GOMA PILOT LEARNING WEREDA DIAGNOSIS AND PROGRAM DESIGN

May 25, 2007

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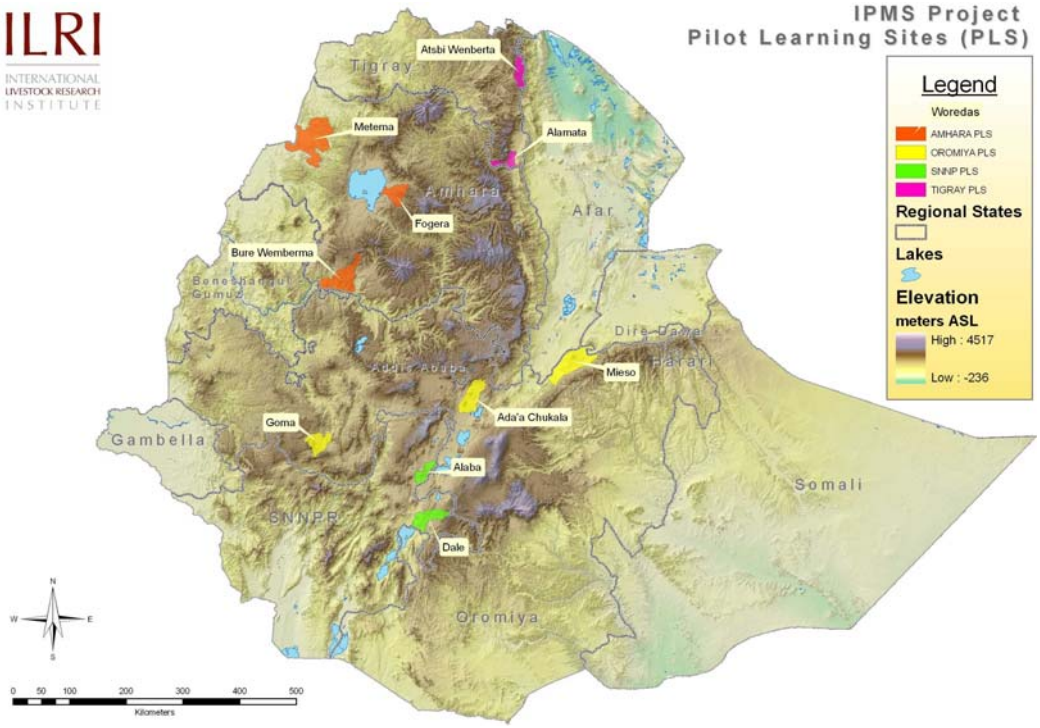
1. INTRODUCTION

The International Livestock Research Institute (ILRI) and the Ministry of Agriculture and Rural Development (MoARD) initiated a 5 year project in June 2004 with the financial assistance from the Canadian International Development Agency (CIDA). The project, entitled: "Improving productivity and market success" (IPMS) of Ethiopian farmers, aims at contributing to poverty reduction of the rural poor through market oriented agricultural development.

The IPMS project follows an Innovation systems approach to enhance application of knowledge on technologies generated by International and National Research Institutes as well as from other sources to bring about market-oriented agricultural development while contributing positively to livelihood enhancement. IPMS will pilot alternative methods and approaches to develop new institutional arrangements for input supply and marketing and appropriate service delivery systems. Such assistance will be provided to 10 pilot learning weredas (PLW) across the country (Fig 1). Goma district is one of the 10 sites selected. To further enhance the utilization of such knowledge and the introduction of technologies, the IPMS project will also provide assistance to extension, input supply, marketing and finance institutions, including cooperatives. Such institutional support will be in the form of technical assistance, capacity building, supply of demonstration and training materials, credit, some limited funds for innovative institutional arrangements and studies aimed at developing innovative institutional arrangements.



Fig, 1. Map of Ethiopia with IPMS Pilot Learning Weredas (PLWs)

2. Bio physical and socio economic characteristics of Goma wereda

2.1 Location, land and population

Goma wereda is one of the 13 weredas in Jima zone known for predominantly growing coffee. It is located 390 km south west of Addis Ababa and about 50 km west of the Jima Zone capital (Jima). One of the coffee biodiversity centres in Ethiopia is found in this wereda. There are 36 peasant associations and 3 towns' associations (Table 1). The number of agricultural households in the wereda is 45,567 (35,533 male headed and 10,034 female headed), while the total population of the wereda was 247,326 in 2006/07. Goma is the second most densely populated wereda in the zone with a size of 93,657.72 ha, excluding the state coffee farms. The two farms, Goma I and Goma II, have a total area of 2704 ha. Hence the total area of the wereda is 96,361.72 ha (96.4 km^2). Based on the current wereda administrative boundary, the population and land area data by PA are shown in Table 1.

Table 1. PA population, total area and distance from Agarao, Goma Wereda

Number	NAME of PA	Population			Area (km^2)	Distance from Agaro town (km)
		Male	Female	Total		
1	Belefo konche	3115	3091	6206	21.715	13.00
2	Omo Gobu	2374	2365	4739	16.146	20.00
3	Gabne Abu	3596	3554	7150	19.367	14.00
4	Choche Lami	4145	4128	8273	33.258	11.00
5	Keso Hiti	3083	3011	6094	17.031	9.00
6	Chedero Suse	3546	3407	6953	13.404	8.00
7	Bulbulo	3046	3047	6093	8.477	5.00
8	Koye Seja	3036	3024	6060	30.170	5.00
9	Kilole Qirqir	2742	2636	5378	37.575	10.00
10	Daye Qucchane	2704	2695	5399	27.375	20.00
11	Dedo Urache	2469	2460	4929	22.267	16.00
12	Jimate Daru	3213	3202	6415	19.371	12.00
13	Yachi Urachei	4667	4630	9297	29.175	18.00
14	Odow Adami	3581	3307	6888	18.184	23.00
15	Goga Kamise	3199	3188	6387	30.791	23.00
16	Chami Chego	3324	3170	6494	15.073	22.00
17	Omo Guride	3787	3742	7529	28.192	6.00
18	Omo Beko	2781	2610	5391	37.369	8.00
19	Ganji Dalacho	5490	5469	10959	46.229	5.00
20	Ganji Ilbu	5170	5049	10219	25.921	6.00
21	Bulade Choche	2278	2267	4545	13.990	5.00
22	Beshasha	2951	2928	5879	22.973	17.00
23	Qada Masa	4815	4445	9260	10.940	22.00
24	Barsoma	2883	2660	5543	45.740	30.00

25	Qota	3862	3594	7456	30.143	10.00
26	Bore Dinsera	3406	3171	6577	20.101	25.00
27	Qada Maye	2522	2328	4850	6.117	17.00
28	Omo Funtule	3635	3493	7128	25.471	22.00
29	Acha Afta	3320	3295	6615	27.477	22.00
30	Koticha Meti	2221	2178	4399	24.057	33.00
31	Teso Sedecha	5528	5506	11034	30.931	21.00
32	Limu Sapa	3241	3139	6380	39.133	27.00
33	Dinu	2381	2253	4634	14.860	15.00
34	Keta Bero	1162	1154	2316	12.135	26.00
35	Didesa	1116	1102	2218	24.530	37.00
36	Geta Bore	2773	2741	5514	29.058	35.00
37	Gembe*	3375	3363	6738		
38	Choche*	2577	2567	5144		
39	Limu Shayi*	2125	2118	4243		
	Agaro				8.774	
	Goma I State Farm				18.896	
	Goma II state farmer				16.578	
	Total	**125239**	**122087**	**247326**	**918.994**	

* Small towns in Goma
Source: Goma wereda OoARD, 2007

2.2 Climate

Unlike other areas in Ethiopia, the south and southwestern regions of the country receive reliable rainfall. Goma wereda is one these areas in this region that enjoys well distributed annual rainfall. Based on 15 years weather data obtained from Goma wereda, it indicates that the average annual rainfall is 1524 mm (Table 2). The annual rainfall variability is very low. Rainfall is bimodally distributed. The small rains are from March to April and the main rainy season from June to October. All in all, there are about 7 rainfall months in the wereda. However, rainfall is sometimes received even during the other months. Hence, crop and livestock production is not constrained by the amount and distribution of rainfall as in other parts of the country. Seasonal and area wise variability of rainfall is low and hence one can make plans of crop/livestock production based on the existing rainfall amount and pattern. The rainfall pattern of Goma wereda is shown on Fig. 2 below. Dry spell months in the wereda are few.

Table 2 Long term rainfall (15 years) and temperature data for Goma wereda

Month	Rainfall (mm)	Temperature (^{o}C)	
		Minimum	Maximum
January	30.3	11.5	29.4
February	45.7	12.5	30.6
March	39.3	13.1	30.5
April	104.6	13.6	29.6
May	179.3	13.7	29.6
June	258.2	13.3	28.7

July	248.6	13.2	26.8
August	214.6	13.0	27.3
September	184.7	12.5	28.1
October	114.0	12.3	29.3
November	53.2	11.8	29.1
December	51.2	11.5	29.1
Total	**1523.7**	**152.0**	**348.1**
Mean		*12.67*	*29.01*

Source: Goma wereda OoARD, 2007

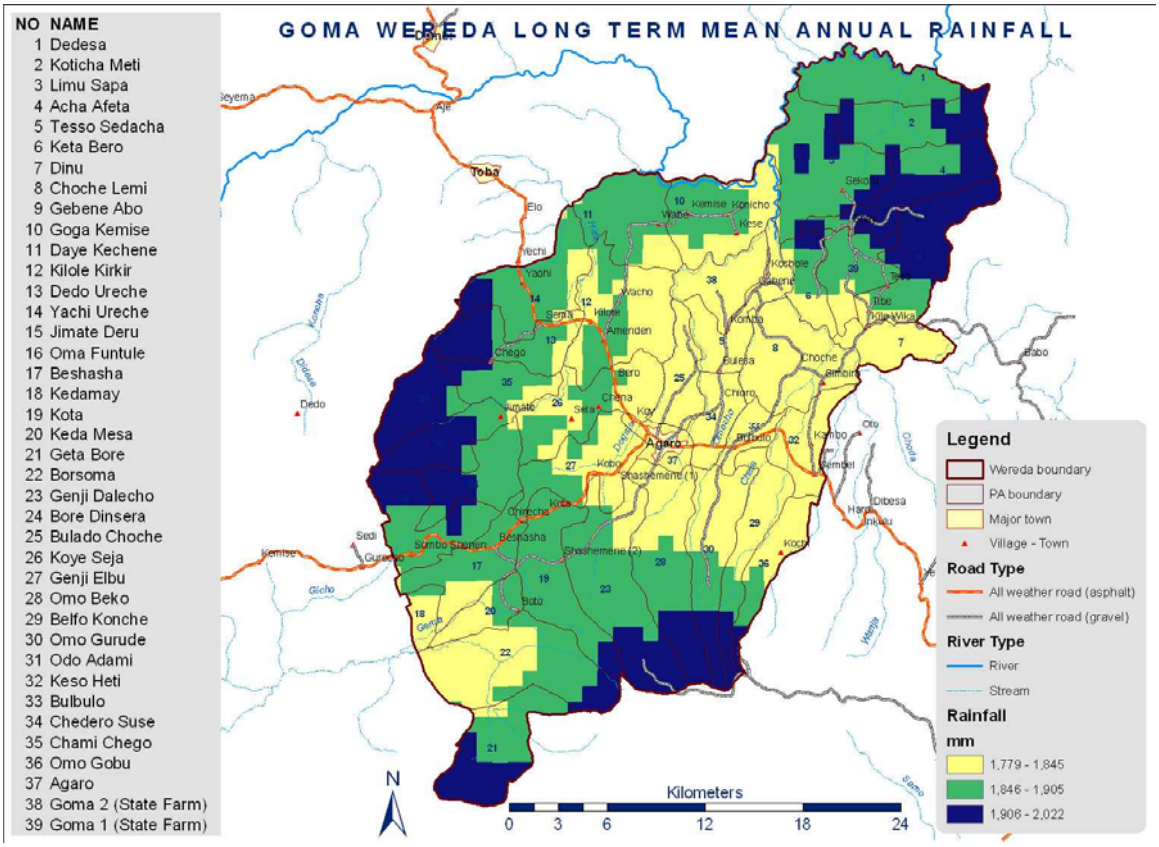


Fig. 2. Rainfall Map of Goma Wereda

Agroecologically, Goma wereda is classified as 96% wet Weina Dega (wet midland) and and 4% kolla (lowland). Altitude in Goma ranges from 1387 to 2870 metres above sea level (m asl). Most parts of the wereda lay between 1387 and 1643; and 1849 and 2067 m asl. However, few of the areas in the wereda have altitudes ranging from 2229 to 2870 m asl (Fig. 3).. These characteristics of altitudinal difference are observable as one drives from Jima to Agaro.

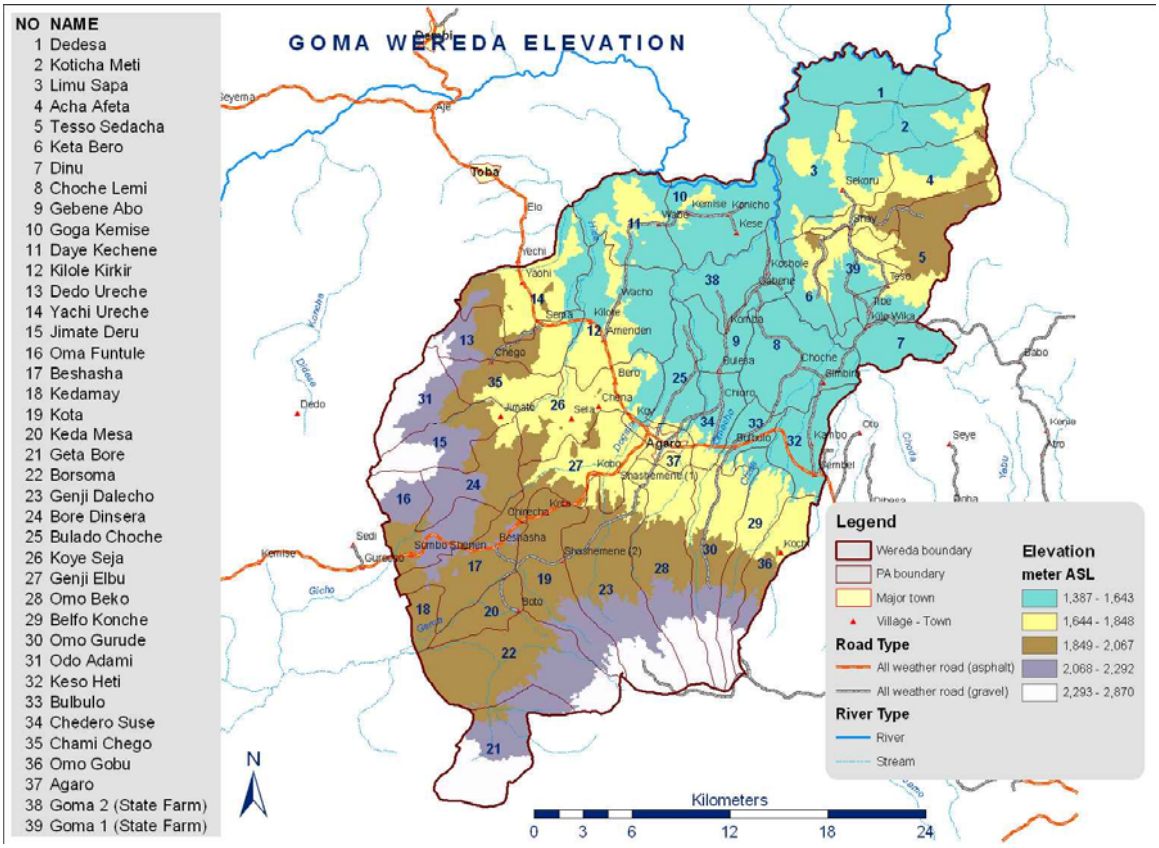


Fig. 3. Elevation map of Goma wereda

2.3 Soils

The three dominant soil types are Eutric Vertisols, Humic alisols and Humic Nitosols. Among these soil types, Nitosols is the most abundant covering about 90% of the wereda (Fig. 4). These soils are young soils and are generally acidic soils. However, farmers grow crops that are acid tolerant. The pH of the soils in Goma ranges between **4.5** and **5.5**. However, the commonly observed problem related to aluminum and magnesium toxicity as a result of low pH is minimal.

