



ብሄራዊ ክልላዊ መንግስቲ ትግራይ
The Government of National State of Tigray
ቢሮ ልምዓት ኡርቫን ገጠርን
Bureau of Agriculture & Rural Development

ቁጥር/No

296 / CR-90-302

ቀን/Date

3/2/13

To FDRE, Ministry of Agriculture and Livestock Resources

Addis Ababa

Subject: Submitting Emergency Plan and Request

As you all know, large population segments of Tigrai have been heavily suffered from the recent crisis. Especially the subsistence farm households who constitute 80 percent of the population are the ones suffered the most. Due to repeated desert locust invasion and the war that was erupted during the harvest period have negatively impacted the agricultural sector. Our rapid field assessment reveals that crops and animals were looted or destroyed in most of the rural woredas of Tigrai. The majority of farmers are left without any food, seed, oxen, and farm tools, which leads to the total collapse of the Tigrai agriculture sector if remedies are not in place.

To restore the lives and livelihood of farmers' provision of emergency seed, animal health facilities and feed is a prerequisite. Thus, the Regional Bureau of Agriculture and Rural Development (BoARD) has developed emergency and recovery plan for 2021 agricultural seasons. To do so the bureau has estimated a total fund requirement of **102,487,003,734** birr of which 1,999,875,200 Birr (1.95% of total fund) is for emergency seed and 1,314,056,400 Birr (1.28% of total fund) is for chemical fertilizer, and 53,562,462,650 Birr (52.26% of total required fund) is for animal restocking.

The fund required for the emergency and recovery plan is beyond the capacity of the region. We therefore kindly request your good office to support and contribute to the Regions effort in resuming the agriculture activities in Tigrai and to help the vulnerable population especially the subsistence farmers affected by the war. For your reference we hereby attached -----³²----- pages of the emergency plan.

With best regards,

CC

- Tigrai Interim Regional Government
Mekele
- FDRE, Finance and Economic Minister
Addis Ababa
- United Nations Food and Agriculture Organization (FAO)
Addis Ababa
- National Disaster Risk Management Commission (NDRMC)
Addis Ababa



Abadi Girmay (PhD)
Bureau Head

Tigray Bureau of Agriculture and Rural Development

Emergency and Response Plan for Smallholder farmers affected by the current war crisis

February 2021

Mekelle



Outline

1. Background 1
2. Agriculture in Tigray 2
 - 2.1. The Crop Sub-Sector
 - 2.2 The Livestock Sub-Sector
3. Agricultural inputs: Chemicals
4. Livestock

1. Background

The war that was erupted on November 04, 2020 has disrupted the economic and social fabric of the region, driving food insecurity, malnutrition and water shortages all over the region. About 2.2 million (37%) population has been displaced and a considerable part of the region's social and physical infrastructure was destroyed. Field reports has confirmed that many farms and rural areas have been destroyed, crops burned down or looted, farm equipment's and livestock's were looted/slaughtered. Irrigation structures and livestock clinics were also destroyed. As a result of the destruction about 1.18 million population are in need of emergency seed, livestock health service, and livestock feed.

Prior to the conflict desert locust infestation and different hazards damaged 120,302 ha and 26,628 ha of farm lands respectively. During the past *Meher* season, there was insufficient moisture in most of the zones and woredas especially in Southern, South-Eastern and Eastern zones. Because of this moisture stress, a reduction in crop and livestock production was recorded. Similarly, off-farm employment opportunity has also been affected, where many farm households use as income smoothing strategy. Due to all these shocks many households have been trapped in a cycle food insecurity and hunger.

Table 1: Numbers of households affected by hazards, desert locust and conflict

Zone	Farm land affected by hazards (hailstorm, pests, rainfall shortage etc.) and Yield loss in Qt			Lands affected by Desert locust infestation and Yield losses incurred			Conflict affected		
	Lands affected in Ha	Crop Yield loss in quintal	Farm HHs affected	Lands affected in Ha	Crop Yield loss in Qt	Farm HHs affected	Lands affected in Ha	Crop Yield Loss in Qt	Farm HHs affected
South	1,076	18,200	1,076	78,679	1,573,580	59,000	142,890	4,272,659	164,459
South-East	4,344	78,192	2,172	37,125	668,250	9,281	106,028	487,802	212,056
Eastern				1,637	19,644	820	94,980	2,275,940	189,964
Central	21,208	238,127	119,000	2,664	31,968	1,332	202,059	2,513,326	404,118
North-West							240,640	5,947,438	120,321
Western							554,996	6,487,748.00	92,499
Total Sum	26,628	334,519	122,248	120,105	2,293,442	70,433	1,341,593	21,984,913	1,183,417

In order to restore the agricultural practices, the Tigrai Regional Bureau of Agriculture has developed a response plan for the coming three months. To implement the plan the regional government needs to seek substantial support from development partners for the immediate emergency support to smallholder households to grow crops and to minimize and prevent further impacts of the crisis.

Objective of the emergency and recovery plan: to contribute to the reduction of hunger and famine through creating farmers' access to quality seed and livestock feed and livestock health services so as to improve crop and livestock production and farmer's livelihoods.



Specific objectives

- To support seed insecure households to resume and enhance crop production and productivity through improved availability and accessibility of high yield crop variety seeds and vegetable seeds;
- To contribute to the reduction of hunger and famine through creating farmers' access to Animal Health Service delivery, fill Animal forage/feed and water gaps, restocking lost animals especially oxen, restoring the AI services so as to reestablish farmer's livelihoods.

Impact: The project will contribute to improved food and nutrition security, as well as restore livelihoods of vulnerable households affected by the crisis. This impact will complement the federal and regional governments' broad objectives of eliminating hunger and poverty, as well as increasing households' resilience to shocks and disasters.

2. Agriculture in Tigray

The agriculture sector is the mainstay of the Tigray economy. It consists of crop production and livestock husbandry. Mixed farming is the dominant type of farming system in the region. Agricultural production is highly vulnerable to uneven distribution of rainfall. That is, harvest deficits is highly associated with the amount and intensity of rainfall. Deficit years are usually caused by either drought – lack of rainfall or by an even distribution of rainfall throughout the production seasons. This has resulted, the households to live in a vicious circle of poverty. Eighty percent of the population still depend on subsistence agriculture. Prior to the conflict, about 1.1 million persons were food insecure and depend on PSNP. And more than half a million people were direct food relief support beneficiaries. The war exacerbates further to the deterioration of food insecurity and resulted in 4.55 million (76%) population to depend on emergency food aid. To restore the agricultural practices, provision of emergency seed, livestock feed, vaccines, drugs, and rehabilitating veterinary clinics, provision of oxen and agricultural tools ahead of the *Meher* agricultural season is very critical. If agricultural inputs are not provided on time, the smallholder farmers will remain in handouts for the foreseeable period. The total amount of fund required to restore the agriculture sector is estimated at 39.4 Billion Birr (see Table 2).

Table 2: Total amount of fund required to restore the agriculture sector in Tigray

Description	No. of Farmers	Unit	Quantity	Amount (in Birr)
Vegetable seeds	87,074	Qt	27,653	170,271,400
Crop seeds	1,183,417	Qt	492,649	1,999,875,200
For seed Multiplication				24,420,000
Agro-chemicals	756,392	Liter	321,938	279,367,300
Agro-chemicals for pest outbreak				26,596,000
Agro-Chemical sprayer equipment				144,612,050
Protection personal protective equipment				54,900,000
Chemical Fertilizers		Qt	845,715	1,314,056,400
Emergency livestock feed		Qt	494,758	40,198,196,460
Emergency poultry restocking and feed				1,979,312,000
Emergency bee colony restocking & feed				45,075,800



Description	No. of Farmers	Unit	Quantity	Amount (in Birr)
Emergency livestock forage seeds		Qt	1,669	17,493,500
Livestock drugs, vaccines and basic veterinary equipment				158,900,534
Veterinary clinics rehabilitation				905,160,000
AI service feed and other input				31,432,440
Animal Restocking		No	2,487,047	53,562,462,650
Forage store and water tanker				22,050,000
Office furniture for livestock sector				200,000,000
Office furniture for BoA at all levels				1,352,822,000
Total Fund Required				102,487,003,734

The Crop Sub-Sector

Sorghum, wheat, teff, barley, and maize are the major crops grown in the region. Prior to the conflict and desert locust invasions, aggregate crop production has increased for the last decades. This had attributed to increase in utilization of improved seeds, chemical fertilizers, pesticides, and herbicides. Despite the increase in crop production rural life in Tigray has remained harsh.

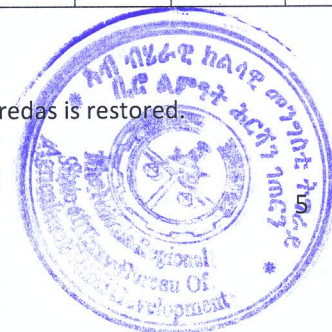
Last year during the Meher production season, the BoA estimated to collect about 21 million quintals of production. The war occurred on the peak of the harvesting season and many farmers were not able to collect their produce. And according to official estimates about 90-100% of the crop harvest were lost (looted, burned, and destroyed). Then farm households remained without food, seed to plant, oxen, and even without farm implements.

To support smallholder farmers to return back to their life a rapid recovery and rehabilitation program is required. To do so one of the intervention will be to provide emergency seed. Thus, the total amount of improved seed required for both the agricultural seasons in the region are estimated at 492,649 quintals (About 69,456 quintals of sorghum, 212,088 quintals of wheat, 18,202 quintals of teff, 80,499 quintals of barley, 29,956 quintals of maize, 12, 770 quintals of finger millet, 31,631 quintals of chickpea, 7,369 quintals of field-pea, 10,525 fababean, 8,105 grass pea, 2,477 quintals of haricot bean, 4,492 quintals of groundnut, and 5,079 quintals of sesame) for about **1,183,417** beneficiary farmers¹. The total amount of land to be cultivated is estimated at 1.3 million hectares (for details see annex 1).

