governments, supported by humanitarian partners on the ground	2006 Flood-affected areas
	Organize new regional, zonal, and woreda level task forces in high risk zones if necessary	Regional, zonal, and woreda level governments, supported by humanitarian partners on the ground	High flood-risk areas
	Mobilize the necessary resources for emergency relief	DPPA	Addis Ababa
	Avail the necessary resources for emergency relief	Donors	Addis Ababa
	Pre-position humanitarian aid resources to inaccessible flood-prone areas	DPPA/ Sectoral Taskforces	High flood-risk areas
	Establish Immediate response assessment teams	DPPA/ Sectoral Taskforces/ Humanitarian Partners	Addis Ababa
	Ensure availability of logistical support for evacuation, rescue and delivery plan which can be efficiently accessed when necessary; plan possible air support operation	DPPA,WFP, MoND	Flood-prone areas
Imminent Flood	Alert DPPA on rising dam water level or heavy rainfall	MOWR, NMA	Addis Ababa
	Alert the regional DPPBs based on hydro-metrological data received	DPPA	Addis Ababa
	Alert vulnerable population and prepare evacuation if need arises	DPPB with support from the regional Water Resources Bureaus and Humanitarian Partners on the ground	Regions
	Initiate/reconvene the Crisis Management Group (CMG)	DPPA	Addis Ababa
48 hours	Notify DPPA of regional flood events as they develop	Regional DPPB/ Humanitarian Partners	Regions
	Issue initial situation report on the emergency situation	DPPA, Flood Taskforce	Addis Ababa
	Dispatch inter-agency need assessment, first response and rescue if need arises.	DPPA, MoND	Addis Ababa
	Determine if Flash Appeal is necessary and begin preparation	DPPA, Humanitarian Partners, Sectoral Taskforce	Addis Ababa
	Monitor highland rainfall and inform lowland officials of flood risk	MoWR, NMA, Highland zonal administrations	Regions
	Inform lowland communities of flood risk as it develops	Lowland zonal administrations	Regions
	Conduct Joint Rapid Assessments,	DPPA, Partners	Flood -

First Week	deliver initial assistance and conduct rescue operation.		affected area
	Identify needs in all sectors and circulate information to relevant actors	DPPA, Partners	Flood - affected area
	Revise sectoral flood contingency plan using updated field information and prepare sectoral response plan	DPPA/Sectoral Taskforces/Humanitarian Partners	Addis Ababa
	Initiate air operation plan as necessary.	DPPA, WFP	Addis Ababa
	Mobilize additional resource to address emerging sectoral needs	DPPA/Sectoral Taskforce/Humanitarian Partners	Flood - affected area
	Reconvene 2006 regional co-ordination taskforces to be chaired by the relevant government office to facilitate on site coordination in affected areas. The taskforce will meet on a daily basis or as required during the emergency.	Led by regional DPFSB/DPPB, supported by humanitarian partners on the ground	Flood - affected area
	Reconvene 2006 coordination task-forces at a zonal and woreda level to facilitate on-site coordination of affected areas. The taskforces will meet on a daily basis as required during the emergency.	Led by zonal and woreda level officials, supported by humanitarian partners on the ground	Flood affected areas
	Request HRF or CERF allocation if required, depending on need assessment results.	Implementing organizations	Addis Ababa/ Regions
	Activate a national level coordination forum for information sharing to ensure continued follow-up of the situation on the ground.	DPPA, HC/OCHA	Addis Ababa
Week 2 - 4	Continue addressing sectoral gaps	Government and Humanitarian partners	Addis Ababa
	The regional and zonal coordination taskforce will meet regularly	DPPA, Regional Bureaus and humanitarian partners on the ground	Regions
	Closely monitor the emergency situation on the ground	DPPA/Humanitarian Partners	Addis Ababa
	Reconvene TIME	DPPA	Addis Ababa
	Prepare intervention matrices and situation reports as the need arise	OCHA	Addis Ababa
Month2- 3	Follow up on food allocations and dispatches with DPPA and redeliver new stocks if necessary	DPPA/WFP	Addis Ababa
	Conduct flood impact assessment and identify/establish recovery needs/proposals	DPPA/MoARD, UNDP	Addis Ababa, Regions
	Follow up on NFI dispatches	DPPA/UNICEF/IOM	Addis Ababa
	Follow up on transport arrangements	DPPA/WFP	Addis Ababa
	Follow up on rehabilitation needs	DPPA/UNDP	
	Conduct Flood Impact Assessment	DPPA/Flood Taskforce	Addis Ababa