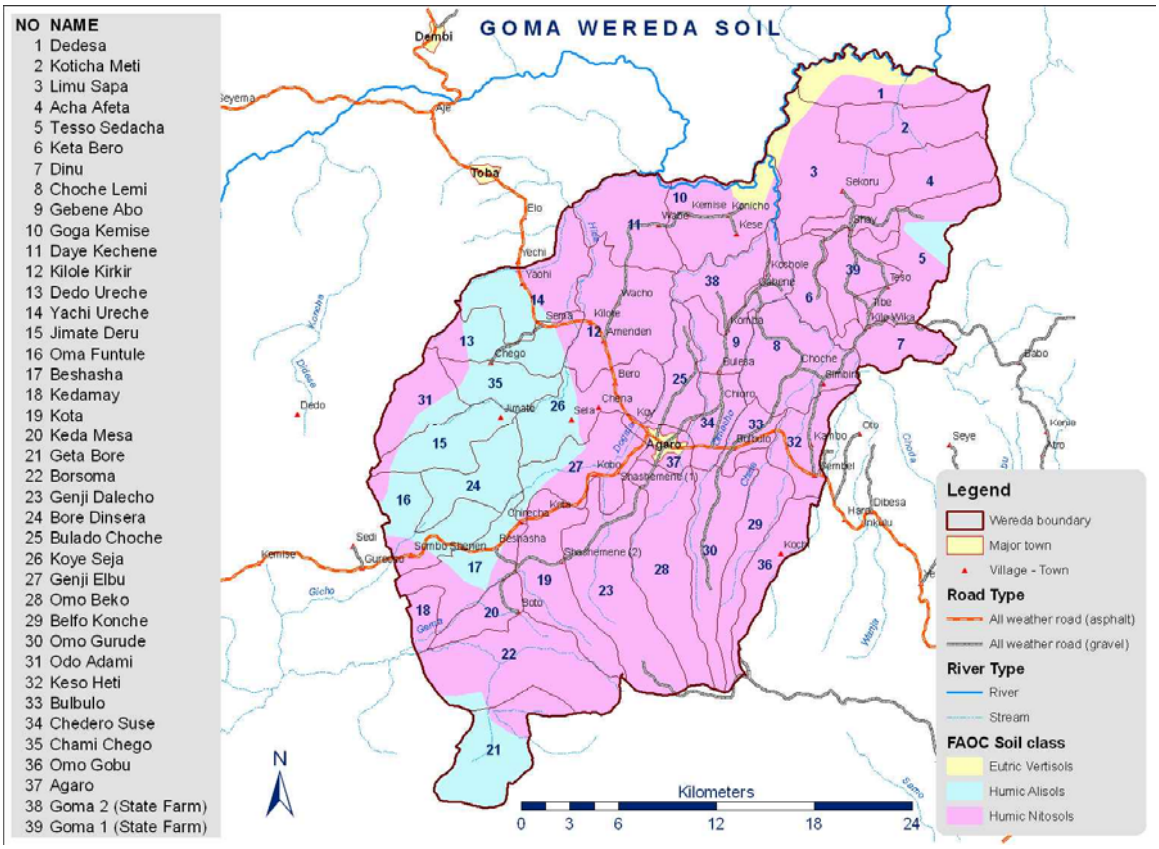


Fig. 4. Soil map of Goma wereda

2.4 Vegetation, topography and water resources

Goma is one of these weredas in the country where forest cover is relatively high. Major forest tree species in the area include *Albizia lebbeck, Milita ferruginea*, *Juniperus procera (*remenants*) Cordia africana, Croton macrostachys, Acacia* spp*., Podocarpus gracilior*, Tikur enchet, Bosoka (Geteme/a). However, there is very fast encroachment of these forest areas due to high population pressure. Evidence from some reports indicates that the natural resources (vegetation, wildlife and soils) are facing indiscriminate depletion mainly due to expansion of croplands (Oromia, 2003[1]). It is becoming hard to find large areas under conserved natural forests. Currently, the wereda has about 2209.2 ha of natural forest and 2296.1 ha of manmade forest cover. These vegetation covers represent 2.3 and 2.5 % of the total wereda area, respectively.

The topography, vegetation and rainfall pattern in the wereda encourages the existence of many perennial rivers. The rivers drain to **Ghibe/Omo** to the east and **Dedesa River** in the north. There are about 5 rivers in the wereda. Even though available land and water resources offer high potential for irrigation development in

[1] Gomma Aanaa (district) based development programme: Project document (2003). Regional government of of Oromia, Oromia Economic Study Project Office, Addis Ababa, Ethiopia

Goma, .the present utilisation level is very poor. Only about 215 ha have been developed and are in use under traditional irrigation system (Oromia, 2003). The same study also estimated that there are about 1128 ha which is suitable for irrigation development. The wereda has planned to develop 2256 ha land for horticultural development by 2011.

2.5 Land use

According to the OoARD, more than 52% of the wereda land mass is devoted for growing both annual and perennial crops. However, information from the digital data in Fig. 5 shows that more than 80% of the area is under cultivation. The overall land use pattern is shown in Table 3. Average land holding of households is between 0.5 and 1.0 ha.

Table 3. Land use pattern of Goma wereda

Land use		**Area (ha)**
Annual crops		**25,258.90**
Perennial crops	Coffee	**22,561.82**
	Others	**290.01**
Forest		**4405.30**
	Natural	2109.20
	Manmade	2296.10
Grazing land		**7850.00**
Cultivable land		**7698.25**
Uncultivable land		**7400.00**
Fallow land		**100.00**
Settlement		**11912.72**
Coffee state farms (Goma I, Goma II)		**2704.00**
Others		**6180.72**
Total area		**96,361.72**

Source: Goma wereda OoARD, 2007

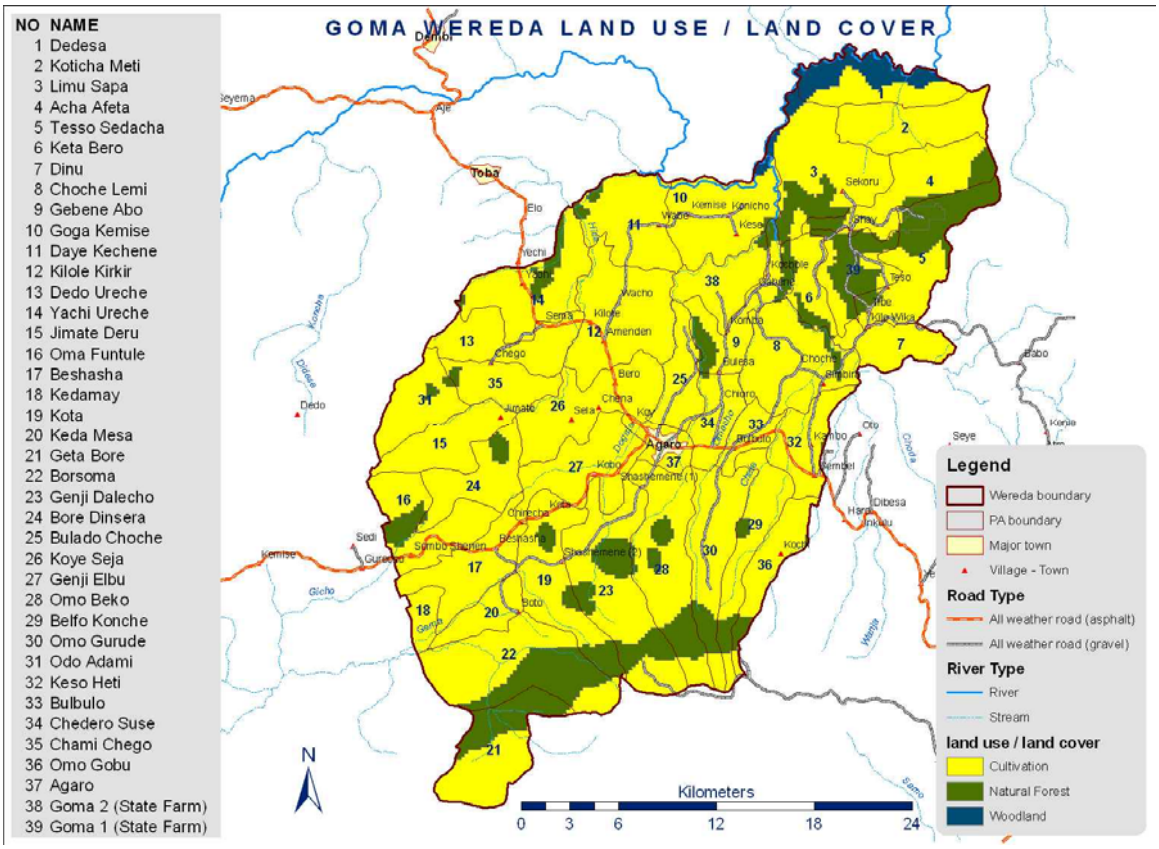


Fig. 5. Land use map of Goma wereda

2.6 Farming systems, priority commodities and the environment

2.6.1 Farming systems

Two framing systems were selected for Goma in consultation with more than 30 experts from different organisations, including Oromia Bureau of Agriculture and Rural Development, Jima Agricultural Research Centre, Zonal, wereda and ILRI/IPMS. In addition to this, farming communities were also consulted to find out whether they agree to the section of priority commodities by experts. These farming systems were identified because of differences cropping patterns and altitude. Rainfall is however not a limiting factor in both farming systems. Visits were made to 6 PAs belonging to these farming systems. This helped to test the selections made by the experts. During the PRA, farmers endorsed the priority commodities and the distinction between the farming systems.

The selected farming systems were:

1. Shaded coffee/livestock farming system
2. Cereal/livestock

2.6.1.1 Shaded coffee/livestock farming system;

Thirty-two of the 36 PAs belong to this farming system. More than 92% of the people in the wereda live in this farming system. Coffee, tropical and sub tropical fruits and spices are considered to be the major marketable crop commodities in Goma. This farming system is hereafter referred as coffee/livestock farming system.

The market oriented crop commodities suggested by experts (regiona, zonal, wereda) and farmers in order of their importance were:

1. Coffee
2. Tropical and sub tropical fruits (mango, avocado, papaya, banana, orange, pineapple[2])
3. Spices (mainly ginger, Ethiopian cardamom, but other spices like fenugreek, black cumin are also grown)

Priority marketable livestock commodities were:

1. apiculture,
2. small ruminant fattening (mainly sheep),
3. Cattle fattening
4. Poultry

Among these livestock commodities, apiculture has been suggested to be very important.

2.6.1.2 Cereal/livestock farming system

Four PAs are categorised into this farming system, they area Dedessa, Meti Koticha, Geta Bore, and Odow Adami. The first two PAs are found in lower altitudes and crop commodities for these PAs are sesame, rice and soya bean, while the livestock commodities in this farming system are apiculture, cattle fattening, goats, dairy (butter) and poultry. These PAs are far away from the wereda centre and farming extensive. For example some farmers own around 100 modern hives and more than 100 milking cows. However, access ot these areas has been reported to be a major constraint to transport produces for market. On the other hand, mastitis is also an important disease affecting milk production in these areas. In the latter two PAs, which are with relatively higher altitude, the marketable crop commodities are coffee, avocado and spices, to a lower extent,, while the livestock commodities in these PAs were, cattle fattening, sheep, poultry and apiculture. Irrespective of the altitudinal differences, rainfall in all these PAs is not a limiting factor and more than 1400 mm annually is received. In the lower altitude PAs land holding is extensive and farmers could have as high as 10 ha.

Hence the overall market oriented livestock commodities in this farming system are:

- Apiculture

[2] Jima Agricultural Research Centre is currently working with about 6 farmers to introduce the smooth cayenne variety

- Sheep fattening
- Cattle fattening
- Poultry

In this farming system there are 2 agroecological zones (lowland and highland) and hence crops grown are also diversified. The maketable crop commodities in this farming system are:

- Coffee
- Avocado
- Spices

However, all these commodities are grown at small scale. In addition to these however, there are a number of commodities (soya bean, rice and sesame) grown currently which could be scaled out and supported if marketability and hence adoption is improved.

The total area and number of PAs in this farming system is small. In addition to these, they are also located far away from Agaro and are less accessible. These will need to be considered during the detailed planning of activities for the wereda.

As a general principle however, focus will be made on crop and livestock priority commodities which are grown/reared by majority of farmers in accessible PAs, at least during the project's initial year.

2.7 Priority commodities

2.7.1 Crops

Coffee

Majority of household land holding is devoted to coffee. Average household land holding is between 0.5 and 1.0 ha. Majority of the farm household holding is devoted to coffee. It is reported that there are farmers who have about 12 ha of land under coffee. The average land under coffee is around 0.75 ha. Coffee in Goma is grown under shade trees. The dominant shade trees in the area are *Albezia gummifera* and *Millettia ferruginea*, but there are other trees which are also used as shade trees. The canopy cover of *Albezia* tree is so big that it gives shade to about 150 coffee trees. Yield of the selections under research condition could reach up to 12 to 18 qt/ha, while those of the newly developed hybrid coffee varieties is between 24 and 26 qt/ha. Under farmers' conditions, the selections could yield from 7 to 10 qt/ha, while hybrid is around 15 qt/ha.

According to a recent study by Petty, *et al*., 2003[3], coffee's contribution to the household economy is about 47% (Table 4). Yield of coffee at farmers level ranges from 7-10 qt/ha. This however depends on the onset of rainfall after picking and management of the coffee trees. Hence, poor management means harvests will occur

[3] Petty, C., Seaman, J., Majid, N. and Grootenhuis, F, (2003). Coffee and household poverty: A study of coffee and household economy in two districts of Ethiopia, Save the Children UK, pp. 36

in a regularly fluctuating cycle: peak/high; low; medium; peak/high. However, coffee has biennial nature where yield falls following a high yielding season every other year.

Table 4. Contribution of all sources of cash income to total income

	% of all cash income
Sale coffee production & coffee gleaning	32.7
Coffee related employment	14.2
Chat/ Chat trade	7.4
Sale of livestock & livestock products	24.1
Agricultural/ casual labour	15.6
Petty trade/food sales/self employment/remittance	6.1

Source: Petty[4], *et al*., 2003.