Table 3: Regional Seed requirement by zone for Azmera and meher agricultural seasons

Crop type	South		South-East		East		Central		North-West		West		Total Sum	
	Ha	Qt	Ha	Qt	Ha	Qt	Ha	Qt	Ha	Qt	Ha	Qt	Ha	Qt
Sorghum	51,180	6,142	11,168	1,340	7,571	90,848	72,067	864,802	96,516	11,582	340,298	40,836	578,799	69,456
Wheat	36,548	43,856	64,017	76,821	44,373	53,248	16,867	20,240	0	0	14,936	17,924	176,741	212,088
Teff	26,497	3,975	1,983	297	4,222	633	49,767	7,465	34,189	5,128	4,685	703	121,343	18,202
Barley	13,353	20,029	17,240	25,860	23,074	34,611	0	0	0	0	0	0	53,667	80,499
Maize	0	0	0	0	3,582	1,075	33,628	10,088	46,011	13,803	16,632	4,989	99,853	29,956

¹ The figures will be updated and revised when communication with the zones and Woredas is restored.



Crop type	South		South-East		East		Central		North-West		West		Total Sum	
	Ha	Qt	Ha	Qt	Ha	Qt	Ha	Qt	Ha	Qt	Ha	Qt	Ha	Qt
Finger millet	0	0	0	0	3,787	568	13,239	1,986	39,526	5,929	28,578	4,287	85,130	12,770
Field pea	5,123	6,403	773	966	0	0	0	0	0	0	0	0	5,896	7,369
chickpea	5,070	5,070	4,455	4,818	6,384	6,384	10,399	10,399	4,959	4,959	0	0	31,267	31,631
Faba bean	5,123	7,684	1,017	1,525	877	1,316	0	0	0	0	0	0	7,017	10,525
Grass pea	0	0	5,375	6,719	1,109	1,386	0	0	0	0	0	0	6,484	8,105
Haricot bean	0	0	0	0	0	0	3,097	2,477	0	0	0	0	3,097	2,477
Groundnut	0	0	0	0	0	0	2,995	4,492	0	0	0	0	2,995	4,492
Sesame	0	0	0	0	0	0	0	0	19,440	583	149,867	4,496	169,307	5,079
Total	142,894	93,157	106,028	118,347	94,979	100,129	202,059	65,796	240,641	41,985	554,996	73,234	1,341,597	492,649

In addition to the above seed requirements about 27,212 potato and 401 quintals of different vegetable seeds are required to provide to farmers.

Table 4: Total vegetable seed requirement

S.No	Type of vegetables	Variety	Unit	Quantity	Unit Price Birr	Total Price
1	Lettuce	Great Licks	Qt	10	140,000	1,400,000
2	Onion	Red-Bombay	Qt	353	285,000	100,605,000
3	Swiss chard		Qt	10	150,000	1,500,000
4	Cabbage	Copenhagen market	Qt	10	150,000	1,500,000
5	Tomato	Roma BF	Qt	18	300,000	5,400,000
6	Potato	Belete and Guidena	Qt	27,212	2,200	59,866,400
	Total Sum					170,271,400

Chemical Fertilizer Requirement: Households must be supported as a package program intervention. In line with the improved seed chemical fertilizer will be provided. Accordingly about 800,000 quintals of fertilizer is required which costs about 1.3 Billion Birr (Table 5).

Table 5: Regional fertilizer requirement by zone

Zone	Fertilizer Quantity (Qt)			Price in ETB		
	NPS	Urea	Total	NPS	Urea	Total
South	33,110	28,150	61,260	53,990,822	46,648,491	100,639,313
South-East	63,000	61,600	124,600	102,730,950	102,079,824	204,810,774
East	54,258	52,890	107,148	88,475,808	87,646,135	176,121,942
Central	94,900	71,400	166,300	154,748,685	118,319,796	273,068,481
North-West	83,347	57,321	140,668	135,909,786	94,988,922	230,898,707
West	108,061	86,139	194,200	176,209,670	142,744,382	318,954,052
Mekele	3,324	2,500	5,824	5,420,281	4,142,850	9,563,131
Total sum	440,000	360,000	800,000	717,486,000	596,570,400	1,314,056,400



Without a timely emergency seed support and other agricultural packages that include provision of oxen, farm tools, fertilizer, and chemical intervention, Tigray agricultural activity will be on halt for the coming season. This will have a negative impact on the overall socio-economic activity of the region and the lives and livelihood of smallholder farmers.

Chemicals (pesticides and insecticides): provision of chemicals is also a high priority as Tigray is highly vulnerable to various insect and pest infestations. Table 6 presents the agro-chemicals needed for smallholder farmers required to prevent the effect of pests and insects on crop production and is one of the component of the agriculture packages. Agro-chemical lambdacyhalothrin 5% will be used to control sorghum and maize stalk borer and shoot Fly on Tef. Ridomil Gold 68% will be used to control chocolate spot on fababean and gall on pulses. Similarly Pallas 45 OD is used to control weeds occurred on wheat and Tef.

Table 6: Agro-chemical requirement

s/n	Type of chemicals	unit	Amount	Unit price ETB	Total price ETB
1	Lambdacyhalothrin 5%	litters	195,008	800	156,006,400
2	Ridomil Gold 68%	kg	13,099	1000	13,099,000
3	Pallas 45 OD Herbicide	litters	38,089	2000	76,178,000
4	2-4-D Herbicide	litters	75,742	450	34,083,900
	Total cost	Litters/kg	321,938		279,367,300

Table 7: Number of Household beneficiaries, amount of chemicals and estimated area to be sprayed

s/n	zone	Households to be supported	Amount of chemical In Litters/kg /	Estimated area to be sprayed in hactar
1	South	51,414	16,860	25,707
2	South east	65,939	12,978	32,969
3	Eastern	162,444	18,213	81,222
4	Central	271,309	89,103	135,654
	North western	149,464	84,301	104,464
	western	55,823	100,482	111,647
	Total region	756,392	321,938	491,663

Agro-Chemicals required to control the outbreak of pests: Tigray has been affected by a massive desert locust invasion in the past few years. Last year, more than 120,000 hectares of land was damaged by desert locust. Crops and pastures were destroyed risking many households to hunger and famine. To control desert locust invasion the following chemicals are required (Table 8), sprayer equipment (Table 9) and personal protective equipments (Table 9).



Table 8: Chemicals required during desert locust and armyworm outbreaks

s.no	Types of chemicals	unit	quantity	Unit price	Total
1	Malathain 50%	litter	6,100	380	2,318,000
2	Malathain95% ulv	litter	12,200	380	4,636,000
3	Diaznon 60%	litter	36,600	280	10,248,000
4	Chloropierephos 48%	litter	6,100	700	4,270,000
5	Lambda Sayhayloterin 5%		6,470	800	5,124,000
Total cost			67,470		26,596,000

Table 9: Spray equipment and their accessories required during the outbreaks

s.no	Types of PPE	unit	quantity	Unit price	Total
1	Vehicle mounted sprayer	No	10	2,000,000	20,000,000
2	Knapsack sprayer	No	6,100	1,200	7,320,000
3	ULV sprayer	No	3,050	1,200	3,660,000
4	Motorized sprayer	No	3,050	25,000	76,250,000
5	Gasoil (fuel) for for motorized sprayers	No	12,200	50	610,000
6	Battery for ULV sprayer	No	73,200	20	1,464,000
7	Oil for motorized sprayers	No	610	280	170,800
8	Detergent soap(life boy)	No	3,050	20	61,000
9	Detergent medium Omo	No	3,050	25	76,250
	Operational cost (fuel, lubricants etc.)				35,000,000
Total cost					144,612,050

Table 10: Personal protective equipment (PPE)

s.no	Types of PPE	unit	quantity	Unit price	Total
1	Whole wear	No	24,400	1000	24,400,000
2	gloves	No	24,400	350	8,540,000
3	boots shoos	No	24,400	450	10,980,000
4	mask	No	24,400	150	3,660,000
5	Eye protection	No	24,400	150	3,660,000
6	Cape/hat	No	24,400	150	3,660,000
Total cost					54,900,000



The Livestock Sub-Sector

Tigray is believed to have nearly 17 million livestock population which includes cattle 4,850,412, sheep 2,282,746, goats 4,232,680, equine 991,905 (horse, mule and donkey and camel 52,905, poultry 6,190,640, and Bee colonies 331,407 (CSA, 2018/19). This subsector is also impacted by the crisis. Livestock feed such as hay and crop residues were destroyed. Currently, there is a huge deficit in livestock feed. In addition about 80 percent of livestock health facilities were also destroyed by the conflict.

Rehabilitating this subsector will have a multiplier effect to the Region's economy in terms of provision of food, employment, and income. Livestock products and by-products in the form of meat, milk, honey, eggs, cheese, and butter etc. will contribute to the improvement of nutritional status of smallholder farmers. The required emergency support interventions are presented below.

Livestock Health

Table 11: Veterinary equipment, vaccines and drugs

S/n	Description	Unit cost	Total cost
1	Cost of minimum clinical equipment required for 158 looted (theft) clinics (80% of 198)	378,930	62,040,280
2	Cost of antibiotics (#198 clinics)	105,000	20,790,000
3	Cost of vaccines (198 clinics)	28,620	5,666,760
4	Cost of anthelmintics (198 clinics)	150,250	29,749,500
5	Cost of acaricides(198 clinics)	32,000	6,336,000
4	Cost of poultry drugs (198 clinics)	26,000	5,148,000
5	Cost of other chemicals	3,000	594,000
6	Operational costs		25,661,354
	Total cost		158,900,534

Table 12: Veterinary clinics rehabilitation cost estimates

S/n	Description (Level)	Quantity	Unit cost (ETB)	Total cost (ETB)
	Construction/maintenance			
1	Type A clinics	11	5,000,000	55,000,000
2	Type B clinics	50	4,000,000	200,000,000
3	Type C clinics	137	3,500,000	479,500,000
4	Cost of advanced equipment provision	198	100,000	19,800,000
	Sub total			754,300,000
	Operational cost 20%	198		150,860,000
	Total Cost			905,160,000



Livestock Feed

Due to the recent locust swarms and war-crisis livestock feed is highly affected in quantity and quality. 70% of the feed including hay and crop residues was affected. It is critical to provide livestock feed hay and improve or treat existing crop-residue feeds using Urea Molasses and EM2.