ANNEXES

Annex 1: Stations that Received Heavy Rainfall in One Day in June 2007

No.	Region	Station	Rainfall in mm	
			June	July
1	Afar	Dubti	-	58.6
		Semera	-	41.0
2	Amhara	Aykel	56.8	
		Bati	-	52.2, 51.3
		Majete	-	35.4, 53
		Sirinka	-	32, 41.8
		Wegeltena	-	33
		Dangla	-	34
		Debretabor	34.3	-
		Metema	98.1	49.4
		Bahidar	43.2	33.4
		Pawe	59.5	39
		Alemketema	-	60.7
		Enewari	-	51.3
		Kombolcha	-	54.3, 30.4, 32.9
		Mehalmeda	-	34.8
2	B/Gumuz	Chagni	46	-
		Mankush	49.2	48, 33.4
		Assosa	-	102.5
3	Dire Dawa	Dire Dawa	36.3	40.7
4	Oromiya	Nekemt	45.7	47.3
		Assela	-	39
		Eteya	-	65
		Limu Genet	-	53.3
		Nejo	-	40
		Fiche	-	32.7
		Bedele	40	30, 35
		Begi	-	32.6, 32.1
		Alge	-	50, 65.5
		Ejaji	104.4	-
		Gimbi	35.9	-
		Kachese	51.2	-
		Sokuru	40	-
		Shambu	32.3	-
		Debrezeit	38.1	-
		Ambo	34.7	-
		Arjo	31.2	58.3
5	SNNPR	Hossaena	42.3	-
		Awassa	75	-
	Somali	Jijiga	-	36.0
6	Tigray	Senkata	44.6	-
		Shire	56	-
		Mytsemri	-	59.5, 75

No.	Region	Station	Rainfall in mm	
			June	Early July
1	Afar	Dubti	-	58.6
		Semera	-	41.0
2	Amhara	Aykel	56.8	
		Debretabor	34.3	
		Metema	98.1	
		Bahidar	43.2	
		Pawe	59.5	
		Alemketema	-	60.7
		Enewari	-	51.3
		Kombolcha	-	54.3
		Mehalmeda	-	34.8
2	B/Gumuz	Chagni	46	
		Mankush	49.2	
		Assosa	-	102.5
3	Dire Dawa	Dire Dawa	36.3	40.7
4	Oromiya	Nekemt	45.7	47.3
		Bedele	40	
		Ejaji	104.4	
		Gimbi	35.9	
		Kachese	51.2	
		Sokuru	40	
		Shambu	32.3	
		Debrezeit	38.1	
		Ambo	34.7	
		Arjo	31.2	
5	SNNPR	Hossaena	42.3	
		Awassa	75	
	Somali	Jijiga	-	36.0
6	Tigray	Senkata	44.6	
		Shire	56	
		Mytsemri	-	59.5

Annex 2: Water and Environmental Sanitation Requirement

Region	Threat	No. of people affected	Response strategies	Resource requirements USD	Available resources USD	Resources gaps USD
Afar	Flood	31,600	Water tankering, rehabilitation and maintenance of water supply schemes	212,668	0	212,668
	Outbreak of AWD and other waterborne disease	3,160	Provision of water purification chemicals, Construction of latrine, Sanitation and hygiene education	47,400	0	47,400
	Stagnant	7,900	Dewatering of	19,700	0	19,700