Goma is the highest Coffee producing wereda among the weredas in Jima Zone. As a result, a substantial amount of coffee sold to the central market. Data below (Table 5) indicate that the amount of coffee exported to the local market show variability. This is believed to be, among others, rainfall variability, coffee tree management, and the biennial habit of coffee trees. The amount of coffee (washed and unwashed) exported is shown below.

Table 5. Coffee exported (ton) to local market

Year	**Washed coffee (with parchment)**	**Sun dried coffee (without parchment)**
2002	2210.3625	8037.832
2003	1000.6800	10641.835
2004	2599.0770	13394.980
2005	2065.7700	8656.626
2006	2680.6350	7940.975

Source: Goma wereda OoARD, 2007

Cereals

Maize, teff, sorghum, wheat and barley are the important cereal crops cultivated, while chat is also grown well in Goma. These crops occupy about 81% of the area under annual crops. Other than these, farmers traditionally grow guava and other crops in smaller plots. Table 6 illustrates the area under different crops and their productivity in the wereda.

Table 6. Types of crops (cereals, fruits and stimulants), area and expected production

No	Major crops	Yield(qt/ha)	Area (ha)	Production(qt)

[4] Petty, C., Seaman, J., Majid, N. and Grootenhuis, F, (2003). Coffee and household poverty: A study of coffee and household economy in two districts of Ethiopia, Save the Children UK, pp. 36.

1	Chat		11661	
2	Coffee	7	10745	75215
3	Maize	25	8327	208175
4	Teff	7	6445	45115
5	Sorghum	12	1795	21540
6	Barley	8	1487	11896
7	Wheat	10	1404	14040
8	Orange		68	
9	Mango		37	
10	Papaya		28	
11	Avocado*			
	Total		41997	

*Area not known because there are few trees/household

Altitudinal variability in Goma is high but this variability did not affect the cropping pattern of some crops. For example, coffee and maize are planted in almost all altitude ranges in the wereda. However, in the lower ranges of the wereda some farmers have started to grow sesame and rice while they are absent in the other higher altitude ranges. The rice variety introduced in the wereda is of unknown origin, but is an upland rice type. However, the wereda OoARD introduced X-Jigna (paddy) and Nerica-3 (upland) varieties recently. Rice is also being tried in some PAs and about 20 farmers are growing the crop currently. Both the farmers and experts complained problems related to weeding. About 28% of the areable land (Table 6) is under chat. Despite this huge amount of production consumption is so high that what ever is produce is not enough and hence people buy chat from other areas, including Jima.

Crop productivity is lower compared to the potential of the area. For example, improved maize yield, including the hybrids, is between 20-30 qt/ha (Table 6). This is very low under normal conditions. The environmental conditions of the areas identified as acidic soil areas are like Goma. Hence, Goma wereda is part of this programme[5]. This lower productivity of crops could be related to soil acidity. At pH 5.5 or lower, growth of sensitive crops can be inhibited. This effect of low pH level is often compounded by Al and Mn toxicity, Ca and Mg deficiency. For example, Al toxicity can injure crop root system and hamper water and nutrient uptake causing stunted growth. The Federal government is embarking into a massive soil acidity reclamation programme through application of lime/gypsum. Areas affected by soil acidity are mapped out and areas from where these reclamation minerals are found are already identified.

There were many other suitable crops recommended for consideration into the priority commodity list during the consultation meeting (Annex 1). One of these crops was soya bean. Jima Agricultural research Centre has been involved in the scaling out of this crop for the last few years. However, reports indicate that tons of soya bean produced have not been sold yet. Hence, until the market issue is solved IPMS may

[5] Project proposal on soil test calibration and acid soil management in Ethiopia, MoARD, 2006

not push this commodity to farmers in the area. However, soya bean could be a potential crop. Thousands of farmers in neighbouring weredas are producing it. One thing to however see is the replacement effect of this crop with most probably maize. Some economic analysis is required into that. The study on the replacement effect may not be good to measure at the present level of maize productivity, but should be after soil acidity reclamation efforts are made. However, this could only be done when the market issues are solved and reliable buyers are found. A local NGO, Facilitators for Change-Ethiopia, is working in this area.

As rainfall is sufficient and well distributed almost all the crops are grown rainfed. However, the wereda has developed plans to grow fruits and vegetables using irrigation. The wereda 5 year plan on irrigation is to use 4 rivers, shallow water well (use treadle pump) and small ponds for irrigation of these crops. The plan is te develop 2256 ha of land on irrigation. However, seepage of water during irrigation has been observed in the wereda and appropriate solutions need to be taken to tackle that.

During the small rains, crops like maize and sorghum are planted, while soya bean and rice are planted during the main rains. In very few PAs to the north of the wereda, farmers have started planting sesame during the main rains.

Crop production has different kinds of operations from land preparation to harvesting. These operations will depend on the rainfall pattern, growing length of the crop and other factors. A detailed cropping calendar for crops grown in Goma wereda is attached in Annex 2 of this document.

2.7.2 Livestock

Livestock population is relatively high in Goma. However, their productivity is very low as in most places in the country. The livestock resources of Goma wereda have not yet been exploited. Their performance (milk, meat, egg and honey production) and contribution to the regional and national economy is very low mainly due to poor management, low genetic potential, inadequate and low quality feed supply, and the prevalence of various animal diseases. Even though there is ample vegetation, including grasses suitable for feeding, the livestock are not in good condition. According to the OoARD staff, a dairy cow produces on an average about 1.4 litres of milk/day. In addition to shortage of feed, the existing cattle genetic resource in the area performs poorly. Low performance of the livestock is believed to be due to inbreeding. According to data from Central Statistical Authority, cattle population in Goma is higher than Atsbi, Alamata, Metema and Mieso PLWs.

Table 7. Livestock Population of Goma Wereda

Livestock Species	**Population**
Cattle	113,180
➢ Cows	35,893
Sheep	21,285

Goats	14,076
Poultry	209,096
Bee Hives	52,662

Source: Goma Wereda OoARD (2007)

Cattle

Livestock are integrated into the cereal crop production. However, oxen are not used for coffee production. Oxen provide the entire traction and threshing power on cereals. Cattle reared in the wereda are entirely local breeds except few crosses. There are about 70 improved cows in and around the town of Agaro. Both small and large ruminants are tethered around the houses. However, there were some places where livestock were seen openly grazing, particularly in the extensive cereal/livestock farming system. There is a high potential for livestock fattening in the wereda owing to the extensive practice of tethering, in addition to the availability sufficient rainfall resulting in potentially adequate forage availability. Intensive livestock management programmes could open the possibility of exploiting such opportunities.

Dairy and cattle fattening were suggested for consideration as priority commodities by experts during the consultation meeting (Annex 1). When this suggestion was forwarded to the farmers, they rejected these ideas because of mainly the shortage of feed resources. Shortage of land must have forced farmers to exercise intensive (cut and carry system) dairying and fattening. There is a good market for both milk and fattened animals. Some farmers were seen tethering and fattening cattle for market even though the management is still very poor. Market oriented fattening is not well known by most farmers. With well developed veterinary services, availability of improved feed supplements and capacity building of farmers, these activities may soon take off. This may be the time for IPMS to support this programme.

Jima University has organized a dairy group in Jima to collectively sell their produce. This group collects milk from its members and sells it in a shop in Jima town. The intention is to develop this group into a processing group. This has the potential for creating a market for dairy farmers in Goma.

According to a report by Woody Biomass (2001)[6], the major animal feed resource in Goma comes from crop residues like maize, sorghum, teff and other cereals.,Grazing is used to supplement the green grass. According to the report, the proportion was 63% crop residues, 26% grazing and 11% enset leaves. As the number of dry months in Goma is limited, one would have expected that the major source of animal feed would be green grass from the privately owned natural pasture land around the homesteads, roadsides, farm bounderies and from forest and bushes. This could probably be that the digital data used for this analysis was generated from Fig. 5,

[6] Report on natural grazing lands and livestock feed resources, Oromiya Regional State, Woody Biomass Inventory and Strategic Planning Project (WBISPP), May 2001, revised December 2002.

which illustrates that more than 90% of the land is under cultivation. However, the data from the OoARD shows only about 52% is under cultivation by perennial and annual crops.

The same report indicates that livestock density for Goma was high at 162 TLU/km^2 and hence the available feed resource is beyond its carrying capacity at 126% .

Table 8. Estimated livestock product utilisation (%) in Goma

Types	Home use	Sale	Wage	Others
Milk	38.97	4.19	0.25	56.59
Butter	56.22	41.53	-	2.25
Beef	27.22	63.73	1.72	0.5
Egg	30.07	26.02	0.14	43.77
Mutton	74.39	20.85	-	4.76
Honey	56.58	38.73	0.16	4.53
Wax	9.06	27.17	-	63.77

Source: Goma PLW OoARD, 2007

Some farmers practice tethering and fattening oxen. This is an important practice which has positive implications for natural resource conservation as it minimizes land degradation. In the lower areas of the wereda, in areas like Goge Kemise PA, livestock production is extensive. Some farmers in this PA have more than 100 milking cows. This shows that the follower herd is much larger, hence the population.

Among the crop residues used for livestock feeding, maize and sorghum stover are the major ones.

Cattle in Goma are very small in size. Milk is also a scarce resource in the area. This could be associated to the poor performance of the animals due to poor genetic makeup (inbreeding problems) but also due to the prevalence of many diseases, endo and ectoparasites in the area. The number of diseases reported in this wereda is many that it calls for a concerted effort to tackle the problem. The most important animal diseases in Goma include,

1. **Bacterial infections-** Black leg, Pastureolosis, Anthrax, Mastitis, Fowl typhoid and Avian salmonellosis;
2. **Endoparasites:** Fascioliasis, Paramphitomiasis, Strongyliasis;
3. **Ectoparasites** Ticks, mites, lice and insect flies
4. **Viral infections-** Rabies, African horse sickness AHS, -Foot and Mouth Disease; and
5. **Protozoal infections:** -Trypanosomiasis ,Babesiasis, Coccidiosis

Colour of livestock in Goma is predominantly brown. This colour is preferred due to their perceived tolerance to trypanosomiasis. Black coloured animals are believed to attract trypanosomiasis. The body size of these cattle is very small. Associated to this and other genetic reasons, milk yield is very low in the area. During the rainy season when milk supply is relatively better, cost of a litre of milk is 2 birr. During the dry

season, the price rises to about 3 birr/litre, the same price as in Jimma. The area is known for its high chat consumption which enhances milk consumption.

Some oxen were seen tethered with the intention of fattening. However, these oxen will be fattened after 8-9 months because they are also used for ploughing. This shows that cattle fattening in Goma at the moment is not market oriented. On the other hand, farmers complained that fattening cattle may be a problem because of shortage of land and hence lack of feed resources.

Fattening of small ruminants

On the other hand, there are good sheep that have bigger body frames which are very suitable for fattening and can lead to increased income. Many sheep are seen being fed tethered along the main road. The lower areas of the wereda are also suitable for goat production. In 2005, the wereda OoARD had distributed 717 sheep on credit to 239 households (225 male and 14 female) for fattening purposes. It seems that farmers had benefited from this intervention and even wanted the programme to continue. It might be worthwhile trying to rejuvenate this activity through some targeted interventions. Discussions with the farmers in 6 PAs also revealed that they are very interested to engage in fattening sheep in the higher altitudes and goats in the lower altitudes.

It will therefore be essential that careful decisions are taken whether to support a sheep/goat fattening or cattle fattening. Details of the magnitude of problems, possible solutions and responsible institutions will be illustrated in one of the following chapters.

Apiculture

As a result of the continuous rains in the wereda the vegetation of the area is always green which has opened a great opportunity for high honey production. The available vegetation of Goma PLW can support a substantial number of bee hives. The OoARD has understood the apiculture potential and has introduced many modern hives in the wereda. Currently, there are about 7052 modern, 10994 traditional and 31 transitional bee hives in the wereda, If these bee hives are all populated with bee colonies, annual production from these hives could be about 617,504 kg honey and 79,544 kg wax. Out of this, 339,100 kg (55%) comes from the modern hives, which is clean. The distribution of bee hives at PA level is extremely variable. Some PAs have as low as 15 while others have as many as about 1700 modern bee hives. This difference could be due to difference in the introduction of the technology. Modern bee hive production only started about 10 years ago in Goma. On the other hand, number of traditional bee hives varies from around 300 to 2800. This shows that the number of already introduced modern bee hives and the existing traditional bee hives are very high. Despite all these facts, farmers complained that some modern bee hives are not in use due to lack of knowledge of farmers, substandard bee hives, unavailability of processing equipment and their accessories and mainly lack of expert and DAs to support the smooth running of this activity. This is an indication that interventions need to be focused mainly on the training of farmers and DAs, honey quality improvement and marketing linkages in Goma. On the other hand, identifying how many of the improved bee hives are functional and not and taking corrective measures will help boost honey production in the area.

2.8 Environmental challenges

Land degradation in the Ethiopian highlands is very serious. The driving force behind this problem is population pressure. This rapid population growth has forced farming families to expand their farming onto steeper slopes. As a result, large areas, which were once under forest cover and natural pasture, are now exposed to heavy soil erosion resulting into a massive environmental degradation and posing a serious threat to sustainable agriculture. The magnitude of land degradation in Goma wereda is not as is in other highland areas, but there is significant evidence of a rising trend. Most of the areas in the wereda, especially in the cereal/livestock farming system are degraded. If loss of vegetative cover continues uncontrolled, it may result in flash floods which will result in the formation of big gullies and hence loss of farmlands. This may be further aggravated due to high livestock population, which is already beyond the carrying capacity of the wereda. Livestock population increases with human population in order to support the farming activity and overall rural life. Therefore, if appropriate measures are not taken timely, with the amount of rainfall and the nature of the soil in Goma, land degradation can pose a serious threat.

In Goma, coffee is grown and produced organically by smallholder farmers. Irrespective of how it is grown and despite the revenue coffee generates for the household and national economy, coffee production has its own environmental impacts. Discharges from coffee processing plants represent a major source of river pollution. Coffee is picked and processed mainly during 4 months (October to January) each year. The process of separating the beans from coffee cherries during wet processing generates enormous volumes of waste material (solid and liquid). The by-products of coffee processing are mainly coffee pulp, processing effluent, parchment husks and coffee husks. This result into bad odour in the surrounding areas, breeding of disease vectors, when dumped around the processing plants and pollution of ground water and surface water bodies through leaching and run-offs, respectively.The composition of coffee pulp and husk is organic and mainly contains carbohydrates, proteins, fibres, fat, caffeine, polyphenols, and pectins. The decomposition of the organic waste in the rivers makes the water unsuitable for various uses and damages the aquatic ecosystem. Ecological impacts are reported from the discharge of organic pollutants from the processing plants to rivers, depriving aquatic plants and animals of essential oxygen. In some areas, there are 4 processing plants along a single river course (Table 9). Water requirement of these processing plants may vary from 40-60 M^3 during pulping, fermentation and washing to produce a ton of coffee bean. Considering that about 3,000 tons of washed coffee produced in Goma and 50 M^3 of water is used per ton of coffee bean, about 150,000 M^3 of waste water per year is being discharged into the rivers in the wereda. However, If all wet coffee processing plants in Goma are working at full capacity (130 tons/season), they have a collective capacity of processing 6,500 tons of clean dry coffee beans. This will generate 325,000 M^3 polluted water each year. At the same time, a similar amount of pulp and hull is dumped around the rivers. As this takes place in only 4 months each year, the level of concentration of the organic waste in the rivers is very high and hence impacts are also high. Heaps of dried pulp are also generated from dry

processing plants which some times create fire hazards and leaching to rivers during rains.