Table 13: Cattle feed emergency requirements

Type	Unit	Amount	Unit price (ETB)	Total cost (ETB)	Remarks
Concentrate feed	Qt	9,034,090	1,000	9,034,090,000	Daily feed allowance of one animal is 6..25kg for a period 6 month
Balance diet	Qt	800,900	1,450	1,161,305,000	
Urea Molasses Block	Qt	926	960	888,960	
EM2	liter	750	50	37,500	
Molasses	Qt	2,500	750	1,875,000	
Grass hay and crop residue	Qt	60,000,000	500	30,000,000,000	
Total				40,198,196,460	

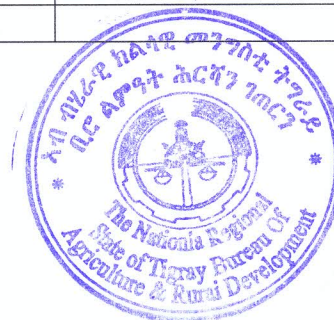
Livestock Forage seed support

In addition to animal health problems, lack of adequate quantity and quality of feed is a major factor in poor livestock productivity. The availability of animal feed is challenged not only by the recurrent drought but it is also affected by the impacts from the desert locust invasion and the crisis. The current war has been affecting forage nurseries and the damage on the existing pasture was significant.

Supporting farmer's to produce their own forage crops at the irrigated field as well as at backyards, and farm lands can help to achieve a healthy livestock production system. In addition, utilizing improved forage varieties will improve animal nutrition resulting in higher producing livestock; it also compliments crop production by maintaining soil fertility through nitrogen fixation. While grazing depletes the fertility of the land, growing forage will improve soil health. For instance, intercropping species like maize and Lablab is more advantageous than growing one crop alone.

Table 14: Emergency forage seed requirements

S/n	Seed type	Seed rate per hac in kg	Amount in Qt	Cost per unit (ETB)	Total cost (ETB)
1	Alfalfa	10	11	150,000	1,650,000
2	Cowpea	15	205	9,500	1,947,500
3	Lablab	20	214	9,000	1,926,000
4	Vetch	30	509	10,000	5,090,000
5	Oats	90	620	9,500	5,890,000
6	Fodder beet	9	110	9,000	990,000
Total					17,493,500



Selecting, finding, and providing suitable forage varieties to the specific areas is mandatory to succeed in forage development plan. In the region there is a critical shortage of seed for the above mentioned improved varieties of forage. It is therefore important to give more attention to get the seeds on time and resolve the crisis of feed shortage in a sustainable manner.

Poultry and bee keeping development

A significant number of rural landless households were supporting their livelihoods through poultry production and beekeeping business. The conflict has disrupted these activities and has deteriorated the socio-economic fabrics of these landless vulnerable communities.

Table 15: Poultry feed requirement

S/n	Feed type	Amount in Qt	Price per unit (ETB)	Total cost (ETB)
1	Maize	12,000	3,000	36,000,000
2	Wheat	6,000	4,000	24,000,000
3	Balanced diet (compound feed)	1,199,570	1,600	1,919,312,000
Total				1,979,312,000

Table 16: Bee colony feed emergency requirement

S/n	Feed type	Amount in Qt	Cost per unit (ETB)	Total cost (ETB)
1	Sugar	10,000	4,500	45,000,000
2	Shiro	2,000	7,900	15,800
3	Sunflower seed	10	6,000	60,000
Total		12,010		45,075,800

Table 17: AI Service Emergency Requirements

NO	List of Equipment/tool	Unit	Amount	Unit price (ETB)	Total cost (ETB)
1	Hay (Bulls feed)	Qt	1300	500	650,000
2	Liquid nitrogen container of 35 litter capacity	pcs	262	30000	7860000
3	Liquid nitrogen container of 2 litter capacity	pcs	131	12000	1572000
4	Insemination Gun	pcs	262	300	78600
5	Scissors and forceps	pcs	152	120	18240
6	AI kit	pcs	131	1200	157200
7	Thermometer	pcs	130	180	23400
8	Thermo-flask	pcs	150	500	75000
9	Electrical Sterilizer	pcs	120	450	54000
10	Sheath	pcs	50000	3	150000
11	Glove	pcs	120000	2.50	300000
12	AI Certificate	pad	1200	120	144000
13	Office furniture chair, table and shelf	pcs	390	5000	1950000
14	Motor Bikes	pcs	127	150000	19050000
Total					31,432,440



Table 18: Animal Restocking

Animal type	Affected HH	Restocking livestock (No)	Unit cost	Total cost
Cattle	829,016	2,487,047	13,500	32,331,612,000
Sheep	845,049	1,690,098	3300	5,577,323,400
Goat	760,772	3,803,860	2800	10,650,808,000
Donkeys	610,976	610,976	4500	2,749,392,000
Poultry	389,165	4,280,815	250	1,070,203,750
Beehive	231,985	231,985	5100	1,183,123,500
Total				53,562,462,650

Table 19: Forage store and water container

S/n	Type	Amount (no)	Unit cost	Total cost
1	Forage seed Store	21	40,000	840,000
2	Reto # 10,000 lit	120	50,000	6,000,000
3	Generator (Motor pump)	21	10,000	210,000
4	Water trough	300	50,000	15,000,000
5	Deep well development			
Total				22,050,000

Office and Office facilities

Table 20: Livestock development office furniture and equipment

S/n	Description	Amount	Unit price	Total cost
1	Case book	200	300	60,000
2	Computer desk top	620	45,000	27,900,000
3	Lab top	120	40,000	4,800,000
4	Printer	120	25,000	3,000,000
5	Palm mini-computer/tablets (data handling and submission)	200	40,000	8,000,000
6	Office table	620	5,000	3,100,000
7	Office chair	820	2,000	1,640,000
8	Shelf	400	6,000	2,400,000
9	Motorbike	120	200,000	24,000,000
10	Vehicles	60	1,500,000	90,000,000
11	Others		35,100,000	35,100,000
Total				200,000,000



Table 21. Office furniture and other materials needed

For werada office of Agriculture and rural development					For Kebele office of Agriculture and rural development			Sum	
S.No	Type	Quantity	Unit price	Total price	Quantity (unit)	Unit price	Total price	Quantity (unit)	Total price
1	Toyota vehicle	60	3,000,000.00	180,000,000.00				60	180,000,000.00
2	Motor bike	360	200,000.00	540,000,000.00	1800	200,000.00	360,000,000.00	2,160	900,000,000.00
3	Desktop computer with printer	3,160	50,000.00	158,000,000.00	600	25,000.00	15,000,000.00	3,760	173,000,000.00
4	Laptop computer	540	30,000.00	16,200,000.00				540	16,200,000.00
5	Beamer	526	25,000.00	13,150,000.00			-	526	13,150,000.00
6	Fax & photocopy machine	540	40,000.00	21,600,000.00			-	540	21,600,000.00
7	Office chair	3,192	1,000.00	3,192,000.00	3000	1,000.00	3,000,000.00	6,192	6,192,000.00
8	Office table	2,320	1,000.00	2,320,000.00	3000	1000	3,000,000.00	5,320	5,320,000.00
9	Paper	16,200	300.00	4,860,000.00	6000	300.00	1,800,000.00	22,200	6,660,000.00
10	Shelf	540	20,000.00	10,800,000.00	300	20,000.00	6,000,000.00	840	16,800,000.00
11	Digital camera	540	5,000.00	2,700,000.00	600	5,000.00	3,000,000.00	1,140	5,700,000.00
12	scanner	60	20,000.00	1,200,000.00				60	1,200,000.00
13	GPS				1200	14000	16,800,000.00	1,200	16,800,000.00
14	Projector				1200	10000	12,000,000.00	1,200	12,000,000.00
	Total			954,022,000.00	15,300.00		391,800,000.00	43,338.00	1,345,822,000.00

Conclusions

A multi-agency assessment is not yet done to estimate the loss of crops and livestock due to the war. However, the damage is beyond anyone can imagine as 4.55 million people are in need of emergency food, of which 2.2 million are IDPs. The conflict is not only impacted the poor and very poor households, whom they usually have limited purchasing capacity, but also the better-off farm households. To avert the situation, the regional government is pledging Federal Government, donor and partner organizations for emergency seed, fertilizer, chemical, livestock feed, veterinary health equipment, vaccines, and drug support. The situation in Tigray could only be averted with the support of national and international organizations.



Annex 1: Improved Seed and Fertilizer Requirement by zone and woreda

Southern zone: This zone is a belg growing zone. For both of the agricultural seasons (belg and meher) about 93,157 quintals of improved seed is required to distribute to 164,459 beneficiaries and 33,110 quintals of NPS and 28,150 quintals of fertilizer are also required.