	water		stagnant water, chemical treatment			
Sub total				**279,769**		**279,769**
Amhara	Flood	74,500	Disinfections of surface water, Provision of water purification chemicals, rehabilitation, maintenance of water supply schemes,	118,941	0	118,941
	Outbreak of AWD and other waterborne disease	7,450	Provision of water purification chemicals, Construction of latrine, Sanitation and hygiene education	111,750	0	111,750
	Stagnant water	18,625	Dewatering of stagnant water, chemical treatment	46,563	0	46,563
Sub total				**277,254**		**277,254**
Dire Dawa	Flood	15,100	Water tankering, supply of water containers, rehabilitation and maintenance of water supply schemes	78,195	0	78,195
	Outbreak of AWD and other waterborne disease	1,510	Provision of water purification chemicals, Construction of latrine, Sanitation and hygiene education	22,650	0	22,650
	Stagnant water		Dewatering of stagnant water			
Sub total				**100,845**		**100,845**
Gambella	Flood	23,300	Supply of water purification chemicals, rehabilitation and maintenance of water supply schemes	81,483	0	81,483
	Disease outbreak/AWD and other waterborne disease	2,330	Provision of water purification chemicals, Construction of latrine, Sanitation and hygiene education	34,950	0	34,950
	Stagnant water	5,825	Dewatering of stagnant water, community mobilization	14,563	0	14,563
Sub total				**130,996**		**130,996**

Region	Threat	No. of people affected	Response strategies	Resource requirements USD	Available resources USD	Resources gaps USD
Oromiya	Flood	15,800	Water purification and distribution of purification chemicals. Water disinfections, Birka and Ela disinfections	54,171	00	54,171
	Disease outbreak/AWD and other waterborne disease	1,580	Provision of water purification chemicals, Construction of latrine, Sanitation and hygiene education	23,700	0	23,700
	Stagnant water	3,950	Dewatering of stagnant water	9,875	0	9,875
Sub total				**87,746**	**0**	**87,746**
Somali	Flood	79,100	Supply of water purification chemicals, water disinfections Bika and Ela disinfections	284,760	0	284,760
	Disease outbreak/AWD and other waterborne disease	7,910	Provision of water purification chemicals, Construction of latrine, Sanitation and hygiene education	118,650		118,650
	Stagnant water	9,887	Dewatering of stagnant water	247,175	102,974	144,201
	Sub total			**650,585**	**102,974**	**547,611**
SNNPR	Flood	80,600	Water purification, water disinfections and provision,	290,160	0	290,160
	Disease outbreak/AWD and other waterborne disease	8,060	Provision of water purification chemicals, Construction of latrine, Sanitation and hygiene education	120,900	0	120,900
	Stagnant water	20,150	Dewatering of stagnant water	50,375	0	50,375
Sub total				**461,435**	**0**	**461,435**
Tigray	Flood	900	Water purification, water disinfections and provision	13,500	0	13,500
	Disease outbreak/AWD and other	90	Provision of water purification chemicals, Construction of	1,350	0	1,350

	waterborne disease		latrine, Sanitation and hygiene education			
	Stagnant water	225	Dewatering of stagnant water, community mobilization	675	0	675
Sub total				**15,525**		**15,525**
Grand Total						**1,901,181**

Annex 3: Seed and Livestock Requirement

Annex 3a: Livestock Health Requirements

Items	Unit	Unit Price (US $)	Total Quantity	Total Unit Price (US $)
Vaccines	Dose	0.02	2,750,173.67	63,222.38
Organophosphate acaricide 60% EC	Litre	9.77	23,141.37	226,093.84
Oxytetracycline 20%	Bottle	3.45	46,282.74	159,595.65
Albendazole 2500 mg (Box of 50)	Box	7.47	1,542.76	11,526.35
Albendazole 300 mg (Box of 50)	Box	4.25	3,085.52	13,122.31
Diaminazine aceturate	Sachet	0.57	2,494.79	1,433.79
Isometamidium chloride	Sachet	5.98	1,247.39	7,459.41
Grand Total				**482,453.73**

Annex 3b: Emergency feed requirements for breeding stocks in Afar, Amhara and Somali for a period of 30 days

Regions	Livestock breeding stocks	Population to be targeted	Required feed in quintals	Cost in USD
Afar	Sheep	3,000	180	3,000
	Goats	3,000	180	3,000
	Cattle	10,000	6,000	100,000
	Feed transport		6,360	21,200
Amhara	Sheep	3,000	180	3,000
	Goats	3,000	180	3,000
	Cattle	10,000	6,000	100,000
	Feed transport		6,360	21,200
Somali	Sheep	3,000	180	3,000
	Goats	3,000	180	3,000
	Cattle	10,000	6,000	100,000
	Feed transport		6,360	21,200
Grand total				**381,600**