Table 9. Name of Rivers and number of wet coffee processing plants by type of owner in Goma Woreda

No	Name of river	Private owners (PLCs)	Cooperatives
1	Chesech	1. Ambisa Chesech 2. Tuba Jabir Gebeta	1. Choche 2. Omo Beko
2	Dogaja	1. Dogaja 2. Buna Goma 3. Sokan Surur 4. Delil	1. Dalecho 2. Kota
3	Kota	1. Getahun Shibiru 2. Momina Ali 3. SIMIKA 4. Haji Aba Fita	
4	Jaw	• Endeshaw Blay	1. Bulado choche 2. Goga
5	Awetu	• Rehiman Feyisa	
6	Urgesa	1. Biya Haji 2. Bedilalo Ahimad	
7	Seja	• Tofic Nura	• Odo Deru
8	Melka hida	1. Kafe Limu 2. Bant Muleta	
9	Temsa	• Meselech Woyesa	
10	Koye	• Koye	
11	Buko	• Bore Buna Gembe	
12	Wali	1. Genet Moga 2. Selemon Belete	
13	Sema (Gemamaye)	1. Bereket G/Hiwot 2. Bereket G/Hiwot	
14	Yachi	• Umer Hasen	
15	Jehido	1. Jehido 2. Rukiya Nasir	
16	Gema	• Gema Idget	
17	Uri	1. Uri Dedesa 2. Hordofa Deti	
18	Kolombo		• Keso Debu
19	Konch		• Keso Debu
20	Gecho		• Limu Sapa
21	Sombo		• Ilbu
22	Omecho		• Chedro Suse
23	Fite		• Limu Sedechs
24	Afeta	• Bode Afeta	

People in the surrounding areas have been reporting about the pollution of rivers and the bad smell in their surroundings. Consequently, many domestic animals which drunken water from these polluted rivers were observed to loose hair and eventually die. On the other hand, women who fetch water from these rivers are affected

because they now have to travel long distances to get “clean water” for livestock and domestic use during coffee picking periods.

Jima Agricultural Research Centre has conducted research on the impacts of wet coffee processing on the river system in Goma and other weredas. Though reports are not ready yet, or at least not widely available, the Centre is now preparing to start working on the follow up research in introducing management interventions. As part of the research was done in Goma, IPMS would like to learn from these management interventions so that knowledge gained from the research and management interventions could be scaled up and out to both Goma and Dale, respectively.

In addition, Commonwealth Agricultural Bureau International (CABI) is currently working in Goma with 225 farmers to improve coffee processing for improving the quality (125 farmers on pulped and 100 on dried coffee processing). CABI has distributed 25 manual coffee pulpers (1 for 5 farmers) and 100 drying chicken wire mesh drying tables. This is an innovative way to improve the quality of coffee but at the same time is good for the environment. Household level wastes from both wet and dry processing can be manageable and hence damage to the river system will be minimal. IPMS will also work closely with CABI so that knowledge gained through their experiences can be scaled out to a larger number of farmers.

3. INSTITUTIONS

3.1. Market

Major commodities marketed in Goma woreda include coffee, honey, butter, fattened and unfattened animald etc and many actors are involved in marketing of these commodities.

3.1.1 Private traders

Private traders take the largest share in coffee marketing and various actors are involved until coffee is ready for export. It embraces:

- Collectors who buy coffee directly from farmers
  - Brokers who mediate between collectors and suppliers
- Suppliers who buy coffee from collectors
  - Brokers who mediate between suppliers and exporters
- Exporters who buy coffee from suppliers and export.

Some times these brokers mediate between farmers and collectors but the community does not know whether there are brokers between exporters and Ethiopian coffee buyers. However, collectors fix or determine the price to be paid for a kilo of coffee at all levels and this long chain in coffee marketing has reduced benefit farmers could get from selling coffee. Some organizations such as CABI has made endeavours to remove the broker through attaching farmers directly with exporters. Despite some market problems, this approach initiated some farmers to go for quality as they could fetch premium for processing according to the advice. Another problem observed in marketing of coffee from farmers side is their habit of selling small volume and some times immature, particularly at early stage and this action has reduced or eroded their power of bargaining with buyers.

Private traders are also engaged in marketing of other products such as honey, buter, fattened and un fattened live animals. Compared to coffee marketing, the chain in honey and other commodities marketing is shorter but still collector who buy honey and butter from farmers are involved. There is a price difference of one or two birr per kilo of butter or honey when traders buy from a collector which means a loss of one or two birr per kilo for a farmer. However, traders appreciate the presence of hone and butter collectors for two reasons. First, the traders could get the item in bulk and secondly, the quality is guaranteed because collectors are usually from community or located near to the community and can control the quality through various mechanisms.

Two types of honey, white and red are broadly produced and marketed in Goma woreda and the marketing of all kinds of honey is totally handled by local private traders. Various locations within and outside Goma are known by the community for producing either white or red honey. For instance Gera wored, few kilometers to the west of Goma is popular for its white honey production. Both white and red honey are offered to the market mostly unpurified or semi-purified using traditional methods. Honey traders in Goma woreda collect honey and butter from Goma and many other neighbouring woredas and sell it in local market or transport it to Addis, Dire Dawa,

and many other places in the country usually for home consumption not for export. Tej Bet, those who brew very popular local drink called Tej from honey are the largest buyer of honey particularly red honey. Some years ago exporters used to collect honey from Goma for export but stopped due to product quality, un sustainability of supply and also lack of dependable foreign market. Honey producer farmers are challenged with lack of market most of the time.

Marketing of fattened and unfattened live animals is also broadly practiced in Goma woreda which is totally undertaken by private traders only. Usually for unfattened animals, the market is at different locations with in Goma only while both fattened small and large ruminants are sold at local market and also transported to Addis.

3.1.2 Cooperatives

3.1.2.1. Legal ground and objectives

In 1997 Oromia region declared a proclamation No. 15/1997, for the establishment of the Oromia Agricultural Cooperatives Promotion Bureau with the objective of facilitating the formation of agricultural primary cooperatives, unions and federation at region level. Currently this office bureau has a branch office at Goma wereda level accountable to OoARD and responsible to create conducive environment for the formation of various kinds of cooperatives. This cooperatives team has team leader and four units (marketing and credit, cooperative organization, saving and credit and auditing) functioning at wereda level. Major services of the cooperative office include training, advisory role and auditing.

In Goma wereda large numbers of cooperatives with various objectives were organized and are rendering service to communities living in rural and urban parts of the wereda. The formation of these cooperatives was supported by "Cooperative Society Proclamation No. 147/1998" dating December 29th, 1998. Some of its major objectives include:

- to solve problems collectively which members cannot individually achieve
- to achieve better results by coordinating their knowledge, wealth and labour
- to improve the living standard of members by reducing production and service costs by providing inputs or service at a minimum cost or by finding better price for their products or service.
- to expand the mechanism by which technical knowledge could be put into practice
- to develop and promote saving and credit services
  to minimize and reduce the individual impact of risks and uncertainties

Goma wereda has 36 rural PAs and 13 cooperatives. These PAs are divided into 5 zones accommodating varying number of cooperatives in each zone

Table 10. Number of cooperatives

No	Name of zone	No. of cooperatives	Remark
1	Beshasha	1	2 coop. have no pulping station
	Agaro	4	
	Choche	3	
	Yachi	3	1 coop. have no pulping station
	Limu	2	

Out of these 13 cooperatives 10 farming community based cooperatives, which satisfied the standards, and requirements specified in the proclamation no. 147/98 are registered by appropriate authority and possess certificate of registration. However, three cooperatives, though they are functional, have not yet registered because as a rule, to be registers, a primary cooperative should have a capital that exceeds liabilities and these three cooperatives could not meet this demand

3.1.2.2 Management structure of cooperatives

The 10 registered and 3 non registered farmers' cooperatives functioning in the wereda are directly monitored by Goma wereda cooperatives team. Each farmer's cooperative has general assembly as a supreme body, management committee delegated by general assembly and composed of seven members, control committee and credit committee with a service term of two years at all levels.

3.1.2.3 Challenges and success of the farmers' cooperatives in Goma wereda

Cooperatives through self-help and a business-oriented approach to agriculture have been the force to achieve organizational growth and market success. Their ultimate aim is to increase productivity, reduce food insecurity and enhance rural incomes through the establishment of competitive, profit-oriented and professionally managed cooperatives. To this end Goma wereda office of cooperatives management staff reported that cooperatives functioning in the wereda have some success stories in areas like stabilizing market, input supply, promoting saving culture and facilitating credit to their members.

Discussion with cooperatives wereda office staff revealed that cooperatives are operating with varying degrees of efficiency. Their ability to maximize member profits is limited by their small size and lack of purchasing and marketing power. Their financial source, in most cases Oromia Cooperatives Bank, government and privately owned banks, lack understanding of the nature of business, which the cooperatives are running. Thus, very lengthy loan process prohibited cooperatives from embarking on market in time particularly optimum red and dry cherry purchasing period every year. This has a number of negative effects such as eroding member farmers' trust in cooperatives as they could be forced to sell their product to private merchants at lower price. Mostly farmers sell their coffee at early stage because they have been in cash

stress since sale of previous year's coffee product. This problem has repeatedly been reported by number of farmers during community consultation on priority commodity identification. Secondly the cooperative enters the market after the price of both red and dry cherry has gone up resulting in either very low profit or loss depending on coffee market circumstances.

Moreover cooperatives typically do not possess the management skills and organizational structures necessary to realize their full potential. The cooperatives office reported that in most cases cooperatives top management members are with very low or no education and consequently their capacity to handle huge amount of capital and other resources in a business-oriented approach is limited. In cognisance of this huge challenge, Oromia cooperatives bureau has proposed deploying independent manager for each cooperative but the approach is yet to be implemented in Goma.

The cooperatives in Goma wereda also do not enjoy the purchasing and marketing advantages or economies of scale that could be realized through the integration of small-scale cooperatives into larger business partnerships. About 9 of the 10 registered cooperatives are also members of Oromia Coffee Exporters Association based in Addis and these 9 cooperatives are eligible for loan from exporters association. However, the very limited one-time loan they get from exporters association does not enable them to compete in red and dry cherry market and by the time they go back to Addis and get additional loan from the association, market price increases considerably. As a solution to this, problem one union has been formed at Goma wereda level in March, 2007. The purpose of this cooperative union is to test the premise that primary cooperatives consolidated into unions would create the necessary bargaining power, management capacity and economies of scale to solve market access and efficiency problems that primary cooperatives on their own could not address. Its potential impact on the widespread and deep problem of Goma cooperatives could be seen in the future.

To form or join a farmer's cooperative only makes sense if goods and services can be obtained, produced or marketed better in a cooperative than by the individual alone or through public channels. However, in the past time cooperatives were not having good image among the community. The members did not experience any tangible benefits and there was no role to play for members hence sense of ownership gradually faded. Above all, cooperatives under the previous regime were characterized by mismanagement, corruption and embezzlement. Farmers were exploited and marginalized from their efforts. As the result the members who were forced to form or join the cooperative started to show their dissatisfaction and gradually disintegrated. According to cooperatives office staff report problems such as corruption mismanagement, less capacity, various types of interferences, lack of business oriented mind are prevailing among cooperatives functioning in Goma wereda today.

3.1.2.4 Current financial situation of cooperatives

All the existing farmers' cooperatives have been inherited from the socialist regime with all their limitations and liabilities. Many of them were restructured according to the

proclamation No. 147/98 and obtained legal identity but their liabilities were not addressed. The 13 cooperatives functioning in Goma wereda now owe about 27 million ETB in outstanding balances to the public banks and the meagre profit they earn from their annual transactions directly goes as repayment. The banks have renewed the agreement with cooperatives and agreed that 70 % of income (profit) generated by the cooperatives shall go to the bank as repayment for previous debt. On the other hand, many cooperatives have a bylaw which specifies 70% dividend to members and this situation has left the cooperatives in a very uncomfortable condition. In addition, defaulters of current inputs and services delivered by the cooperatives are accounted as liabilities leaving the cooperatives in a vicious circle without any clear vision of a way out.

3.1.2.5 Marketing role of cooperatives

Next to private traders cooperatives play major role in marketing of both dry and red cherry coffee. They own quite large number of pulping machine, store and other facilities required for coffee processing. However, they are confronted with limitation such as capital, business oriented management skill, skilled man power, and thus they fail to embark on coffee market on the right time. Their capability specifically responding to frequently changing coffee price is slow and this has also reduced their potential to exploit coffee market.

3.2 Input supply

In Goma woreda very large volume of different kinds of inputs are required for various commodities produced and marketed.

Table 11. Major input types required and purposes

No	Type of inputs	Purpose
1	Poly bag, improved seed, seedlings	Coffee propagation
2	Poly sheet, mesh wire, chicken wire, hand pump, jut sacks, etc	Dry and wt coffee processing
3	Saw, pruning seasors, matchet, zapa, DAP urea, etc	Plantation maintenance
4	Improved bee hive, queen excluder, foundation sheet, honey exactor, packing materials, etc	Honey production
5	Vegetable seed	Vegetable production

Various suppliers supply these inputs and which input it supplied by whom and challenges encountered are described in the following section.

3.2.1. Cooperatives

Inputs such as improved maize seed, DAP and urea fertilizers, pesticides, and herbicides are solely distributed by cooperatives so far and none of the private traders are involved in supplying these items. The items are usually distributed to farmers on loan basis and the cooperatives are responsible to collect the loan. However, due to very long loan process, and also capacity limitations, the cooperatives failed to supply these items to the farmers at the right time and the required volume. So far cooperatives have never been engaged in supplying quality machetes and zapa to the farmers but occasionally farmers pullout they're many and ask cooperatives to bring the materials from Addis. This indicates that farmers' needs regarding these items is not addressed efficiently.

3.2.2. Office of Agriculture and Rural development

Goma woreda office of agriculture and rural development is engaged in supply of inputs such as chicken, heifer, sheep and goats, improved bee hives, improved coffee seeds and seedlings, honey extractor free and on rotation basis. Some of these items are distributed by market and credit tem usually free but some times on credit basis. About 20% of improved coffee seedling requirement by the woreda is covered by the OoARD by highly subsidized price usually 0.25 cent per seedlings. Since long time improved coffee seed is produced by JARC and distributed by OoARD and currently OoARD has started producing improved coffee seeds from its demonstration sites but still coffee farmers demand of improved coffee seed could not be met.

3.2.3 Private traders

Private traders play dominant role in supplying inputs such as machete, zapa, pruning scissors, saw, and some items for coffee processing such as chicken wire, mesh wire, sacks, polysheet, etc. But farmers bitterly complain about the quality of the items delivered by private traders. Some farmers reported that they have a potential to buy quality items in cash provided that somebody could supply these items particularly "England made Crocodile" brand machete, zapa, etc. More than 80% of coffee improved coffee seedlings need of the woreda is covered by private individual farmers and again these seedling producing farmers complained about lack of polybag to produce potted seedlings. As the result most of the seedlings are produced bare rooted which severely affects the survival rate and performance of the plantation after establishment. Improve coffee seedling production is a very lucrative business where seedling producers could sell one seedling for one birr or more and again quite significant number of seedling producers, reported that they could buy the polybag on cash if some one could provide them. But so far neither cooperatives nor private traders are engaged in delivering this item to the farmers and thus this is an area that needs intervention.