Amount of seed and fertilizer required per Woreda in southern zone

S.No	Woreda	No HHs	Seed type	Seed variety	Area, Ha	seed rate kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
1	Emba Alaje	18,216	Wheat	Kingbird & Picaflor	6,376	120	765,072	5,000	5,000
			Barley	HB-1307	1,822	150	273,240		
			Field pea	Tegegnech	455	125	56,925		
			Fababean	Ashenge & Gebelcho	455	150	68,310		
2	Selewa	20,764	Wheat	Kingbird & Picaflor	6,229	120	747,504	3,500	2,000
			Barley	HB-1307	1,038	150	155,730		
			Sorghum	Local	1,038	12	12,458		
			Field pea	Tegegnech	1,038	125	129,775		
			Fababean	Hashenge, Gebelcho	1,038	150	155,730		
3	Bora	8,078	Wheat	Kingbird & Picaflor	1,616	120	193,872	1,500	1,000
			Sorghum	Local	1,212	12	14,540		
			Barley	HB-1307	606	150	90,878		
			Chickpea	Local	606	100	60,585		
4	Enda Mekoni	25,492	Wheat	Kingbird & Picaflor	7,648	120	917,712	4,750	4,7500
			Barley	HB-1307	2,549	150	382,380		
			Field pea	Tegegnech	1,275	125	159,325		
			Fababean	Hashenge & Gebelcho	1,275	150	191,190		
5	Neqsege	8,024	Wheat	Kingbird & Picaflor	2,006	120	240,720	1,500	1,500
			Barley	HB-1307	401	150	60,180		
			Field pea	Tegegnech	602	125	75,225		
			Fababean	Hashenge & Gebelcho	602	150	90,270		
			Sorghum	Local	401	12	4,814		
6	Ofla	35,050	Wheat	Hidase, pickaflor, Wanye	8,763	120	1,051,500	5,000	5,000
			Barley	HB-1307	5,258	150	788,625		
			Field pea	Tegegnech	1,753	125	219,063		
			Fababean	Hashenge & Gebelcho	1,753	150	262,875		

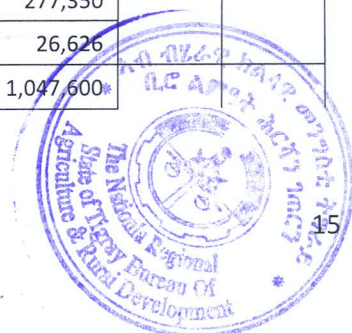


S.No	Woreda	No HHs	Seed type	Seed variety	Area, Ha	seed rate kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
7	Zata	8,394	Wheat	Hidase, pickaflor, Wanye	2,099	120	251,820	2,000	1,000
			Barley	HB-1307	1,679	150	251,820		
			Chickpea	Local	420	100	41,970		
8	Raya Azebo	13,350	Sorghum	Local	16,020	12	192,240	2,500	2,500
			Teff	Bosset	9,345	15	140,175		
			Chickepea	Local	1,335	100	133,500		
9	Chercher	8,976	Sorghum	Local	10,771	12	129,254	2,000	1,400
			Teff	Bosset	6,283	15	94,248		
			Chickpea	Local	898	100	89,760		
10	Raya Alamata	18,115	Sorghum	Local	21,737	12	260,849	5,360	4,000
			Teff	Bosset	10,869	15	163,031		
			Chickpea	Local	1,811	100	181,145		
			Wheat	Picaflor	1,811	120	217,374		
Zone total					142,893		9,315,684	33,110	28,150

South-Eastern zone: In this zone there are six Woredas and the demand of seed required is estimated at 118,347 quintals of seed to cover 106,028 hectare of land. Here Enderta, Hintalo, and Wajirat are belg growing Woredas.

Amount of seed and fertilizer required per Woreda in south-eastern zone

S.No	Woreda	No of HHs	Seed type	Seed variety	Area, ha	seed rate Kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
1	Enderta	63,128	Wheat	Picaflor	22,095	120	2,651,376	21,250	21,250
			Barley	Local	6,313	150	946,920		
			Grass pea	Local	3,156	125	394,550		
2	Degua Temben	20,336	Wheat	Hidase, pickaflor, Wanye	6,101	120	732,096	7,000	7,000
			Barley	HB-1307	2,034	150	305,040		
			Chickpea	Local	1,017	100	101,680		
			Fababean	Hashenge & Gebelcho	1,017	150	152,520		
3	Wajirat	15,458	Wheat	Picaflor	3,865	120	463,740	4,000	2,800
			Barley	Local	1,546	150	231,870		
			Sorghum	Local	1,546	12	18,550		
			Field pea	Tegegnech	773	125	96,613		
4	Hintalo	44,376	Wheat	picaflor	13,313	120	1,597,536	10,000	10,000
			Barley	Local	4,438	150	665,640		
			Grass pea	Local	2,219	125	277,350		
			Sorghum	Local	2,219	12	26,626		
5	Seharti	29,100	Wheat	Picaflor	8,730	120	1,047,600		



S.No	Woreda	No of HHs	Seed type	Seed variety	Area, ha	seed rate Kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
			Barley	Local	2,910	150	436,500	7,250	7,250
			Sorghum	Local	1,455	12	17,460		
			Chickpea	Local	1,455	125	181,875		
6	Samre	39,658	Wheat	Picaflor	9,915	120	1,189,740	12,500	12,500
			Teff	Bosset	1,983	15	29,744		
			Sorghum	Local	5,949	12	71,384		
			Chickpea	Local	1,983	100	198,290		
Aigudom								1,000	1,000
Total sum		212,056			106,028		11,834,700	63,000	61,600
Mekele Zone								3,324	2,500

Eastern Zone: Recurrent drought is a common phenomenon in Tigray in general and in Eastern zone in particular. So drought resistance seed variety is required in this zone to increase agricultural production and attain food security. About 100,129 quintals of different improved seed is required to cover 94,980 hectares of land. The beneficiaries are estimated at 189,964 farm households.

Amount of seed and fertilizer required per Woreda in Eastern zone

S. No	Woreda	No of HH beneficiary	Seed type	Seed variety	Area, ha	seed rate per ha, Kg	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
1	Atsbi	17,546	Wheat	Picaflor	4,386	120	526,350	4,250	4,250
			Barley	Local	3,509	150	526,350		
			Fababean	Local	877	150	131,588		
2	Tsirae Wonberta	22,182	Wheat	Picaflor	5,545	120	665,430	5,600	5,600
			Barley	Local	2,218	150	332,715		
			Maize	Melkasa4, Melkasa6	2,218	30	66,543		
			Grass pea	Local	1,109	125	138,631		
3	Kilte Awlaelo	25,106	Wheat	Picaflor	7,532	120	903,780	10,250	10,250
			Barley	Local	2,511	150	376,575		
			Teff	Bosset	1,255	15	18,829		
			Chickpea	Local	1,255	100	125,525		
4	Gerealta	13,014	Sorghum	Local	3,253	12	39,041	3,750	3,750
			Fingermillet	Local	1,301	15	19,521		
			Teff	Bosset	1,301	15	19,521		
			Maize	Melkasa4, Melkasa6	651	30	19,521		
5	Hawzen	28,898	Wheat	Picaflor	7,225	120	866,946	8,450	7,250
			Barley	Local	2,890	150	433,473		
			Sorghum	Local	2,890	12	34,678		
			Chickpea	Local	1,445	100	144,491		
6	Tsaeda	21,170	Wheat	Picaflor	6,351	120	762,120		

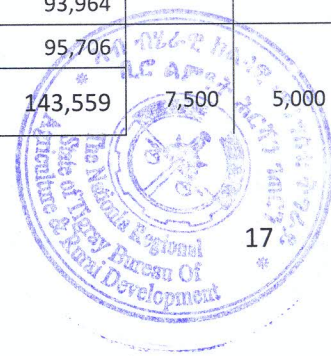


S. No	Woreda	No of HH beneficiary	Seed type	Seed variety	Area, ha	seed rate per ha, Kg	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
	Emba		Barley	Local	2,117	150	317,550	5,325	5,325
			Fingermillet	Local	1,059	15	15,877		
			Chickpea	Local	1,059	100	105,850	3,765	3,765
7	Sebha Saesie	15,056	Wheat	Picaflor	3,011	120	361,344		
			Barley	Local	3,011	150	451,680		
			Teff	Local	753	15	11,292		
			Chickpea	Local	753	100	75,280		
8	Ganta Afeshum	19,200	Wheat	Picaflor	4,800	120	576,000	5,500	5,500
			Barley	Local	3,840	150	576,000		
			Chickpea	Local	960	100	96,000		
9	Bizet	7,138	Fingermillet	Local	1,427	15	21,411	1,600	1,600
			Sorghum	Local	1,427	12	17,129		
			Maize	Melkasa4, Melkasa6	714	30	21,411		
10	Gule Mekeda	18,254	Wheat	Picaflor	4,564	120	547,620	5,500	5,500
			Barley	Local	2,738	150	410,715		
			Teff	Bosset	913	15	13,691		
			Chickpea	Local	913	100	91,270		
11	Erob	2,400	Wheat	picaflor	960	120	115,200	268	100
			Barley	Local	240	150	36,000		
Total sum		189,964			94,980		10,012,948	54,258	52,890

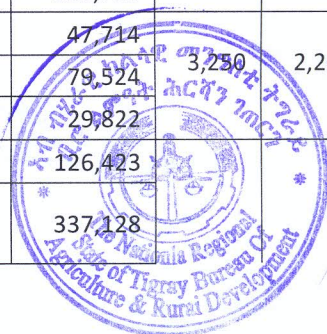
Central zone: In these zone there are 18 woredas and all are affected by the conflict. About 65,796 quintals of improved seed is estimated as emergency and will be planted in 202,059 hectares of land. The beneficiaries are estimated at 404,118.