Annex 3C: Emergency seed requirement s*

Region	Zone	No of People to be affected	No of household to be affected	maize	sorghum	tef	barley	wheat	oats	fenugreek	rice	hbeans	chickpeas	lintiles	vech	ground nut	sesame	safflower	onion	tomato	sweet potato	Required seed Tone	Fund required USD
Somali	Gode	42,300	7050	65	11												2		0.78			78.78	50891.88
	Afder	35,300	5883	54	9												2		0.65			65.65	42409.9
	Shinile	1,500	250	1.4	1.4														0.01	0.02		2.83	1828.18
		79,100	**13183**	**120.4**	**21.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**1.44**	**0.02**	**0**	**147.26**	**95129.96**
DireDawa	Dire Dawa city	7,000	1167	0															0.17			0.17	1147.5
	Dire Dawa Zuria	8,100	1350	0															0.19			0.19	1282.5
		15,100	2517	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.36**	**0**	**0**	**0.36**	**2430**
SNNPR	Wolayita	4,000	667			4						3	20									27	14931
	Hadiya	33,200	5533										221									221	122213
	Sidama	22,000	3667	16		13							117									147	81291
	Gurage	300	50										2									2	1106
	Keffa	400	67	3																		3	1659
	South Omo	16,200	2700	7	72							7	23									108	59724
	Gamo Gofa	1,500	250	10																		10	5530
	Alaba	3,000	500			11							9									20	11060
		80,600	13433	**36**	**72**	**28**	**0**	**0**	**0**	**0**		**10**	**392**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**538**	**297514**
Amhara	W. Gojjam	2,500	417										6.7	2.6	7.4							16.7	9235.1
	S. Gondar	54,000	9000	12.1		1.4	20.8	3.6	8.9	3.3			153.5	31.2	121.5			3.7				360.0	199080
	E. Gojjam	200	33										1.3									1.3	718.9
	Oromiya	5,300	883			1.7							1.8									3.5	1935.5
	N. Gondar	7,000	1167					16.3		3.5			21.7	5.2								46.7	25825.1

*** Seeds requirement in this table should be adjusted in line with the beneficiary number shown on Table 9!!**

	N. Shewa	3,500	583										2.3									2.3	1271.9
	S. Wello	700	117										4.7									4.7	2599.1
	N. Wello	100	17										0.7									0.7	387.1
	W. Himra	1,200	200										8.0									8.0	4424
		74,500	12417	**12.1**	**0**	**3.1**	**20.8**	**19.9**	**8.9**	**6.8**	**0**	**0**	**200.7**	**39**	**128.9**	**0**	**0**	**3.7**	**0**	**0**	**0**	**443.9**	**245476.7**
Afar	zone 1	12,100	2017	15							0.5					0.4	0.1		0.12	0.04	#####	16.16	10439.36
	Zone 3	19,500	3250	25												1	0.2		0.22	0.07	#####	26.49	17112.54
		31,600	5267	**40**	**0**	**0**	**0**	**0**	**0**	**0**	**0.5**	**0**	**0**	**0**	**0**	**1.4**	**0.3**	**0**	**0.34**	**0.11**	#####	**42.65**	**27551.9**
Gambella	Nuer	12,300	2050	21	20																	41	41820
	Itang	9,300	1550	16	15																	31	31620
	Agnuak	1,700	283	3.2	2.5																	5.7	5814
		23,300	3883	**40.2**	**37.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**77.7**	**79254**
Oromia	N. Shewa	600	100										4.00									4	2212
	SW Shewa	5,000	833										29.00	3	1							33	18249
	W Shewa	5,000	833										33.00									33	18249
	E Harerge	4,000	667	12								2.0	13.00						0.25	0.01		27.26	15074.78
	Bale	1,000	167				7															7	3871
	Jimma	200	33	1.32																		1.32	729.96
		15,800	2633	**13.32**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**2**	**79**	**3**	**1**	**0**	**0**	**0**	**0.25**	**0.01**	**0**	**105.58**	**58385.74**
Tigray	Western	400	67	0									3									3	1743
	Southern	500	83	0									4									4	2324
		900	150	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**4,067**
Harari	Hundene	3,000	500	0															0.06	0.03		0.09	607.5
		3,000	500	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.06**	**0.03**	**0.00**	**0.09**	**607.50**
		323,900	53983	#####	#####	31.10	27.80	19.90	8.90	6.80	0.50	12.00	#####	42.00	#####	1.40	4.30	3.70	2.45	0.17	#####	1,362.54	810,416.80

N.B: Seeds requirement in this table should be adjusted in line with the beneficiary number shown on Table 9!!