More than 7000 improved hives are distributed to honey producer farmers in Goma woreda and all of these farmers need wax stamp to produce foundation sheet, queen excluder, honey extractor, quality improved hives, etc. However, very few private traders in Agaro town and some farmers in the rural area are engaged producing foundation sheet, improved beehives, some modified as queen excluder,etc in a very

limited quantity compared to the need. Since Agaro is far away from many honey producing farmers, the farmers may not be encouraged to travel long distance to buy the items. Over all inferior quality and very less quantity regarding many items needed for honey production are reported to be major challenge.

3. 3 Rural Finance

In Goma wereda there is Oromia Credit and Saving Institution (OCSI) functioning under the direct control of Jima zone brench office. It is reported that OCSI Goma branch is one of the first six rural credit offices opened in Oromia region in 1997 and disbursed a total amount of 1.2 million ETB until 2000. However, for a number of reasons such as inappropriate policy, lack of capable staff, less awareness creation among the community, lack of viable structure, management system, etc. 100% default was recorded and consequently the OCSI Goma branch was liquidated by the decision of the regional authority in the same year.

In 2001 with some restructuring and new staff, the Goma rural credit office was reopened and started functioning. Specific activities of the office included:

- loan delivery
- promoting savings
- facilitating life insurances
- advisory services

The loans loans services under OSCI are delivered through voluntarily formed farmers groups. About 4-6 farmers or households have the right to form a group and about 8-10 groups can form a Centre. These groups or centres have no interference from PA executive committee or others and group members make decisions. Two types of savings are promoted in Goma wereda:- compulsory saving and voluntary savings. Compulsory saving by clients has two components - group saving and centre saving. In group saving each client is obliged to save 10% of his or her loan amount soon after he/she gets the loan and, in centre saving each member is expected to save 4 ETB per month. Voluntary saving refers to savings made by clients, non-clients, organizations, public institutions and micro and small-scale enterprises.

3. 3.1 Collateral

The rural credit system in Goma wereda requires no fixed or moveable asset collateral from clients but group collateral and peer group pressure is strongly exercised. Each group member voluntarily signs to pay the debt if any one of the group members fails to pay the loan. During group formation, each member enters a group with full understanding that his or her group members are trusted and can pay his or her loan unless otherwise he or she faces intolerable problems. In such cases the group members will cover his/ her loan. At centre level, 8- 10 groups also sign agreement on behalf of each group. In this case a committee formed at centre level will give its approval or disapproval on each group to give or not to give loan to the group. In each centre in the presence of all centre committee members, group members will stand facing to the wall and centre committee members will vote for or against the group. The group members are not allowed to look at the centre

committee during voting and not allowed to ask any questions if they are denied the loan. After the voting, no further justification or evidence from this group is entertained by centre committee. When a group member signs agreement for loan it is compulsory that his wife or her husband will appear to sign together and also will clearly know the amount of money the client will get in hand.

3. 3.2 Loan scheme, interest rate and coverage

So far Goma rural credit office offered loan schemes such as:

- Agricultural inputs (improved seed, fertilizers such as DAP and urea)
- Oxen
- Sheep goats and cow production
- Fattening (dominantly sheep and goats and also cows)
- Livestock trade
- Petty trade (particularly small rural shops)

According to the report of rural credit office, oxen, small trade and livestock trade dominate the loan size and beneficiary number. The office charges 11.5% flat rate and 11.5% declining rate of interest for rural and urban sectors respectively. The loan is usually for 12 months and mostly farmers are advised to invest wisely such as buying pregnant sheep, or goats rather than non pregnant. So far the Goma rural credit office has covered 17 PAs in rural and 4 urban kebles in Agaro.

In the last few years due to various constraints, the office limited itself to expanding the coverage with in already initiated PAs rather than expanding the service to other new PAs. It is understood that now about 29 PAs in Goma wereda have no access to credit services and are most probably exposed to usurious local money lenders who charge 100% interest rate often in kind, either red or dry cherry.

Since its restructuring and some policy amendment, Goma rural credit office managed to develop good reputation and trust among its clients and reported successful loan repayment in the last 3 years (Table 12).

Table 12. Rural credit beneficiaries and repayment rate by year

N0	Year	No of Clients	Total loan	Repayment	Repayment in %
1	2002/2003	157	138,600	138,000	100
2	2003/2004		268,000	268,000	100
3	2004/2005	802	741,800	741,800	100
4	2005/2006	1912	2,000,500*		
5	2006/2007	3148	4,007,500	On progress	
6	1997-2000		1,200,00		

*About 6 clients defaulted due to a religious conflict in Beshasha PA

The office also managed to recover some of the loan disbursed before 2000 and currently out of an outstanding balance of 1.2 million, only 134,000 ETB remains to be collected. The success of the office in collecting the loan and smooth running of the programme since 2001 could be attributed to a very important policy shift of lending

to “Capable Poor” from lending to “Poorest of the Poor”, which Oromia region adopted this since 2002 and also to strong staff commitment.

The discussion with Goma rural credit office revealed that linkage between some of the offices such as OoARD, Cooperatives and others that work towards the betterment of the rural poor is not active. For instance farmers who get loan for inputs such as fertilizer and improved seed could not get the inputs either from office of agriculture or cooperatives at the right time. Thus they are forced to go somewhere else which may force them to incur additional cost. The role of extension workers in developing awareness among farmers on improved technologies and practices and also linking them to rural finance has the potantial to reduce work load on rural credit staff. These and other similar issues need focus, discussion and joint planning among sectors functioning in the wereda. Other limitations include limited staff capacity and understaffing.

3. 4 Women Affairs Office

In view of emphasis given to gender and empowering women at various levels, Goma women’s office was established in 2002 and since than efforts were made to achieve objectives of attaining equality between men and women in social, economic and development endeavours of the wereda. The office has a chairman, a vice chairman, secretary, cashier and accountant. Currently the wereda has 2345 women organized under 12 women’s associations and each member contributes 3 ETB annually and receives a legal receipt for the contribution.

The wereda women’s office head explained that the major activities of the office focus on developing awareness on gender; women’s role in socio-economic activities of a family and the community at large; strengthening women’s capacity to access resources and information; fighting HIV/AIDS and unhealthy culture, etc. The office has not established a systematic reporting system so far. However the office communicates with its members in a zonal monthly meeting in which executive committee of each woman’s association presents its monthly report and discusses matters related to the work plan. If some crucial problems are identified in some of the associations, the office members go to that particular association and through discussion find solutions that may be appropriate.

Since the establishment of women’s affairs office, some organizations such as GTZ have started working with the office in areas like HIV/AIDS, female education etc. A number of female students clubs were established in schools with the assistance of female teachers and have contributed quite significantly towards fighting unhealthy culture within schools and among the community, managing behavioural change among adult girls and relations with male students, etc. In addition, female students were assisted with additional class and tutorial classes in subjects where their grades were observed to be lower.

According to wereda women’s affairs office, equal registration of both husband and wife as landowners are some of the success areas currently observed, though the office stresses that much still remains to be done. In Goma wereda women’s rights

and privileges are still not effectively protected and demonstrated because of less awareness among both men and women. Among the Muslim community, women do not have equal right over resources and consequently when there is a divorce, women can claim only a quarter of the wealth of a household. Even though there is some progress over this issue it is not widely exercised. Moreover, the dominant income generating resource of a household in Goma wereda is coffee and decision making power about this is still only in the hands of men.

Goma wereda Office of Agriculture and Rural Development has a Womens Affairs Desk, with a mission of delivering various services to rural women. The team has a head and one senior expert rendering services to farming women in the areas of improving productivity, developing saving habits, mother and child care, nutrition, family and personal hygiene, environmental sanitation, etc. The team assisted by DAs located at different developments centres started awareness creation and provided inputs such as vegetable seeds, improved chicken to women to diversify their income and improve family nutrition etc. However, the funds provided to undertake training were withdrawn some years ago and vegetables seeds being provided to HIV positive women through zonal office of agriculture were also stopped. Currently the office is engaged in advisory services, which are not very effective because inputs cannot be provided according to the needs. May be promoting private input supply could address the problem.

Among various interventions, women farmers were interested in producing vegetables but unreliable seed supply source discouraged them widely. Usually local vendors supply expired seeds and/or vegetables seeds not required by women. Other interventions such as energy saving mud stoves could not takeoff they were not felt to be convenient by the women as it occupies quite significant area in the limited space they have in the houses. Usually women destroy it to reclaim the space when they have ceremonies such as weddings and other cultural celebrations when relatives, neighbours and other family members gather. Some women do not prefer it as they have to stand all the while that they are cooking, if using these stoves. Therefore, the team doesn't work on energy saving stove any more. However, the women's affair desk staff reported that some women in the rural areas started using improved stove made of cement bricks on their own initiative. Some interventions such as fattening of small ruminant animals were also introduced widely some years ago and a significant number of rural women are reported to have benefited and managed to acquire assets like cows by investing the profit they made from sheep and goats fattening. The demand for small ruminants fattening programme is quite high but nothing was done by OoARD as no budget was allocated to implement the programme and also there are no other organizations engaged in such activities.

The office reported that the communication system that extension follows for women is through Household contact. This is because usually women in Goma wereda do not participate in group or PA meetings and at the same time as majority of development agents are male, women do not feel comfortable discussing their matters with male DAs. At the same time male development agents do not give much attention to address issues related to women and even do not worry as long as they are able to get men to participate in meetings or demonstrations. Even though there are other public institutions such as rural credit and women's affairs office, cooperatives etc.

which address issues related to women, there is no linkage and communication between these offices. The women's affairs Desk of the OoARD does not have any transport facilities, addoing to the problems of reaching out to women to discharge its responsibilities

3. 5. Agricultural extension

Goma Wereda rural and agricultural development office is one of the eleven offices established under the executive administrative council of Gomma wereda. The agricultural office was established with the following main mandate:-

- Formulate the rural development policies and strategies for the wereda,
- Co-ordinate agricultural in put supply and promotion of farmers output,
- Due emphasis to gender equality
- Expansion of rural infrastructure,
- Strengthen rural urban linkage in livelihood with food security and poverty reduction

Since then all agricultural and rural focused interventions have been undertaken by OoARD. The office constitutes of 12 teams and extension service is minimized to the function of an expert under crop production and protection team. Again for budgetary reasons, crop production and protection team is merged with coffee, tea, spices, vegetable and fruits team. The crop production and protection team has one team leader, extension expert, crop agronomy expert, protection expert and training expert stationed at Agaro and 9 field supervisors stationed in rural areas and are directly in charge of development agents.

As a result of a new structural change in 2004 the supervisory positions, particularly of those stationed in rural areas were totally abandoned, but due to the strong demand of the work at field level, the wereda has unofficially assigned supervisors. The wereda has a total of 88 DAs of whom 15 or nearly 17% are female. Out of these, 13 DAs are attending their diploma programme in various ATVET colleges. Each supervisor has to supervise 4 DAs and each DA has to deliver services nearly to 250 to 300 HHs. Currently at least 2 DAs are assigned in each PA excluding Bersoma and Gtabore, the farthest and less accessible PAs where only one DA per PA is assigned. Quite a significant numbers of trained DAs are engaged in activities not related to the discipline they are trained in and/or totally out of agricultural area.

Mechanisms for creating technical and administrative accountability of DAs are not yet streamlined in the wereda. Extension experts claim that all DAs should be directly accountable to extension team leader while other sectors such as coffee and livestock advocate parallel accountability depending on the discipline. However, currently DAs communicate with the extension expert regarding administrative matters such as promotion, transfer, annual leave, performance evaluation, etc.

It was envisaged that agricultural extension service could be delivered more effectively through FTC approach where more than 3 trained DAs could be stationed in each FTC and could deliver both training and extension service to the farming community around. Construction of one FTC for each PA started some years ago. In 2006 the first round training of farmers for 6 months started in few completed FTCs

but aborted for reasons such as lack of adequate preparation in curriculum, teaching materials, demonstration fields, books, instructors, etc. Construction of a large number of FTCs is pending. There are at least 4 completed FTCs which are accessible by road, have electricity supply and telephone line.

For administrative purposes PAs are divided into Got and Gare (equivalent to group or team). One PA can have 4-5 Got, each Got can have more than 3 Gares depending on the number of households. Each Gare can have 15-25 households and these households are again divided into sub-groups. Each sub-group has 5 households as a member making the number of team leaders in each Gare at least 5 and above. Development agents usually utilize this PA or government structure to disseminate new technologies, practices and other important agricultural information. Extension communication follows a group approach but DAs have to communicate with Gare team leaders a day before so that he/she could call his group members for the next day. Usually DAs identify their model farmer in each Gare, depending on the performance of the farmer and demonstrate new technologies and practices on the model farmers' field.

Extension activities in the wereda are dominated by coffee production and processing operations. Rejuvenation through stumping, coffee berry disease (CBD) resistant selections, seed and seedling promotion, promotion of propagation techniques, dry and red cherry processing techniques, etc. are some of the interventions undertaken by the extension service. In the past a considerable amount of budget was allocated either from the government or from donors to facilitate the intervention. Coffee Improvement Project (CIP) played a dominant role in equipping coffee extension programme in the wereda providing several items like polybags, machetes, pruning scissors, etc. to the farmers free of charge. However, coffee production is facing serious problems. Even though CBD resistant selections attained an overwhelming acceptance, farmers are forced to go back to traditional bare rooted seedling production due to lack of polyethylene bags which has a serious consequence for the output of the plantation. Coffee quality maintenance and timely input delivery are areas which require much extension work, which in Gomma are serious challenges. Lack of farmers awareness on quality coffee production and unrewarding price received by farmers who manage to maintain coffee quality aggravated the situation. Lack of efficient and genuine inputs supplying agencies and institutions is another challenge.

Extension activities in crop and livestock production are quite low. Even though farmers own quite significant number of cattle per household challenges in feed and other management aspects are not addressed. Maize is the staple food of Gomma community but intervention in this area is quite low and as the result productivity per unit area is considerably low.

Traditionally new technologies or improved practices transfer was not based on the need and interest of beneficiaries. Annual plan of activities to be performed in the wereda was mostly driven by national or regional interest regardless of socioeconomic, cultural considerations and specifically farmers' needs. According to the professionals in the area, this has created string negative perception of the extension service among farmers. Very recently the region came to realize the

negative effect of forced technology transfer and now there is considerable change in this direction. Available technologies or improved practices are transferred to DAs after training them. Then DAs develop awareness among farmers, demonstrate the new technology on model farmers' field and facilitate the group members to observe and evaluate the new technology. Finally convinced farmers could try them on their own field and the DAs render technical assistance when ever needed. However, the field staff reported that there are still some spontaneous and top-down technology dissemination actions which sometimes make the relation of DAs with farmers very rough.

Timely training of DAs on various new approaches and practices could keep the DAs updated and make them capable of responding to various questions posed by farmers. Training should be based on challenges identified from field level or on new approaches to be introduced. The wereda technical personnel reported that usually training was planned and budget allocated but since the last four to five years the budget was totally removed and no training is undertaken by any department unless it gets budget support from some external institutions or NGOs.