Amount of seed and fertilizer required per Woreda in Central zone

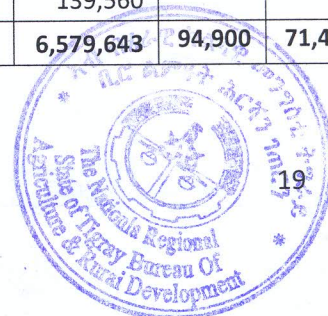
S. No	Woreda	No of HHs	Seed type	Seed variety	Area, ha	seed rate kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
1	Abergele	38,446	Sorghum	Local	11,534	12	138,406	6,500	4,000
			Maize	Melkasa-6, BH 546, BH545	3,845	30	115,338		
			Haricot bean	Local	1,922	80	153,784		
			Groundnut	Local	1,922	150	288,345		
2	Tanqua Milash	23,491	Sorghum	Local	7,047	12	84,568	4,500	3,500
			Maize	Melkasa-6, BH 546, BH545	3,524	30	105,710		
			Haricotbean	Local	1,175	80	93,964		
3	Kola Temben	31,902	Sorghum	Local	7,976	12	95,706	7,500	5,000
			Maize	Melkasa-6, BH 546, BH545	4,785	30	143,559		



S. No	Woreda	No of HHs	Seed type	Seed variety	Area, ha	seed rate kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
			Teff	Bosset	1,595	15	23,927		
			Fingermillet	Local	798	15	11,963		
			Chickpea	Local	798	100	79,755		
4	Keyih Tekli	29,664	Sorghum	Local	7,416	12	88,992	7,500	4,300
			Maize	Melkasa-6, BH 546, BH545	4,450	30	133,488		
			Teff	Bosset	1,483	15	22,248		
			Fingermillet	Local	1,483	15	22,248		
5	Mai Kinetal	15,798	Sorghum	Local	4,344	12	52,133	4,000	2,500
			Teff	Bosset	1,580	15	23,697		
			Maize	Melkasa-6, BH 546, BH545	1,580	30	47,394		
			Chickepea	Local	395	100	39,495		
6	Endaba Tsahima	15,596	Teff	Kuncho & Bosset	1,560	15	23,394	3,500	3,500
			Sorghum	Local	3,119	12	37,430		
			Maize	Melkasa-6, BH 546, BH545	1,560	30	46,788		
			Chickpea	0.1	780	100	77,980		
			Wheat	Picaflor	780	120	93,576		
7	Emabaseneyti	10,928	Sorghum	Local	2,186	12	26,227	2,400	1,600
			Maize	Melkasa-6, BH 546, BH545	1,639	30	49,176		
			Wheat	Picaflor	1,093	120	131,136		
			Teff	Bosset	546	15	8,196		
8	Hahayle	11,572	Wheat	Picaflor	2,893	120	347,160	3,000	2,000
			Teff	Kuncho	1,736	15	26,037		
			Sorghum	Local	1,157	12	13,886		
9	Ahferom	23,352	Wheat	picaflor, Hidase, kingbird, Wane	5,838	120	700,560	6,000	5,000
			Teff	Kuncho & Bosset	3,503	15	52,542		
			Sorghum	Local	1,168	12	14,011		
			Chickepea	Local	1,168	100	116,760		
10	Egela	13,254	Sorghum	Local	3,976	12	47,714	3,250	2,250
			Wheat	Picaflor	663	120	79,524		
			Fingermillet	Local	1,988	15	29,822		
11	Adwa	28,094	Teff	Kuncho	8,428	15	126,423		
			Wheat	picaflor, Hidase, kingbird, Wane	2,809	120	337,128		



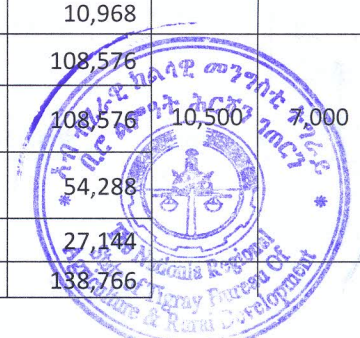
S. No	Woreda	No of HHs	Seed type	Seed variety	Area, ha	seed rate kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
			Maize	Melkasa-6, BH 546, BH545	1,405	30	42,141	9,000	7,000
			Chickepea	Local	1,405	100	140,470		
12	Ahsea	27,911	Teff	Kuncho	4,187	15	62,800	4,000	3,000
			Sorghum	Local	5,582	12	66,986		
			Maize	Melkasa-6, BH 546, BH545	1,396	30	41,867		
			Chickepea	Local	1,396	100	139,555		
			Fingermillet	Local	1,396	15	20,933		
13	Rama adi-Arbaete	21,448	Sorghum	Local	4,290	12	51,475	3,500	2,500
			Fingermillet	Local	3,217	15	48,258		
			Maize	Melkasa-6, BH 546, BH545	2,145	30	64,344		
			Groundnut	Local	1,072	150	160,860		
14	Chila	23,480	Sorghum	Local	5,870	12	70,440	5,000	2,000
			Fingermillet	Local	3,522	15	52,830		
			Maize	Melkasa-6, BH 546, BH545	1,174	30	35,220		
			Teff	Bosset	1,174	15	17,610		
15	Tahtai Maichew	22,406	Teff	Kuncho	6,722	15	100,827	5,750	5,250
			Maize	Melkasa-6, BH 546, BH545	2,241	30	67,218		
			Sorghum	Local	1,120	12	13,444		
			Chickepea	RRT, Worku	1,120	100	112,030		
16	Adet	16,710	Teff	Kuncho	3,342	15	50,130	5,500	5,000
			Sorghum	Local	1,671	12	20,052		
			Maize	Melkasa-6, BH 546, BH545	1,671	30	50,130		
			Chickepea	RRT, Worku	836	100	83,550		
			Fingermillet	Local	836	15	12,533		
17	Naeder	22,154	Teff	Kuncho	5,539	15	83,078	4,000	3,000
			Sorghum	Local	2,215	12	26,585		
			Maize	Melkasa-6, BH 546, BH545	2,215	30	66,462		
			Chickepea	RRT, Worku	1,108	100	110,770		
18	Laelai Maichew	27,912	Teff	Kuncho	8,374	15	125,604	10,000	10,000
			Wheat	Picaflor	2,791	120	334,944		
			Sorghum	Local	1,396	12	16,747		
			Chickpea	RRT, Worku	1,396	100	139,560		
Zonal Total		404,118			202,059		6,579,643	94,900	71,400



North-West Zone: In this zone about 41,985 quintals of improved seed is required and the seed will be covered 240,641 hectares of land.

Amount of seed and fertilizer required per Woreda in North-West zone

S.No	Woreda	No of HHs	Seed type	Seed variety	Area, ha	seed rate Kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
1	Laelai Koraro	4,665	Teff	Kuncho	3,732	15	55,986	5,521	5,021
			Sorghum	Melkam & Dekeba	1,866	12	22,394		
			Maize	Melkasa-6, BH 546, BH545	1,866	30	55,986		
			Chickpea	Local	467	100	46,655		
			Finger millet	Local	1,400	15	20,995		
2	Zana	5,306	Sorghum	Local	4,245	12	50,938	5,500	5,500
			Teff	Kuncho	2,122	15	31,836		
			Finger millet	Local	2,122	15	31,836		
			Maize	Melkasa-6, BH 546, BH545	2,122	30	63,672		
3	Tahtai Koraro	10,383	Teff	Kuncho	9,345	15	140,171	12,500	7,500
			Maize	Melkasa-6, BH 546, BH545	6,230	30	186,894		
			Finger millet	Local	2,077	15	31,149		
			Sorghum	Local	2,077	12	24,919		
			Chickpea	Local	1,038	100	103,830		
4	Tsimbla	11,936	Teff	Kuncho	9,549	15	143,232	11,000	11,000
			Maize	Melkasa-6, BH 546, BH545	4,774	30	143,232		
			Sorghum	Melkam & Dekeba	4,774	12	57,293		
			Finger millet	Local	2,387	15	35,808		
			Chickpea	Local	2,387	100	238,720		
5	Asgede	18,281	Sorghum	Local	18,281	12	219,372	10,000	5,000
			Maize	Melkasa-6, BH 546, BH545	7,312	30	219,372		
			Finger millet	Local	7,312	15	109,686		
			Sesame	Setit-1, Setit-2	3,656	3	10,968		
6	Tselemti	9,048	Sorghum	Melkam & Dekeba	9,048	12	108,576	10,500	7,000
			Maize	Melkasa-6, BH 546, BH545	3,619	30	108,576		
			Finger millet	Local	3,619	15	54,288		
			Teff	Bosset	1,810	15	27,144		
7	Laelai	9,637	Sorghum	Melkam & Dekeba	11,564	12	138,766		

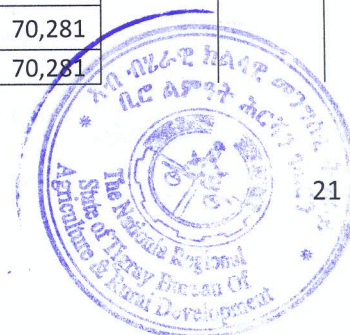


S.No	Woreda	No of HHs	Seed type	Seed variety	Area, ha	seed rate Kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
	Tselemti		Maize	Melkasa-6, BH 546, BH545	3,855	30	115,638	6,000	2,500
			Finger millet	Local	3,855	15	57,819		
8	Adi-Daero	10,672	Teff	Kuncho & Bosset	6,403	15	96,048	1,000	800
			Sorghum	Melkam & Dekeba	4,269	12	51,226		
			Maize	Melkasa-6, BH 546, BH545	5,336	30	160,080		
			Finger millet	Local	4,269	15	64,032		
			Chickpea	Local	1,067	100	106,720		
9	Seyemti Adiyabo	6,138	Sorghum	Melkam & Dekeba	6,138	12	73,656	?????	????
			Maize	Melkasa-6, BH 546, BH545	2,455	30	73,656		
			Finger millet	Local	2,455	15	36,828		
			Teff	Bosset	1,228	15	18,414		
10	Maekel Adiyabo	7,948	Sorghum	Melkam & Dekeba	7,948	12	95,370	4,000	3,000
			Maize	Melkasa-6, BH 546, BH545	3,179	30	95,370		
			Finger millet	Local	4,769	15	71,528		
11	Tahtai Adiyabo	26,307	Sorghum	Melkam & Dekeba	26,307	12	315,684	10,000	5,000
			Maize	Melkasa-6, BH 546, BH545	5,261	30	157,842		
			Sesame	Humera-1, Setit-1, Setit-2	15,784	3	47,353		
			Finger millet	Local	5,261	15	78,921		
Total sum		120,321			240,641		4,198,479	83,347	57,321

Western zone: western zone is sorghum and sesame cluster zone. In total about 73,234 quintals of is required as emergency seed for the war impacted households.