Annex 4: Health and Nutrition

Secnario One (Mid case scenario)										
Target: 323,900 people (Under five years old: 64,780 and above five 259120)										
					For common diseases				**AWD Outbreak**	
Item	**Unit**	Population covered per tin or pk or bottle	% of patients	Pop. In need	Total Need	Unit Price	Total price	Patients (0.1%) 4288 patients	Quantity	Price
Amoxicilline 125 mg/ml,of 100 ml /bottle	Bottle	1	100	966	966	5	4830			
Amoxicilline 500 mg/Cap of 1000 Caps /tin	Tin	48	50	1930	41	150	6080			
Ampicilin 125mg/5ml, of 100 ml /bottle	Bottle	1	100	966	966	5	4830	642	642	3210
Ampicilin 250mg/cap,1000caps/tin	Tin	18	50	1930	108	100	10808	2573	144	14409
Ampicillin 500mg/cap ,1000 cps /tin	Tin	36	20	773	22	155	3355			
Chloramohincol 250mg/cap, 1000caps/tin	Tin	18	25	965	54	99	5350			
Ciprofloxacilline 500mg/tab of 100 tabs /pk	Pk	10	100	643	64	23	1479	2573	257	5917.9
Co- Trimoxazole 240 mg/5ml,100ml/bottle	Bottle	1	100	724	724	3	2172			
Co- Trimoxazole 480 mg/tab,1000 tabs/tin	Tin	36	100	964	27	88	2375			
Doxacycline 100 mg/tab,1000 tabs/tin	Tin	100	50	321	3	13	42	2573	26	334.49
Erythromycine 125mg/5ms ,bottle of 100ml	Bottle	1	100	964	964	6	5784			
Erythromycine 250mg/tab, 1000tab / tin	Tin	24	25	964	40	250	10122	1286	54	13503
Norfloxacilline 400 mg/tab, 1000 tab / tins	Tin	100	50	321	3	67	215			

Paracetamol 500mg/tab,1000 tabs/tin	Tin	100	100	750	8	50	375			
TTC 250mg/tab,1000 tabs/ tin	Tin	18	100	750	42	86	3629	2573	144	12449.2
TTC Eye oitment				16080	16080	2	32160			
Cholera kits								5	45,000	75000
Sub total							**93605**			**124823**
Coartem	Tin			3216						
Chloroquine 150mg/tab, 1000 tabs/tin	Tin			6433						
Premaquine tin/1000tabs/tin	Tin			3216						
Medical Supplies										
Sprit Methylated 70% of 1 Liter/bottle	bottle				600	10	6000		600	6000
Surgical Gloves 7.5 of 500 pcs/ctn	Ctn				15	500	7500			
Examnation gloves medium 100 pcs /pk	Pck				375	15	5625		375	5625
Examination gloves large of 100 pcs /Pck	Pck				375	20	7500		2250	45000
N/S of 1000 CC with iv set	Pck				1200	122	146400		2250	274500
Ringer lactate 1,000ml with ivset	bag				8000	10	80000		7500	75000
NG tube adult of 10	Pck				750	20	15000		2250	45000
NG tube ped of 10	Pck				1125	20	22500		2250	45000
IV cannula 18G/45mm of 50 pcs	Pck				375	90	33750		2250	202500
IV cannula 19G/45mm of 50 pcs	Pck				375	90	33750		1500	135000
IV cannula 20G/32mm of 50 pcs	Pck				225	90	20250		1500	135000
Scalp Vein of 100	Pck				240	18	4320		750	13500
Surgical blade of 100	Pck				240	15	3600			
Sub total							***386195***			***982125***

Total							**479800**			**1106948**

Total (Estimate for one month)	**1,586,748**

Total estimate for 3 months **4,760,245**

Other activities			
Training			190,000.00
Community education			450,000.00
Monitoring and Supervison			88,400.00
Support of mass vaccination			270,000.00
Mnagement of Therapeutic Feeding Centre (TCF)			450,000.00
Total			**1,448,400.00**

Grand Total	**6,208,645.18**	**Birr**
	689,849	**USD**