Overall the extension service in Goma wereda has various challenges which slowed down the staff from rendering the service required of them. Ineffective organizational structure, limited staff capacity, limited budget and transport, lack of horizontal and vertical linkages, understaffing etc are some of major challenges. More than 50 % of the staff have certificate which may not enable to cope with the dynamic nature of agricultural technologies and extension communication skills required. Intensive training to change the conventional extension approach and attitudes to market oriented and participatory approaches should be given priority.

Table 13. Goma wereda OoARD staffing and education level

No.	Teams/unit	Level of education.			Total	Total manpower needed
		BSc	Diploma	Cert.		
1	Crop production and protection (Extension)		3	1	4	8
2	Natural Resources conservation and rural energy promotion		2	5	7	10
3	Animal production. & Veterinary		5	5	10	18
4	Coffee, tea, vegetables and fruits	2*	1	2	5	5
5	Rural land use and management	1		6	7	10
6	Market study and assessment	1		0	1	5
7	Planning and programming unit		1	1	2	3
8	Women's affairs office			2	2	3
9	Irrigation development**		3	0	3	7
10	input supply and credit			3	3	6
11	Cooperatives			0	0	
12	Development Agents		80***	8	88	
13	Secretary			2	2	2
	Total	**4**	**95**	**35**	**134**	
	Proportion (%)	**3.0**	**70.9**	**26.1**		

*Expected to complete soon

** Newly developed structure

***Eight perusing for B. Sc.

3. 5 HIV/AIDS

The over all HIV/AIDS related operations in the wereda are identified and planned by the Goma wereda HIV/AIDS secretariat chaired by woreda council head. Out of the 25 public offices functioning in the woreda, heads of 15 offices are member of HIV/AIDS secretariat and wereda HIV/AIDS office acts as the secretary. Wereda HIV/AIDS office is staffed with an office head and accountant only. Normally, it should also have a programme officer and secretary. Due to staff and transport limitations the office could not function as planned.

Other non-government organizations such as Save the Children UK, Islamic Agency, Red-Cross Youth Association and Faya Multipurpose Development Association are also working on HIV/AIDS issues. Facilitation and monitoring HIV/AIDS mainstreaming in each sector are among major activities of HIV wereda level offices. At each PA level there are anti HIV/AIDS committees with 5-7 members which plan and coordinate anti HIV/AIDS activities undertaken by various voluntary youth and women groups functioning in each PA. It was expected that the overall coordination of Anti HIV/AIDS activities would be carried out by the HIV/AIDS office, but according to the report of the office head very few or none are reporting to this office and information is very scant.

In Goma wored the HIV/AIDS prevalence is reported to be high. This is attributed to incomes from cash crop, polygamy and harmful traditional practices such as female genital mutilation, early marriage etc. Coffee generates substantial amount of cash for both rural and urban dwellers during harvest and in such conditions many consume alcohol and are tempted to have unprotected sex which is major factor for HIV transmission or infection. A higher proportion of the victims are women and the VCT staff attributed this to low economic status of women which forces them to be dependent on men, or to engage in prostitution.

Despite wide prevalence of the disease, efforts are limited and achievements are insignificant. The wereda health office head explained that there is only one voluntary counselling and testing (VCT) centre located in Agaro town and is expected to cater to the entire wereda. The ART centre located in Agaro started in January 2007 and gives service to Goma and 4 other neighboring weredas. The access of this centre to the rural community is limited as many PAs are far away from Agaro. HIV/AIDS office selected 4 women from each kebele and trained them in House-to-House care and these women started serving the affected populations in Agaro town very recently and this activity has not yet started in rural areas. High turnover of PA committee members is another challenge where trained members move out without making any contribution to fighting HIV/AIDS. VCT centre staff reported that Save the Children UK used to train and organize youth in the rural areas and the trained youth played a significant role till 2006 by developing awareness among community and sending them to VCT centre but now no such efforts exist. The VCT centre usually does not have enough kits and once the clients go back with out getting the service regaining the momentum takes considerable time. Majority of the technical staff complained that

mainstreaming HIV/AIDS is a big agenda in several important forums but majority of the sectors do not practise it.

Voluntary Counselling and Testing (VCT) centre staff report that considerable progress has been recorded since a health centre staff campaign in January 2007. The campaign increased people coming to VCT from 30 per month to 80 per month in a very short period of time and most of the users are youth. The technical staff explained that if the service coverage is expanded and kits are available people using VCT will tremendously increase

4. PRIORITY COMMODITY DESCRIPRTION, ANALYSIS AND POTENTIAL INTERVENTIONS

I. CROPS

There are two farming systems identified in the wereda. In one of the cereal/livestock farming system, where 4 PAs belong, the 2 sub groups (2 PAs each) have differences in their priority commodities. However, for ease of work, these sub divisions will not be entertained but rather be considered as one farming system in the analysis below. The priority commodities selected were:

- Coffee
- Tropical and subtropical fruits (mango, avocado, banana and pineapple)
- Spices (Ethiopian cardamom and ginger).

Some of these newer commodities are being tested by either the research system (pineapple) or by farmers (spices). Hence efforts will be made to scale-up the existing activities after identifying the bottlenecks in each commodity chain.

The following tables provide a brief description of production, input supply, credit and marketing aspects of the priority commodities together with areas requiring attention and potential interventions as suggested by farmers and professionals during the Wereda preliminary survey which will be followed by a planning workshop. In addition, the possible organisations to be involved in executing some activities are also shown, but there may be some organisations which will join at a later stage.

Coffee in shaded Coffee/livestock farming system

Table 14. Project support for coffee production improvement.
Production
Prior to the identification of CBD resistant selections in the late 70s by JARC, production was very low. The old trees were then eliminated and nearly all coffee trees in Goma are from these CBD resistant selections. Goma is considered an organic coffee producing wereda. Unlike Dale, almost all coffee trees are grown under a shade tree. However, productivity of coffee is low under farmers' condition, despite the fact that CBD resistant varieties have been planted long time ago and the coffee growing conditions are also favourable. Farmers in the wereda have about 0.75 ha of under coffee plantation at an average. Farmers reported that they used to produce around 33 bags (1650 kg) of coffee beans from a quarter of a hectare many years ago, but they currently get only about 4 bags (200 kg). They associate this low productivity with low soil fertility. This emphasis on organic coffee production therefore requires encouraging the use of organic fertilizers (coffee pulp, manure and compost). In addition, problems related to the high mortality of a popular coffee shade tree (*Albezia gummifera)* death have also been indicated in many places. *A. gummifera* is a famous shade tree in Goma, but the problem of its death is an issue which needs some attention. This requires identifying the causes of its death and trying to solve it in collaboration with extension and research system and farmers in the wereda. Research has not yet identified wilt resistant varieties, but work is still in progress.

Promotion of hybrids in Goma may boost coffee production and hence income. Efforts will be made to encourage increased use of hybrids. Hybrids have high yielding potential (24-26 under research and 15 under farmers' conditions), come to production a year earlier and have less biennialty effect. According to the researchers, cup test and other quality matters of the hybrid varieties is not affected. So far, JARC has distributed about 20,000 hybrid coffee seedlings. Out of these, 11, 300 were distributed to 20 small holder farmers, 2500 to coffee state farms and 6200 to private investors in and around Jima area.

Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Lack of detailed information about coffee shade system and organic fertilisation in the wereda.	Study the existing shade system and natural fertilisation practices on sample areas within the coffee/livestock farming system	JARC/students and IPMS
Problems related diseases (wilt, CBD and leaf rust)	• Training on diseases control to woreda coffee production experts and DAs in coffee growing PAs; • Provide disease resistant varieties; • Introduction of alternative disease management practices (targeting women, children)	JARC, IPMS
Not many farmers applying organic fertilisers and existence of poor cultural practices (pruning, weeding, mats, mulch, soil fertility-coffee husk)	• Training in organic coffee production to woreda coffee production experts and DAs in coffee growing PAs (ToT) • Farmer training on organic coffee production	JARC/Coffee agronomists/IPMS (facilitator) DAs guided by coffee agronomists/IPMS and JARC/Coffee agronomist
Lack of demonstration materials in relation to coffee production	Supply of demonstration/training materials on diseases management, field transplanting, pruning and de stumping, slasher, saw, hoe, pruning shears, scissors, chicken wire, etc to coffee growing FTCs	JARC, IPMS, OoARD
Death of *A. lebbeck* (the best shade tree)	• Study causes of death • Plan for better mgt. options, including alternative shade trees	JARC, Students, OoARD, IPMS
Damage of coffee trees by wild and domestic animals	Well planned management options including tethering of livestock	OoARD, IPMS
Shortage of land	Optimisation of existing land holding with improved coffee management system	OoARD, IPMS
Unselective picking of coffee beans (red & green) due to fear of theft affecting	Bye laws by communities to only collect red cherries and strengthening the already existing	OoARD, PA leaders and elders

productivity of coffee trees	community based quality control groups	
Low soil fertility affecting production	• Train farmers on timely application of manure compost and coffee pulp • Training farmers on the preparation of composting	OoARD, IPMS
Inadequate shade management (too much/too little)	Introduce best (shade) management practices	JARC, IPMS, OoARD, CABI
Old, low producing trees	• Multiplication of already adapted land race varieties in mid altitude • Introduction of hybrid varieties with Limu qualities • Introduce technologies to revive old trees • Introduce the already released four (4) varieties for the highland areas	JARC, IPMS, OoARD, CABI

Input supply

About 80% of the coffee seedlings are produced by smallholder farmers. However, improved seeds are still given free of charge to farmers by the OoARD. Efforts will be made to increase and privatise the seedling supply system by increasing the share of supply of seedlings from farmers beyond 80%. The already established Union need to be strengthened to buy coffee, deliver credit, and supply essential hand tools to the satisfaction of the farmer, at a reasonable price. Following the general strategy of privatization of the input supply system, the already established private nurseries will be strengthened. This improvement will be based on an assessment of the existing nursery system, followed by capacity building of Wereda, FTC staff and farmers. This capacity building will also include the use modern propagation techniques for improved varieties, like the hybrid coffee types developed by JARC.

Emphasis will be put on the introduction of CDB resistant hybrid varieties like Aba Buna, Gawe and MCH2 and other selections from JARC on to the smallholder farmer nurseries.

Farmers have been complaining about the poor quality but high prices of hand tools available in the market. Efforts should be made to encourage the union or private suppliers to supply better quality at reasonable prices. Experiences of CABI regarding supply of dry and wet coffee processing materials will also be considered.

Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Problems on private coffee nursery system not known	Study the existing coffee nursery system and identify potential areas for improvement	IPMS, OoARD, JARC
Lack of knowledge on improved nursery management by DAs and FTC staff	Training of DAs and FTC staff on improved nursery management in PAs within the coffee/livestock farming system	JARC, OoARD, IPMS
Lack of knowledge on	Training Wereda coffee experts,	JARC, IPMS, OoARD

alternative ways of propagating hybrids.	FTC and DAs on best ways of coffee seedling propagation	
Lack of sufficient hybrid coffee for planting	Facilitate supply of improved coffee seed (hybrids and selections) to the existing private coffee nurseries	JARC, OoARD.
Shortage of improved coffee seeds	Train and organise farmers to produce improved coffee seed supply for market	JARC, IPMS, OoARD
Farmer training and program follow up on improved nursery management, and new propagation methods, especially hybrids	Private seedling suppliers	JARC, DAs, SMS
Lack of demonstration materials at FTC level in relation to input supply.	Supply of demonstration/ training materials for input supply – nursery management, including equipments for propagation using cutting, watering equipments..	JARC, IPMS.
Unavailability/poor quality of tools and equipment for coffee	Demonstrate to MFI the use of credit for the union or private sector to stock good quality tools (sacks, poly bags, slashers, pruning scissors, chicken wire, hand pullers, etc.) on a timely basis	OCS share co, OoARD, IPMS, CABI
Unavailability post harvest storage processing supplies	Facilitate knowledge/linkages with good quality tool and post harvest equipment suppliers	OCS share co, OoARD, IPMS, CABI
Credit		
Currently, majority of coffee seedlings are produced by farmers. However, the high yielding hybrids are not yet in Goma. Some innovative farmers willing to work on these hybrids could be trained and given credit to apply hybrid coffee propagating methods developed by JARC. The clonal garder of the OoARD in Choche could be used for propagating the hybrid varieties. Hence, farmers may not need to develop own hybrid plantation to start working on the new scheme. In addition to increased coffee yield in the area, this intervention will help increase the share of coffee seedlings supplied from farmers. If credit is required, it will be made available by IPMS.		
Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Lack of credit for private coffee nursery operators	Provide credit fund for private coffee nursery, if required (year 2)	Oromia Credit and Saving Share Company with project funds **(**OCS share co.)
High yielding hybrids not available in Goma	Train and organize few interested farmers on the best hybrid propagation method developed by JARC for using the OoARD clonal garden and avail credit if needed**.**	JARC, OoARD, IPMS
Share of farmer produced	Increase capacity of already existing	OoARD, IPMS, JARC

seedlings should be increased beyond 80% and relieve the OoARD from this activity	or creating new coffee seedling growers by the current 80% by giving credit, if needed	
Marketing		
In a study by Petty, *et al*. (2003)[7], it was reported that farmers, the extension system and traders were more coordinated and organised in the neighbouring Mana wereda than in Goma. As a result of this good coordination, farmers fetched better premium prices. There was also greater awareness on the importance of controlling and improving coffee quality through the production and marketing chain. This is missing in Goma and needs to be put in place if better quality fetching higher price is to be produced in order to increase the income from coffee. Work on improving coffee quality and increasing the share of hybrid coffee would be also another entry point. Some farmers and experts believe that awareness needs to be regularly made on the impacts on quality coffee, hence economy of both the farmer and the country at large. For example, both coffee and *Cordia africana* cherries look the same and if mixed could affect the quality of coffee. It may also be necessary to capacitate pulpery owners (private, cooperative) to focus on improvement of processing and storage of the coffee. There are about 50 wet and 28 dry coffee processing plants in Goma. These wet processing plants have a capacity of 130 t/season each, while the dry processing ones have a capacity of between 7-12 qt/hr. Increasing the share of hybrid varieties will increase the volume and income of farmers. During picking, both red and green cherries are harvested at the same time. This is substantially affecting the quality and hence the price. At the same time the productive capacity of the coffee tree from where both the red and green cherries are harvested will be substantially reduced a year after this has happened. It will be necessary to strengthen the already established but un functional community based quality control groups. Efforts will also need to be made to introduce quality based pricing by traders in the area, including the newly established Farmers' Union. Experiences from CABI will also be considered to improve the quality of coffee. Efforts will also be made to link farmers with exports in a bid to improve income of farmers from this commodity. According to CABI, farmers who participated in the project earned more money per kg compared to other farmers who were not part. For example, farmers who dried their coffee on chicken wire earned about 41% higher price, while farmers who pulped their red cherries using the household manual pulping machine earned 71% higher price. The intention of the project is therefore to concentrate and promote the local coffee types with distinct "Limu characteristics".		
Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Lack of quality based pricing system	• Strengthen the quality control groups at community level • Training of farmers and DAs • Awareness creation to traders and exporters on the importance of quality based pricing	OoARD, JARC, IPMS, CABI
Lack of information on the quality of coffee from pulperies.	Study coffee quality from farmers, private and cooperative pulpers in	JARC, IPMS, OoARD collaboration with,