Amount of seed and fertilizer required per Woreda in Western zone

S.No	Woreda	No. of HH	Seed type	Seed variety	Area, ha	seed rate Kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
1	Wolkayt	7,809	Sorghum	Local	18,742	12	224,899	20,000	11,639
			Maize	Melkasa-4, Melkasa-6	4,685	30	140,562		
			Sesame	Setit-1, Setit-2	9,371	3	28,112		
			Finger millet	Local	4,685	15	70,281		
			Teff	Kuncho	4,685	15	70,281		

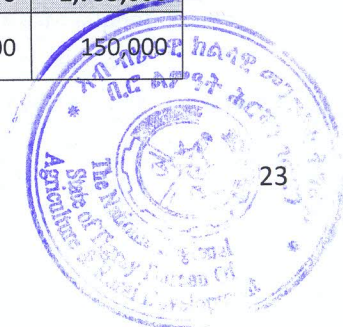


S.No	Woreda	No. of HH	Seed type	Seed variety	Area, ha	seed rate Kg/ha	Required Seed, KG	Fertilizer (Qt)	
								NPS	Urea
			Wheat	Hedase, Kingbird	4,685	120	562,248		
2	Awra	2,825	Sorghum	Local	8,476	12	101,712	5,000	3,000
			Maize	Melkasa-4, Melkasa-6	1,695	30	50,856		
			Sesame	Setit-1, Setit-2	3,390	3	10,171		
			Fingermillet	Local	3,390	15	50,856		
3	Tsegede	17,085	Wheat	Hidase, lemo	10,251	120	1,230,120	4,650	4,500
			Sorghum	Local	41,004	12	492,048		
			Maize	Melkasa-4, Melkasa-6	10,251	30	307,530		
			Sesame	Setit-1, Setit-2	20,502	3	61,506		
			Finger millet	Local	20,502	15	307,530		
4	Kafta Humera	64,780	Sorghum	Local	272,076	12	3,264,912	78,411	67,000
			Sesame	Setit-1, Setit-2	116,604	3	349,812		
Total sum - West		92,499			554,996		7,323,436	108,061	86,139

Cereal seed required for multiplication: as it is well known, seed is the foundation for food production and productivity. Thus, seed is an important agricultural input for the development of the agricultural sector. To do so, the regional government has given due attention for seed production. In this coming meher season about 4,330 quintals of different seeds is required by the region to resume seed production and be self-sufficient in seed. Basic and C1 seed required for multiplication by zone and woreda

Zone	Woreda	Seed Required				unit price	Total Price
		Seed type	Variety		Quantity, Qt		
South	Ofla	Wheat	King bird	Basic	450	5,500	2,475,000
			Wane	C1	50	5,500	275,000
		Fababean	Gebelcho	Basic	50	6,500	325,000
	Endamekoni	Barley	Lavini	Basic	50	4,500	225,000
			HB1307	Basic	30	4,500	135,000
		Wheat	King bird	Basic	505	5,500	2,777,500
		Fababen	Gebelcho	Basic	50	6,500	325,000
		Filed pea	Tegegnech	Basic	20	6,500	130,000
		Barley	Lavini	Basic	50	4,500	225,000
			HB1307	Basic	30	4,500	135,000
	Emba-Alajie	Whheat	Kekeba	C1	100	5,500	550,000
			King bird	C1	400	5,500	2,200,000
		Faba bean	Gebelcho	Basic	50	6,500	325,000

Zone	Woreda	Seed Required				unit price	Total Price
		Seed type	Variety		Quantity, Qt		
		Field pea	Tegegnech	Basic	20		
South total					1,855	0	10,232,500
South-East	Enderta	Wheat	Kekeba	Basic	500	5,500	2,750,000
			King bird	Basic	200	5,500	1,100,000
	Degu-Tembien	Wheat	Danfie	Basic	100	5,500	550,000
South-East total					800	0	4,400,000
East	K/Awaelo	Wheat	Kekeba	Basic	400	5,500	2,200,000
	Hawzien	Wheat	Kekeba	Basic	250	5,500	1,375,000
East total					650	0	3,575,000
Central	Ahferom	Wheat	Kekeba	C1	100	5,500	550,000
		Teff	Cr-37	Basic	25	6,500	162,500
	Werilekhe	Wheat	King bird	Basic	120	5,500	660,000
		Teff	Kuncho	Basic	30	6,500	195,000
	Adwa	Wheat	Kekeba	C1	50	5,500	275,000
			Mekele-1	Basic	25	5,500	137,500
			Mekele-2	Basic	25	5,500	137,500
		Teff	Kuncho	Basic	30	6,500	195,000
		Teff	Boset	Basic	10	6,500	65,000
	Laelai Maichew	Teff	Kuncho	C1	25	6,500	162,500
		Teff	Kuncho	Basic	25	6,500	162,500
		Chickpea	Arereti	Basic	50	6,500	325,000
	Tahtai Miachew	Wheat	Kekeba	Basic	60	5,500	330,000
	Teff	Kuncho	Basic	50	6,500	325,000	
	Naedier-Adiet	Teff	Kuncho		50	6,500	325,000
Central Total					675	0	4,007,500
North West	Tahtai Koraro	Teff	Kuncho	Basic	50	6,500	325,000
	Asgede Tsembila	Teff	Kuncho	Basic	50	6,500	325,000
		Sorghum	Melkam	Basic	35	4,500	157,500
	Laelai Adiyabo	Teff	Kuncho	Basic	25	6,500	162,500
	Tahtai Adiyabo	Sorghum	Melkam	Basic	30	4,500	135,000
		Teff	Kuncho	Basic	50	6,500	325,000
	Medeby Zana	Teff	Kuncho	Basic	50	6,500	325,000
North-west total					975	0	1,755,000
West	Kafta-Humera	Sesame	Setit-1	Basic	20	7,500	150,000



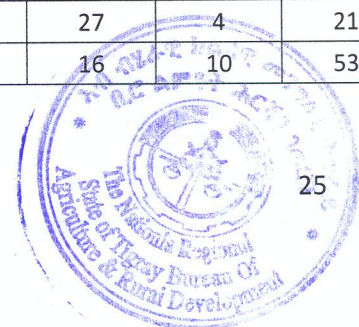
Zone	Woreda	Seed Required			unit price	Total Price	
		Seed type	Variety	Quantity, Qt			
			Setit-2	Basic	30	7,500	225,000
			Setit-3	Basic	10	7,500	75,000
West total					60	0	450,000
Regional Total					5,015	0	24,420,000

Annex 2: Estimated cost of vaccine, drugs and equipment for emergency health service by woreda

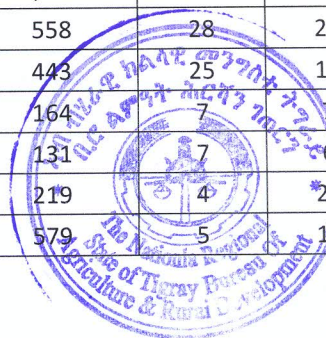
Zone	Woreda	No of Clinics	Cost of drugs, vaccines	Cost of Equipment	Total cost
South	R/Alamata	5	1,724,350	1,566,674	3,291,024
	R/Azebo	4	1,379,480	1,253,339	2,632,819
	Chercher	3	1,034,610	940,004	1,974,614
	Offla	7	2,414,090	2,193,343	4,607,433
	Zata	2	689,740	626,670	1,316,410
	Endamehoni	3	1,034,610	940,004	1,974,614
	Neksege	1	344,870	313,335	658,205
	Embalaje	2	689,740	626,670	1,316,410
	Bora	1	344,870	313,335	658,205
	Selewa	1	689,740	626,670	1,316,410
South East	Wajerat	3	1,034,610	940,004	1,974,614
	Hintalo	4	1,379,480	1,253,339	2,632,819
	Enderta	8	2,758,960	2,506,678	5,265,638
	Samre	4	1,379,480	1,253,339	2,632,819
	Sehart	4	1,379,480	1,253,339	2,632,819
	Degua-Temben	5	1,724,350	1,566,674	3,291,024
East	Kilite-Awlaelo	3	1,034,610	940,004	1,974,614
	Geraelta	1	344,870	313,335	658,205
	Tsera-Wenberta	2	689,740	626,670	1,316,410
	Atsebi	4	1,034,610	940,004	1,974,614
	Tsedaemba	4	1,379,480	1,253,339	2,632,819
	Subha-Saesea	2	689,740	626,670	1,316,410
	Hawzen	5	1,724,350	1,566,674	3,291,024
	G/Afeshum	5	1,724,350	1,566,674	3,291,024
	Bizet	1	344,870	313,335	658,205
	Gulo-Mekeda	3	1,034,610	940,004	1,974,614
	Erob	5	1,724,350	1,566,674	3,291,024
Central	Tanqua-Milash	1	344,870	313,335	658,205
	Abergelle-Yechila	4	1,379,480	1,253,339	2,632,819
	Kola-Temben	5	1,724,350	1,566,674	3,291,024
	Keyh Tekli	2	689,740	626,670	1,316,410
	Adwa	4	1,379,480	1,253,339	2,632,819