[7] Petty, C., Seaman, J., Majid, N. and Grootenhuis, F, (2003). Coffee and household poverty: A study of coffee and household economy in two districts of Ethiopia, Save the Children UK, pp. 36.

	the coffee/livestock system	private/cooperative pulperies, CABI
Lack of knowledge on the impact of quality on coffee price by DAs and FTC staff	Training in on-farm coffee quality improvement and good agricultural practices to DAs/FTC staff	JARC, OoARD, IPMS, CABI
Lack of knowledge on the impact of quality on coffee price farmers	Training in on-farm coffee quality improvement and good agricultural practices to farmers in coffee growing PAs in the coffee/livestock system	DAs/FTC supervised by JARC and OoARD
Low price at early harvest	• Strengthen involvement of Union so that redistribution of profit at a latter stage is possible • Link with exporters • Demonstrate to MFI with the use of IPMS credit for farmers at the start of the harvesting season so that they do not rush to sell at low price	OoARD, IPMS
Lack of knowledge by the processors on the impact of quality on coffee price	Facilitate training of processors' staff (farmers, private, cooperative) in quality improvement	OoARD/IPMS
Shortage of household coffee processing equipments, both wet and dry processing	Encourage and promote farmers to own household coffee processing equipments (wet and dry), including using credit system	OoARD, IPMS, JARC, CABI
Lack of demonstration materials in some coffee growing PAs	Supply demonstration materials on harvesting and processing of coffee in some PAs within the coffee/livestock farming system	JARC, IPMS, CABI, OoARD.
Strengthen the community based quality control system	Revamp and retrain to make the community more functional	OoARD, IPMS, JARC
Some times lack of enthusiasm to take few kg coffee cherries on a daily basis to processing plants	• Organise farmer groups to collectively transport coffee cherries on a turn by turn basis • Organise group pulperies (CABI type) • Help identify niche markets	IPMS, CABI, OoARD, JARC
Lack of linkages with exporters	• Link with major coffee exporters	IPMS, CABI, OoARD
Poor quality due to unlicensed traders buying coffee and theft forcing farmers to collect both red and green coffee cherries	• Organizational interventions to prevent theft, unlicensed traders, quality control and quality payment (poor culture, hence select respected leaders)	IPMS, CABI, OoARD
Lack of grading, price differentiation at farm level	Training of farmers and strengthening the already existing community based quality control groups	IPMS, CABI, OoARD

Low price as compared to some other coffee types	• Quality improvement • Certification of coffee • Work on the specialty coffee-local Limu • Market promotion and linkages	IPMS, CABI, OoARD
No study available to distinguish whether organic or high input coffee production is economically important to the farmer	Conduct study to	IPMS, CABI, OoARD
Poor post harvest processing (drying and pulping) and storage	Scaling out post harvest processing technologies (wet and dry) linked with credit program and also improve storage facilities and practices	IPMS, CABI, OoARD
Credit		
Involvement of credit for developing coffee marketing is a possibility. However, income of farmers during coffee picking periods is reasonably higher compared to other areas in the highlands. It may also be possible to introduce some tested technologies and knowledge starting with farmers own cash. When doing this, one need to coincide the intervention at a time when farmers have the cash, otherwise, IPMS's credit scheme will be made available.		
Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Household level coffee processing equipment promoted by CABI not widely available	Expand through the use of wet and dry processing equipments through promotion and demonstration. Use of the IPMS credit scheme is a possibility.	JARC, OoARD, IPMS, OCS share co.
Because of lack of cash during the early days of coffee selling, farmers sell produce at very low prices	Avail IPMS credit money to fulfil financial needs so that they will not be in a hurry to sell their produce at cheaper price	OoARD, IPMS, OCS share co.

Table 15. Tropical and sub tropical fruits –(Mango, avocado, pineapple, orange, banana, Papaya)
Production
Nearly all of the tropical and sub tropical fruits in Goma have been growing for many years, but the quality is very poor. Improvement of the existing genetic materials will be essential. JARC is the national centre for avocado and pineapple research. World known varieties are available in the centre. On the other hand, MARC is also a national centre for Mango and citrus. MARC has a research site in the Ghibe valley where experiments are underway to identify mango and orange varieties resistant to different diseases in relation to the high rainfall and high humidity for west and southern Ethiopian condition. Avocado has been introduced to Goma recently (some say about 10 years) but farmers are

interested with this fruit and is expanding fast. Goma is very suitable for avocado and the fact that JARC is a national centre for this fruit is an added advantage for the project. However, mango was introduced longer and farmers have well established trees of this fruit. As a result, mango was selected top among the tropical fruits, but farmers also believe that avocado will be better than mango in the future. Their assessment is also scientific in that the humidity level in the area, due to higher rainfall, makes the development of fungal diseases like anthracnose, prevalent in mango. This fruit requires hotter and drier environment for best performance.

On the other hand, JARC has started working with some farmers on pineapple and this could be an entry point to expand and promote this fruit. The best variety of pineapple, smooth cayenne, is being scaled up.

Many farmers have also got orange trees but nobody knows the variety and when it was introduced. Many farmers complain that their oranges plants are suffering because of different diseases. This could also be because of the higher humidity level in the area.

Banana types in the area are not the marketable types. Some of them are Ducasi hybrid of poor quality. Cavendish banana comes all the way from Arba Minch. Limited activities in some areas could be possible.

Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Prevalence of different diseases (mango- anthracnose, orange- leaf spot)	Introduction of disease free/tolerant varieties	JARC/MARC, IPMS, OoARD
Abortion and shading of flowers in avocado (small fruited ones)	Introduction of disease free/tolerant varieties and identification of the causes of these problems	JARC/MARC, IPMS, OoARD
Unmanageable tree height	Introduce shorter types of improved grafted varieties	JARC/MARC, IPMS, OoARD
Lack of technical backstopping and experience in fruit production (over population, etc).	Capacity building of OoARD staff and farmers.	MARC/JARC, IPMS, OoARD
Newness to the technology and lack of knowledge on nursery and field management (grafting, budding, pruning, etc.) operations by farmers and DAs	Practical training of DAs and farmers, experience exchange programmes, increased on-farm introduction, Introduction of appropriate management practices	JARC/MARC ,OoARD IPMS
Lack of uniformity of fruits because of unknown source of planting materials (avocado, mango, etc)	Introduction of improved varieties	JARC, IPMS, OoARD
Low production because limited number of trees at household level	Increased uptake and introduction of improved fruit through innovative methods	IPMS, JARC, OoARD
Lack of knowledge on the	Establish farmer research groups	JARC/MARC, IPMS,

importance of fruit development by farmers		OoARD
Insect, wildlife and birds damaging production	• Protection by family labour • Encourage community bylaws • Market oriented fruit production	JARC, IPMS, OoARD
Lack of market oriented fruit production (farmers planting few but different fruits)	Producing many commercially important fruit crops	JARC, IPMS, OoARD
Extension is not done by "extensionist"	Assignment of extension professionals	IPMS, OoARD
Input supply		
This is an important bottleneck for the promotion and scaling up of fruits. Innovative solutions will be required. Experiences gained from the different PLWs so far will be implemented. Farmer based fruit seedling supply system will be one to be promoted where few farmers will be selected to raise, graft and sell improved fruit seedling for fellow farmers. Interested and capable women household heads and/or jobless youth could be considered for this activity. In the current system, farmers are only exchanging seedling amongst themselves, but they are all of poor quality. On the other hand, avocado seedlings are also raised and distributed from the 2 government forest nurseries in the wereda at small scale.		
Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Lack of sufficient and improved planting materials (seedlings) from different fruits	• Introduce and test different types of fruit varieties • Introduce farmer based fruit seedling supply system	JARC/MARC, IPMS, OoARD
Lack of knowledge of improved fruit seedling nursery management	• Training of farmers on improved nursery management systems • Farmer based fruit seedling supply system	JARC/MARC, IPMS, OoARD
Unknown source of planting material	Introduce and popularise world known fruit varieties from research	JARC/MARC, IPMS, OoARD
Lack of improved varieties, especially pineapple	Introduce and popularise smooth cayenne	JARC, IPMS, OoARD
Lack of fruit nursery and tree management tools	Strengthen Union/cooperatives	IPMS, JARC, OoARD
Availability of chemical inputs	Encourage Union/private suppliers	JARC, IPMS, OoARD
Lack of nursery tools (grafting tools, polybags, etc.)	Demonstrate sample tools at selected FTCs where fruit production is a potential or currently high	IPMS, JARC, OoARD
Shortage of fungicides and insecticides	Encourage Unions/traders to supply these chemicals (Care should be made to consider the wereda's organic coffee production system)	IPMS, JARC, OoARD
Credit		
There is a high potential for fruit development, especially the sub tropical fruits (avocado and pineapple) in Goma. IPMS credit facilities could be used to expand the growing of improved varieties. The introduction of farmer based fruit seedling supply system is a good possibility which		

could develop in collaboration with JARC.		
Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Unavailability credit scheme to start improved fruit seedling supply system	Encourage, train and establish farmer based fruit seedling suppliers by few interested farmers and avail credit if needed	JARC, IPMS, OoARD, OCS share co
Marketing		
Some of the fruits are newly introduced (avocado and pineapple), the number of trees per household, (1-2 trees), are not many and hence not economically important at this point in time. This is in addition to the poor quality of the fruits and lack of expert support in the OoARD. On the other hand, as these fruits are perishable, lack of access to some of the remote PAs was raised as a problem. As a result, some farmers reported leaving the mango fruits of the trees uncollected. One farmer witnessed that his ripe mango fruits were left untouched but were used for his honey bees. For most farmers, what ever is produced from these few trees is consumed at home. For example, cost of 1 mango fruit ranges from 0.15 to 0.50 cents. Future market opportunities will be wider when better quality varieties are introduced and the area becomes known for its high quality fruit like Wondo Genet in the south. Work in fruit development need to start in those accessible PAs so that lack of accessibility does not become a problem. There are very few small traders in Agaro who collect and send the fruits mainly to Bedele, in the north west during fruiting time. Fruit from Goma does not seem to have market in Jima as there are other supplier weredas nearby. Consultations will be made with the USAID supported organization and a Canadian University who are interested in fruit export potential and post harvest handling, respectively, in order to avoid duplication of efforts. Both of them are associated with Jima University. In addition, thisl IPMS may be able to link farmers in Goma to a sustainable market.		
Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Lack of access roads	• Initially introduce the farmer based fruit seedling supply system to accessible PAs. • Encourage farmers to fix the existing access roads through community participation	IPMS, OoARD, JARC/MALC Administration/OoARD ,
Small quantity is produced hence not economically important as at now	• Introduce and popularize improved fruit varieties • Encourage group marketing	IPMS, OoARD, JARC/MALC
Poor quality produced (variable sizes)	Introduce and popularize improved fruit varieties	OoARD, IPMS, JARC
Lack of market information	Develop market information systems	IPMS, OoARD, JARC
Even with the existing low production, market is not dependable	Especially after the introduction improved varieties, market linkages will be required	IPMS, OoARD,
No other market for these fruits other than Agaro town	Market linkages need to be made	IPMS, OoARD
Harvesting of fruits before	Training of farmers/DA	IPMS, OoARD, JARC

physiological maturity		
Knowledge gap in harvesting	• Market oriented harvesting scheme (avocado) • Varietal selection for difference in harvesting time	IPMS, OoARD, JARC
Lack of technologies related to post harvest handling	• ToT to train farmers • Avail technology to extend shelf life of fruits as demonstration materials (e.g. Zero energy cool chamber (ZECC))	Jima Rural Tehnology centre, OoARD, IPMS
Poor fruit tree management (pruning, grafting)	Training of farmers/DA	IPMS, OoARD, JARC
Fruit consumption is very low	Organize "fruit days" to promote fruit consumption habits in the towns	IPMS, OoARD, JARC
Lack of trained man power to train farmers/DAs on market oriented harvesting and for varietal differences (maturing at different time)	Assignment and training of DAs in market oriented fruit harvesting, taking note of varietal variability in maturity and hence harvesting	JARC, IPMS, OoARD
Lack of synthesis of market information collected by OoARD to benefit the end user	Training on the market data collection and analysis	JARC, IPMS, OoARD
Lack of knowledge on the benefit of linkages among farmers, extension, researcher and traders	Creation of platform with different stakeholders involved in fruit development	JARC, Trades, Farmers, IPMS, OoARD, NGOs
Credit		
In the future, once these improved varieties are introduced and started producing fruits there may need to train interested assembler farmers to buy fruits and deliver them to whole sellers or collectors taking to other bigger markets like Addis, after linking them to the right buyers. Buyers at the PA level may need starter money to buy these fruits and hence IPMS could make this credit money available.		
Lack of credit money for fruit assemblers at PA level	Avail credit money to promote fruit production	IPMS, OoARD, OCS share co.

Table 16. Spices (Ethiopian cardamom, and ginger) –
Production
In some PAs, few farmers grow Ethiopian cardamom and most farmers believe that both spices can grow well in Goma. These spices have some environmental requirements. For example, Ethiopian cardamom requires shaded environment and is a moisture lover while ginger needs an open area. The former actually prefers to be grown near rivers. Since both spices are relatively new crops to the area, the capacity of staff and farmers on their husbandry need to be improved. The good opportunity is that Tepi Agricultural Research Centre, dealing with spices is close to

Goma. The important issue could be how to mix these spices with the existing system components.

On the other hand, some farmers grew fenugreek and black cumin for the first time and did well except some problems related to planting time. It will be important for the research system to identify the best spices (both agro-ecologically and socio-economically) spices for the wereda.

Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Lack of knowledge in the agronomy of these spices by farmers and DAs	Train both DAs and farmers	JARC/Tepi, IPMS, OoARD
Lack of demonstration fields on these spices	• establish farmer research groups • establish these planting materials in FTCs	JARC/Tepi, IPMS, OoARD

Input supply

As these spices (improved) are new to the area, lack of planting material is a major problem. In addition to the introduction of new varieties, developing future potential input suppliers for these materials will be very essential for the sustainability of the intervention. Involvement of Tepi/JARC in this regard is very essential.

Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Lack of improved planting material	Introduction improved varieties from Tepi	JARC/Tepi, IPMS, OoARD
Development of potential future input suppliers	Selection of potential input supplier farmers from among the research groups or else	JARC/Tepi, IPMS, OoARD
Lack of knowledge on business oriented input supply system on spices	Training of selected farmers on business oriented spice supply system	JARC/Tepi, IPMS, OoARD

Marketing

Currently, the spices are not produced in Goma and marketing can not be an issue at this point in time. Current market for these spices in Addis is relatively high and could encourage farmers to produce them. It will however be essential to link the farmers with exports in the future. As there are many assemblers and exporters in Jima and Addis discussions will need to be made so that the market situations are assessed on time.

Areas which need to be addressed	***Potential interventions***	***Responsibilities***
No information on marketability of this spices	Conduct market study or consult and hold discussions with assemblers and exports both in Jima and Addis.	JARC/TEPI, IPMS,, students, OoARD

II. Livestock

The livestock commodities selected for both farming systems were.