Zone	Woreda	No of Clinics	Cost of drugs, vaccines	Cost of Equipment	Total cost
	L/Maichew	6	2,069,220	1,880,009	3,949,229
	T/Maichew	4	1,379,480	1,253,339	2,632,819
	Ahferom	4	1,379,480	1,253,339	2,632,819
	Hahayle	2	689,740	626,670	1,316,410
	Egella	1	344,870	313,335	658,205
	Ahissea	2	689,740	626,670	1,316,410
	Rama-Adi-Arbaete	2	689,740	626,670	1,316,410
	Chilla	3	1,034,610	940,004	1,974,614
	Maykenetal	1	344,870	313,335	658,205
	Endabatsahma	2	689,740	626,670	1,316,410
	Embasineyty	1	344,870	313,335	658,205
	Adiet	5	1,724,350	1,566,674	3,291,024
	Naeder	3	1,034,610	940,004	1,974,614
	North West	Tahtay-Koraro	4	1,379,480	1,253,339
Laelay Koraro		2	689,740	626,670	1,316,410
Zana		2	689,740	626,670	1,316,410
Asgede		3	1,034,610	940,004	1,974,614
Tsimbila		2	689,740	626,670	1,316,410
Tselemti		5	1,724,350	1,566,674	3,291,024
L/Tselemti		5	1,724,350	1,566,674	3,291,024
Adi-Daero		3	1,034,610	940,004	1,974,614
Seyemti-Adeyabo		1	344,870	313,335	658,205
Tahtay Adyabo		6	2,069,220	1,880,009	3,949,229
Maekel Adyabo		2	689,740	626,670	1,316,410
West	Kafta Humera	7	2,414,090	2,193,343	4,607,433
	Welkayt	4	1,379,480	1,253,339	2,632,819
	Awira	2	689,740	626,670	1,316,410
	Tsegede	5	1,724,350	1,566,674	3,291,024
	Mekelle	4	1,379,480	1,253,339	2,632,819
Total Sum		201	69,318,870	62,980,295	132,299,165

Zone	Woreda	Hay and Crop residue (tone)	Concentrate (tone)	Balance diet (tone)	UMB (Qt)	EM2 (Qt)	Molasses (Qt)
South	R/Alamta	201,468	18,571	3,198	44	46	242
	Chercher	138,939	7,071	2,340	22	4	21
	R/azebo	169,815	8,656	2,859	71	5	26
	Ofla	115,259	18,244	3,886	103	15	79
	Zata	30,639	4,857	1,033	27	4	21
	E/mekoni	67,360	45,144	2,995	16	10	53



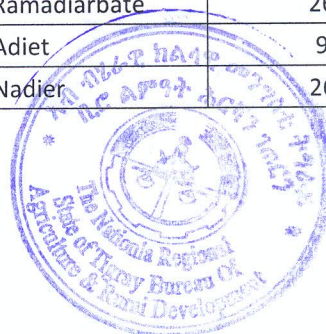
Zone	Woreda	Hay and Crop residue (tone)	Concentrate (tone)	Balance diet (tone)	UMB (Qt)	EM2 (Qt)	Molasses (Qt)
	Neksege	24,914	16,709	1,110	5	4	21
	E/alage	58,180	7,398	1,443	60	9	47
	Bora	30,413	3,875	754	33	5	26
	Selewa	43,636	5,536	1,082	48	7	37
South East	Samre	96,924	10,770	1,399	20	17	89
	Seharti	85,951	9,537	1,241	15	15	79
	Hintalo	92,901	12,104	2,312	9	17	89
	WejeraT	52,258	6,794	1,301	5	9	47
	Enderta	97,035	28,158	4,160	13	16	84
	D/tenbien	101,006	23,151	1,520	5	15	79
East	Agulae	27,608	8,933	568	33	4	21
	Atsbi	41,412	13,387	847	5	6	32
	K/awlaelo	58,242	53,951	2,755	49	9	47
	Gerealta	26,167	24,233	1,235	24	4	21
	Ts/emba	43,829	93,285	1,990	5	6	32
	Subuha Sehasie	40,458	86,109	1,837	4	6	32
	Hawzen	73,955	18,193	3,471	7	16	84
	G/mekeda	53,690	24,510	2,498	16	9	47
	G/afeshum	35,690	25,692	3,832	16	5	26
	Bzet	11,270	8,103	1,213	4	2	11
	Erob	6,889	5,536	55	3	1	5
Central	Abergele	95,166	7,876	705	5	18	95
	T/mlash	66,133	5,486	492	3	13	68
	K/tenbien	108,156	10,005	1,071	11	16	84
	K/tekli	84,979	7,861	842	11	13	68
	Ahferom	35,150	9,613	1,798	13	8	42
	Hahayle	25,631	7,021	1,312	9	6	32
	Egela	12,449	3,397	634	4	3	16
	Adwa	50,266	21,767	4,482	15	10	53
	Rama adiarbate	22,141	2,516	437	3	3	16
	Ahsae	35,268	2,265	470	2	6	32
	Yechila	59,794	4,253	853	3	9	47
	L/maichew	59,552	49,397	1,984	13	9	47
	T/maichew	82,958	15,904	1,383	11	16	84
	Adiet	97,206	3,976	558	28	21	110
	Nadier	76,376	3,145	443	25	16	84
	Ebasneiti	42,111	2,944	164	7	7	37
	Maikinetal	37,139	2,491	131	7	6	32
E/arbi	2,605	2,516	219	4	25	132	
North West	L/koraro	81,101	11,827	579	5	15	79



Zone	Woreda	Hay and Crop residue (tone)	Concentrate (tone)	Balance diet (tone)	UMB (Qt)	EM2 (Qt)	Molasses (Qt)
	Zana	63,722	9,311	454	14	12	63
	T/koraro	87,319	25,969	1,749	16	18	95
	Seyemti adyabo	82,931	5,036	333	3	11	58
	Adidaro	103,519	6,668	372	4	13	68
	M/adyabo	72,509	4,552	274	4	10	53
	T/adyabo	345,970	18,043	776	8	30	158
	Asgede	166,447	8,556	361	5	24	126
	Tsimbla	120,531	6,215	257	3	17	89
	Tselemti	288,668	11,450	656	4	48	253
	Dima	77,884	5,234	208	3	18	95
West	Welkayt	116,826	7,876	312	4	28	147
	Awra	248,598	6,511	465	2	4	21
	Tsegedie	356,171	12,639	902	3	9	47
	K/humura	960,639	12,582	1,485	4	43	226
Total Sum		6,000,000	903,409	80,090	926	750	3,946

Annex 5: Distribution of Forage seed requirement by Weredas

S/N	Woreda	Amount of forage Seed (Qt)	S/N	Woreda	Amount of forage Seed (Qt)
1	R/alamta	50	23	L/maichew	38
2	R/azebo	108	24	Adiet	26
3	Ofla	29	25	Embasneyti	28
4	E/mekoni	42	26	L/koraro	35
5	Embaleje	39	27	T/koraro	79
6	Samre	42	28	Seyemtiadyabo	46
7	Hintalo	39	29	Adidaero	8
8	Enderta	46	30	T/adyabo	28
9	D/tenbien	35	31	Asgede	50
10	Atsbi	44	32	Tselemti	31
11	K/awlalo	87	33	Dima	30
12	Tsadaemba	46	34	Awra	21
13	Hawzein	53	35	Tsegedie	39
14	G/mekeda	29	36	K/humera	30
15	G/afeshum	29	37	Agulae	1
16	Erop	7	38	Saesie	29
17	Abergele	32	39	T/mlash	23
18	K/tenbien	56	40	Hahayle	34
19	Ahferom	45	41	Ramadiarbate	26
20	Adwa	44	42	Adiet	9
21	Ahsaa	30	43	Nadier	26



S/N	Woreda	Amount of forage Seed (Qt)	S/N	Woreda	Amount of forage Seed (Qt)
22	T/maichew	67	44	M/adyabo	14
			45	Tsinbla	19
				Total	1669

Annex 6: Forage store and water container (plastic Roto)

S/N	Woreda	Roto	Forage Store	S/N	Woreda	Roto	Forage Store
1	R/Alamta	2	1	31	K/tekli	2	
2	Chercher	2		32	Ahferom	2	1
3	R/azebo	2	1	33	Hahayle	2	1
4	Oflla	2		34	Agulae	2	1
5	Zata	2		35	Adwa	2	
6	E/mekoni	2	1	36	Rama adiarbate	2	1
7	Neksege	2		37	Ahsae	2	
8	E/alage	2	1	38	Yechila	2	
9	Bora	2		39	L/maichew	2	
10	Selewa	2		40	T/maichew	2	
11	Samre	2		41	Adiet	2	
12	Seharti	2		42	Nadier	2	
13	Hintalo	2	1	43	Ebasneiti	2	
14	WejeraT	2		44	Maykinetal	2	
15	Enderta	2	1	45	E/arbi	2	
16	D/tenbien	2	1	46	L/koraro	2	1
17	Agulae	2	1	47	Zana	2	
18	Atsbi	2	1	48	T/koraro	2	1
19	K/awlaelo	2	1	49	Seyentiadyabo	2	
20	Gerealta	2		50	Adidaro	2	
21	Ts/emba	2	1	51	M/adyabo	2	
22	Sehasia	2	1	52	T/adyabo	2	
23	Hawzen	2	1	53	Asgede	2	
24	G/mekeda	2		54	Tsimbla	2	
25	G/afeshum	2		55	Tselemti	2	
26	Bzet	2		56	Dima	2	
27	Erop	2		57	Welkayt	2	
28	Abergele	2	1	58	Awura	2	
29	T/mlash	2		59	Tsegedie	2	
30	K/tenbien	2	1	60	K/humura	2	
			Total				120



Annex 7: Distribution of Restocking by Woreda in Tigray

i/N	Name of woreda	Expected human population				Restocking Livestock per house hold and animal number									
		Male	Female	Total	Total HH	Oxen per HH	Total number of oxen	Heifer per HH	Total heifers	Sheep/Goat per HH	Total Sheep/Goat	Donkey per HH	Total Donkey	Chicken per HH	Total Chicken
1	K/Humera	54091	49312	103403	25851	2	50147	1	25064	6	161085	1	18583	15	130750
2	Tsegede	55732	54816	110549	27637	2	53542	1	26761	6	171268	1	19856	15	139785
3	Awra	14733	14577	29310	7328	2	14954	1	7467	6	55502	1	5385	15	37072
4	Welkait	58238	57364	115602	28901	2	55943	1	27961	6	178469	1	20756	15	146174
5	Asgede	41892	40346	82237	20559	2	37983	1	18984	6	124035	1	14033	15	98517
6	Tsimbla	38595	37145	75740	18935	2	35059	1	17523	6	115264	1	12937	15	90735
7	AdiDaero	34412	35418	69830	17458	2	32400	1	16193	6	107286	1	11940	15	83656
8	Sey/Adiyabo	18907	19653	38560	9640	2	18328	1	9157	6	65071	1	6663	15	46200
9	AdiHageray	19480	20660	40141	10035	2	19039	1	9513	6	67206	1	6930	15	48094
10	T/Adiyabo	34290	32263	66553	16638	2	30925	1	15455	6	102862	1	11387	15	79730
11	L/Koraro	37407	38581	75987	18997	2	35170	1	17578	6	115598	1	12979	15	91030
12	Zana	31472	32233	63706	15927	2	29644	1	14815	6	99018	1	10906	15	76320
13	T/Koraro	43489	44212	87701	21925	2	40441	1	20214	6	131412	1	14956	15	105061
14	Tselemti	35765	34614	70379	17595	2	32647	1	16316	6	108027	1	12032	15	84313
15	Dima	38195	38289	76484	19121	2	35394	1	17690	6	115548	1	13063	15	91625
16	Edagaarbi	33559	34749	68308	17077	2	29952	1	14971	6	99388	1	11034	15	77286
17	E/Sieneti	20903	22312	43215	10804	2	19287	1	9639	6	67394	1	7034	15	48900
18	Endafelasi	25338	26476	51814	12954	2	22942	1	11466	6	78358	1	8405	15	58628
19	Abergele	39735	37651	77386	19347	2	33810	1	16901	6	110962	1	12480	15	87556
20	T/Melashe	22207	22645	44852	11213	2	19983	1	9987	6	69481	1	7295	15	50752
21	Adet	44877	46430	91307	22827	2	39726	1	19859	6	128711	1	14699	15	103304
22	Naeder	27054	27535	54589	13647	2	24121	1	12056	6	81896	1	8847	15	61767
23	Ahferom	44448	47787	92235	23059	2	40121	1	20056	6	129895	1	14846	15	104354
24	Rama	25557	26491	52049	13012	2	23042	1	11516	6	78657	1	8441	15	58894
25	Ahsea	20888	21244	42132	10533	2	18827	1	9409	6	66013	1	6861	15	47675
26	Hahayle	30925	32550	63475	15869	2	27898	1	13944	6	93226	1	10262	15	71819
27	K/Temben	40076	41441	81517	20379	2	35566	1	17778	6	116229	1	13138	15	92229
28	Keyhetekli	36135	36493	72628	18157	2	31788	1	15889	6	104896	1	11721	15	82173
29	L/Maychew	39226	40306	79531	19883	2	34722	1	17356	6	113697	1	12821	15	89982
30	T/Maychew	38857	40710	79566	19892	2	34737	1	17364	6	113742	1	12827	15	90022
31	Chila	29821	30363	60184	15046	2	26499	1	13245	6	89029	1	9738	15	68096
32	Adwa	57704	59359	117063	29266	2	50673	1	25332	6	161550	1	18803	15	132440
33	Egela	23371	25668	49039	12260	2	21763	1	10877	6	74820	1	7962	15	55489
34	Atsbi	38173	42234	80407	20102	2	35094	1	17542	6	114814	1	12961	15	90973
35	KilteAwlaelo	38099	40783	78882	19721	2	34446	1	17218	6	112869	1	12718	15	89248
36	Ts/wemberta	37777	40149	77926	19482	2	34040	1	17015	6	111651	1	12565	15	88167
37	Bizet	16267	17894	34161	8540	2	15439	1	7715	6	55850	1	5590	15	38658
38	G/Afeshum	42628	47880	90508	22627	2	39387	1	19689	6	127693	1	14571	15	102400



S/N	Name of woreda	Expected human population				Restocking Livestock per house hold and animal number									
		Male	Female	Total	Total HH	Oxen per HH	Total number of oxen	Heifer per HH	Total heifers	Sheep/ Goat per HH	Total Sheep/ Goat	Donkey per HH	Total Donkey	Chicken per HH	Total Chicken
39	Saesie	27924	30656	58580	14645	2	25818	1	12904	6	86984	1	9482	15	66282
40	TsaedaEmba	34544	39067	73611	18403	2	32206	1	16098	6	106149	1	11878	15	83285
41	Hawzen	49509	54795	104304	26076	2	45250	1	22621	6	145282	1	16769	15	118007
42	Geraleta	15049	15457	30506	7627	2	13886	1	6939	6	51190	1	5008	15	34523
43	Gulomekeda	34637	37076	71713	17928	2	31399	1	15695	6	103729	1	11575	15	81138
44	Erob	14786	15616	30402	7601	2	13842	1	6916	6	51057	1	4991	15	34406
45	D/Temben	32960	33393	66353	16588	2	17119	1	8575	6	57017	1	6307	15	44167
46	Enderta	57586	57883	115469	28867	2	29398	1	14715	6	93854	1	10911	15	76851
47	Hintalo	53791	56230	110021	27505	2	28036	1	14034	6	89768	1	10400	15	73226
48	Wejirat	25613	26552	52164	13041	2	13572	1	6802	6	46375	1	4976	15	34725
49	Saharti	40227	41324	81551	20388	2	20919	1	10475	6	68415	1	7731	15	54281
50	Samre	30946	31235	62181	15545	2	16076	1	8054	6	53888	1	5915	15	41391
51	EmbaAlaje	28719	29536	58255	14564	2	15095	1	7563	6	50943	1	5547	15	38779
52	Bora chelena	12905	13666	26571	6643	2	7174	1	3602	6	27180	1	2577	15	17695
53	Selewa	16317	17250	33567	8392	2	8923	1	4477	6	32427	1	3233	15	22350
54	R/chercher	22750	22718	45467	11367	2	11898	1	5964	6	41352	1	4349	15	30269
55	R/Azebo	46593	47421	94014	23504	2	24035	1	12033	6	77763	1	8900	15	62574
56	R/Alamata	51139	52277	103416	25854	2	26385	1	13208	6	84814	1	9781	15	68830
57	Endamehoni	38815	40043	78859	19715	2	20246	1	10138	6	66396	1	7479	15	52489
58	Neqsege	9375	9698	19073	4768	2	5299	1	2665	6	21557	1	1874	15	12705
59	Oflla	56663	59870	116533	29133	2	29664	1	14848	6	94652	1	11011	15	77559
60	Zata	11313	11821	23134	5784	2	6315	1	3172	6	24604	1	2255	15	15408
	Sum	2042484	2102217	4144700	1036175		1658031		829016		5493868		610976		4280815

Annex 8: Distribution of Apiculture emergency restocking plan by Woreda

S/n	Woreda	No colony	Modern hive with one super	Beeswax /kg	S/n	woreda	No colony	Modern hive with one super	Beeswax /kg
1	R/Alamata	1054	1054	2108	31	K/tekli	3160	3160	6320
2	R/chercher	790	790	1580	32	Ahferom	9954	9954	19908
3	R/azebo	2185	2185	4370	33	Hahayle	8848	8848	17696
4	Offlla	3372	3372	6744	34	Ahsaa	2264	2264	4528
5	Zata	1817	1817	3634	35	Egela	3424	3424	6848
6	E/mehoni	4977	4977	9954	36	Adwa	4266	4266	8532
7	Neksege	2133	2133	4266	37	R/Adiarbaete	1264	1264	2528
8	E/alaje	5081	5081	10162	38	Chila	1264	1264	2528
9	Bora	2291	2291	4582	39	L/maichew	3950	3950	7900
10	Selewa	2686	2686	5372	40	T/maichew	4108	4108	8216
11	Samre	4503	4503	9006	41	Adiet	6952	6952	13904

S/n	Woreda	No colony	Modern hive with one super	Beeswax /kg	S/n	woreda	No colony	Modern hive with one super	Beeswax /kg
12	Seharti	5451	5451	10902	42	Naedier	5688	5688	11376
13	Hintalo	5451	5451	10902	43	E/felasit	3634	3634	7268
14	Wejerat	3002	3002	6004	44	E/arbi	3634	3634	7268
15	Enderta	3792	3792	7584	45	Em/seneyti	3634	3634	7268
16	D/tembien	6004	6004	12008	46	Selekleka	5609	5609	11218
17	Agulae	2765	2765	5530	47	Zana	4582	4582	9164
18	Atsbi	7110	7110	14220	48	T/qoraro	2686	2686	5372
19	K/awulaelo	4208	4208	8416	49	A/daero	1185	1185	2370
20	Gerealta	1738	1738	3476	50	Sey/adyabo	474	474	948
21	Ts/E mba	2923	2923	5846	51	M/dyabo	316	316	632
22	Saesiea	2923	2923	5846	52	T/adyabo	553	553	1106
23	Hawzien	4898	4898	9796	53	Asgede	3871	3871	7742
24	G/mekeda	4819	4819	9638	54	Tsimbla	2923	2923	5846
25	G/afeshum	9105	9105	18210	55	L/Tselemti	5609	5609	11218
26	Bizet	3160	3160	6320	56	Dimma	5609	5609	11218
27	Erob	1817	1817	3634	57	Welkayt	5135	5135	10270
28	Abergele	5846	5846	11692	58	Awura	2607	2607	5214
29	T/milash	3871	3871	7742	59	Tsegedie	9875	9875	19750
30	K/tembien	4661	4661	9322	60	K/humera	474	474	948
Total							231985	231985	460282