- Apiculture
- Small ruminant fattening
- Cattle fattening

- Poultry

The above two marketable commodities were the suggestions by experts and farmers in which IPMS's help is needed. However dairy was also considered as priority a commodity initially. During the field visits made to different PAs and the consultations with many farmers, it was clear that dairy was not of interest to them because of shortage land and hence shortage of feed. The need for dairy development is also recognised. There is a high milk demand in both Agaro and Jima towns. However, if this sector develops and milk becomes a major commodity market will need to be properly assessed. In addition to market issues however, diseases like Mastitis and poor genetic make up of the cattle are also major barriers for this sector to develop. This calls for strong veterinary activity, paravet training, and other related activities. Though these are the current livestock commodities selected, with the development of veterinary and genetic related issues, some commodities could soon join the list.

The following tables provide a brief description of production, input supply, credit and marketing aspects of the priority commodities together with areas requiring attention and potential interventions as suggested by farmers and professionals during the Wereda preliminary survey which will be followed by a planning workshop. In addition, the possible organisations to be involved in executing these activities are also shown. In addition to these however, there may be other organisations which may join in a later stage of the intervention.

Table 17. Apiculture

Production

Goma has a very high potential for honey production. There is sufficient bee fodder and sufficient rainfall to support the growth of introduced bee fodder, if needed. The major bee forages in Goma are *Croton macrostachys* ("Bisana") and *Coreopsis boraniana* ("Adey Abeba"). Others also include, *Coffea arabica*, *Albezia gummifera* ("Sasa"), *Cordia abyssinica*, ("Wanza"), *Acacia* spp. ("Grar"), *Malva verticillata* ("Dokma"), *Vernonia amygdalina* ("Grawa"), fruits (mango and orange) and maize. However, there needs to be a lot of work to be done. Lack of knowledge by farmers seems to be a major constraint. This has lead to poor quality honey production and inefficient utilisation of the modern bee hives distributed. Other than these, major production constraints include chalk brooder (diseases), wax moth and bee beetle (pests). Because of lack of knowledge on application of chemicals against ants, some farmers complained their bee hives are being affected. Despite the high rainfall in the area, some times bees migrate during drought period. There is no technical support on this sector in the wereda, because the SMS who was responsible for apiculture is no more working fulltime but is transferred to be an animal production expert. This has been more of a structural problem in the Oromia region because the SMSs working in apiculture are all low paid and move to other departments for a better salary. The project will provide support to contribute to the alleviation of some of the constraints. Hence, it will be very essential to involve Holeta Bee Research Centre (HBRC) for helping the project and OoARD solve some or all of the constraints above.

Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Poor structure to keep an apiculturist to stay at work in the extension system and hence leaving the profession	Encourage change of structure at regional level to help SMS stay in the position	OBoARD, IPMS, OoARD

Lack of knowledge of both farmers and DAs on improved honey production, management and honey extraction and processing	• Conduct training on improved honey production and management (including pests and diseases management, bee forage development, swarming control, colony management, honey harvesting, extraction, processing, etc.) to both DAs and farmers around PAs where honey production high • Organise experience sharing tours	HBRC, IPMS, OoARD
No knowledge on honey production system in Goma	Conduct study on the existing honey production system to identify constraints on farmers in and around selected PAs where honey production is high.	HBRC, IPMS, Students
Lack of skilled SMS at wereda level	Train experts and DAs at in PAs where honey production is high so that they will backstop farmers' apiculture development sustainably	HBRC, IPMS, OoARD
Diseases and pests affecting honey production	Train both farmers and DAs on improved production and management of bee hives	HBRC, IPMS, OoARD
Lack of knowledge on poisonous plants	Train farmers to avoid poisonous plants like Euphorbia, which are currently abundant in the area	HBRC, IPMS, OoARD
Bees forage on *Parthenium hysterophorus* (congress weed) hence affect quality, or could even be cancerous	• Campaigns or other means are needed to eradicate this weed • Planting of different bee forages around the bee hives	IPMS, OoARD, HBRC
Input Supply		
Despite honey production is very high in Goma, input supply related to this are totally absent. Farmers are processing their honey using inappropriate materials which affect the quality of honey. Queen rearing is not practised as it is easy to trap a colony by hanging the traditional bee hive. Colony selling is not practiced in Goma, but under very rare cases they are sold at around 40 birr. Currently, there are 7 honey extractors in the wereda out of which only 2 are properly functioning. The project will provide support in alleviating the input supply problem by honey producers.		
Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Lack of apiculture related input supply shop	Encourage establishment of apiculture input supply shop	OoARD, IPMS, HBRC
Substandard bee hives and processing equipments affecting production and quality of honey	• Encourage purchase of professional-approved equipments for farmers • Train farmers to produce own honey related equipments from	HBRC, IPMS, OoARD

	local materials	
Lack of transitional bee hives	Introduce transitional hives to support wax production and queen rearing	OoARD, HBRC, IPMS,
Lack of skill to make and handle accessories related to modern honey production	Training farmers (e.g. women on veil making, etc),	HBRC, IPMS, OoARD
Lack of knowledge on apiculture input supply system	Conduct study on the existing apiculture input supply system to develop innovative methods of input supply system in selected PAs	HBRC, IPMS, OoARD, students
Lack of knowledge on queen rearing/splitting skills by farmers	Training and program follow up on improved queen rearing practices for selected business oriented farmers to enhance farmer to farmer queen supply system	HBRC, IPMS, OoARD,
Lack of demonstration materials which are of high quality.	Supply demonstration materials like bee forages, improved bee hives, manuals on honey and wax utilization, processors, extractors, casting mould, uncapping fork, protective etc in selected PAs.	HBRC, IPMS, OoARD
Marketing		
All the problems related to honey production and input supply, mentioned above, lead to problems in low production or poor quality,, hence affecting marketability of honey in the wereda. As a result of lack of knowledge, farmers harvest honey which is not ready, use bad containers to store and process their honey and its moisture content is usually high causing poor quality honey. According to the OoARD data, number of modern hives introduced to Goma is about 7052 but manpower,d processing equipments and accessories are totally absent. It is essential to create the capacity of farmers, DAs and traders, in terms of knowledge and equipment management with necessary accessories in the wereda. According to discussions held with farmers, price of honey from traditional bee hives farmers is between 8-12 birr/kg, while it is around 16 birr/kg from traders in Agaro. On the other hand the price of clean honey was around 24 birr/kg. Productivity of modern bee hives is between 40-60 kg/hive/year, while that of the traditional bee hives is between 5 to 7 kg/hive/harvest. Honey is an important source of income for many farmers. Honey marketing is done predominantly on individual basis, except for the recent attempt made to collect and sell honey, even though this effort also failed because the quality of the honey was poor (high moisture). This was because the equipment used to store the honey was not good, and the area has high humidity moisture content increased and/or honey was harvested before it was matured and finally the honey crystallised. The project will provide support in organizing group marketing of honey, and training in production, handling and marketing skills of farmers/groups and cooperatives.		
Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Low quality and quantity of honey produced	Training farmers on quality honey production, including appropriate harvesting time, and handling and	HBRC, IPMS, OoARD, interested traders and honey processing

	packaging for market	factories
Poor market linkages	• Link with big traders, exporters and processing factories • Establish platforms	IPMS, OoARD, Oromia Marketing Agency
Individual marketing, less bargaining power	Training on marketing group formation and organization	IPMS, OoARD, HBRC, Oromia Marketing Agency
Lack of skilled manpower at wereda level for backstopping farmers	Training of DAs in honey handling, processing and packaging	HBRC, IPMS, OoARD, interested traders and processing plants
Lack of information on honey markets	Conduct study on honey marketing on selected farmers around major honey producing PAs, private traders in Agaro and Jima towns, traders in Addis and processing plants in and around Addis	IPMS, HBRC, Oromia Marketing Agency
Honey is stored and transported in fertiliser bags which will cause the quality of honey to deteriorate because of high moisture content	• Introduce proper storage and transportation equipments in selected FTCs • Introduce demonstration equipments	IPMS, HBRC, OoARD, Oromia Marketing Agency
Lack of proper processing equipments and hence quality of coffee is affected	• Introduce demonstration equipments	IPMS, HBRC, OoARD
Credit		
Availability of credit will significantly contribute to higher and quality honey production. Interedted individual/group of farmers could be organised to own improved honey processing equipments and give service to fellow farmers by moving around with the equipment. On the other hand, these farmers or others or even a union could be involved in purchasing the produced higher quality honey, where IPMS credit could be available.		
Areas which need to be addressed	***Potential interventions***	***Responsibilities***
Shortage of honey processing equipments	Train and organise individual or a group of farmers to manage own modern honey processing equipments and go around and process honey from fellow farmers. IPMS credit could be available for this purpose	IPMS, HBRC, OoARD, OCS share co., interested traders and processing plants

Table 18. Sheep and Goat fattening

Production

Sheep rearing in Goma is very common in the coffee/livestock farming system and the number sheep in the wereda is 21,285. This is equivalent to about 0.5 sheep/household. However, their management system is still unimproved. Similarly, goat population is 14,076 and are mainly found in the more extensive cereal/livestock system in the lowlands. Farm households in Goma are not benefiting much from rearing these small ruminants because they are sold as is during financial crisis. They are kept under traditional management system with no improved feeding and housing. However, as land holding in Goma is small, it is common to see tethered animals in the villages, including sheep and goats. This opens an opportunity for fattening also. With only small improvement in the management of these animals, farmers can make more money. This improved management will relate to proper feeding and health care because these animals are only traditionally managed. On the other hand, there are a number of diseases reported, including Faciolosis (caused by liver fluke) on sheep and foot and mouth diseases on goats which are prevalent in the area. The wereda OoARD had introduced sheep fattening in 2005 to Goma and the farmers that participated in the scheme were happy about the intervention. This is an opportunity for the project to learn from this intervention..

In Agaro, there is a factory for processing cotton. Byproducts from cotton are potentially useful as supplementary animal feed source. Research reports using cotton up to 30% cottonseed hull is used in diets for fattening animals. In addition, on-farm research shows that sheep and goats to grow 20% faster when fed with feed blocks and sheep fertility increased by 20%. The presence of this factory in Agaro is therefore an added advantage and could be used to supplement the small ruminants fattening scheme.

Areas to be addressed	Potential Intervention	Responsibility
Lack of knowledge on sheep/goat fattening	Train farmers and DAs on fattening small ruminants	OoARD, IPMS, Jima University
Many internal and external parasites and diseases problems affecting production	Train paravets	OoARD, IPMS, Jima University
Wild animals (monkey) eating sheep/goats	Encourage and train farmers on benefits of housed feeding system	OoARD, IPMS, Jima University
Less veterinary extension support	• Vet post construction • Training of paravets	OoARD, IPMS
Lack of knowledge on the use of supplementary feeding	Train DAs and farmers on improved sheep/goat fattening	OoARD, IPMS, Jima University

Input supply

Extension support for improved sheep and goat production and marketing is very weak. Except the effort in 2005 which tried to introduce sheep fattening in the wereda. This is an opportunity for the project to learn from this intervention. However, veterinary services are mostly available near the town but as one goes farther, these services are inexistent. Instead focus is mainly made on regular vaccination and treatment during disease outbreak. In addition to the lack of knowledge, poor input supply system is also a constraint.

Areas to be addressed	Potential Intervention	Responsibility
Poor veterinary service coverage	Train paravets Supply of veterinary facilities and drugs	OoARD, IPMS, Jima University

Poor in put supply system (feeds, vet. drugs)	Encourage private/cooperative feed suppliers	IPMS, OoARD,Jima University
Lack of improved forages for fattening sheep/goats	Introduce forage seeds and planting material provision at FTCs level	IPMS, OoARD
Credit		
Livestock focused credit schemes are very rare. Sheep were bought and given to farmers on credit in 2005. This scheme did not continue even though this was of interest to the farmers. Learning from this experience, the IPMS credit scheme could be used for this purpose.		
Areas to be addressed	**Potential Intervention**	**Responsibility**
Lack of livestock focussed credit scheme	Provision of credit to address small ruminants' fattening	OoA, OCS share co. IPMS
Marketing		
Sheep and goat market is seasonal and is mostly during the holidays. Marketing is done on an individual basis as for the other commodities. Middle men collect from Agaro market and its surroundings and transport them to the Addis market. The price of sheep currently ranges from 15 to 600 birr. The sheep are preferred for their quality meat.		
Areas to be addressed	**Potential Intervention**	**Responsibility**
Middle men based market to Addis and other towns during holidays	Organise group marketing	OoARD, IPMS
Seasonal market, during holidays,	Training of farmers to target these holidays for better prices.	OoARD, IPMS, Jima University
No market information given to farmers	Provision of market information	OoARD, IPMS

Table 19. Cattle Fattening		
Production		
Very few farmers are practicing cattle fattening in Goma but the practice is so traditional that fattening of an ox takes more than 8-9 months. The main purpose of owning oxen is for ploughing purposes than for fattening and sale. Farmers normally fatten their own draught oxen after using them for cultivation. Supplementary feeding is not practised and that is mainly why it takes so long to fatten. Farmers buy thinner draught oxen to be used during the following season. Some fattened oxen were seen tethered along the road side grazing on the natural pasture. The cattle in Goma are very small in size and fattening farmers need to have the knowledge to select large framed animals which can deposit more flesh in order to benefit from the practise. When supporting this programme, one needs to consider the magnitude of animal health problems in the wereda. There are many diseases identified and these issues need to be addressed in an innovative way.		
Areas which needs to be addressed	**Possible intervention**	**Responsibility**
Lack of large body sized oxen for fattening	Selection of large body size breeding oxen	OoARD, IPMS, Jima University
lack of knowledge of farmers in intensive cattle management and hence few farmers practice fattening	Training farmers on the the techniques and benefit of cattle fattening.	IPMS, Jima University, OoARD
Shortage of improved feed	Introduce improved forage/fodder	OoARD, IPMS,

resources	species around homesteads, coffee plots and other suitable areas	
Poor knowledge on improved feeding systems	Improvement of crop residue utilization, supplementation, improved forage production	IPMS, Jima University, OoARD
Many animal diseases affecting livestock production	Train farmers as paravets from different PAs to support this program	IPMS, Jima University, OoARD
Input supply		
Major input supply related problems in Goma are lack of veterinary drugs and improved feed, including supplementary feed. Veterinary services from OoARD are mainly provided during programmed vaccination periods and during disease outbreaks. The presence of cotton processing factory in Agaro town is an opportunity for improving the availability of supplementary feed. As there is well distributed and sufficient rainfall in Goma, introducing suitable improved forage species around homestead and farm boundaries is expected to improve availability of improved feed. Considering IPMS/ILRI and Fourth Livestock Development Project (FLDP) experiences regarding forage development is essential.		
Areas to be addressed	**Potential Intervention**	**Responsibility**
Lack of improved forage and industrial by-products	Introduce forage species, improve availability	IPMS, OoARD
Poor supply and few sources of industrial by-products	• Forage development, crop residue improvement, Chemical and material supply • Encourage and involve private feed suppliers • Technology and material supply	OoARD, IPMS
Insufficient veterinary service and drug input	• Encourage private traders to supply veterinary drug and materials, • Train privates to fill the gap • Increase veterinary posts	OoARD, IPMS, JU
Lack of trained man power	Training and capacity building of the livestock team staff	OoARD, IPMS, JU
Existing breeds, animal health and feed resources not conducive for market oriented cattle fattening	• Train farmers • Support private input supply system	OoARD, IPMS, JU
Credit		

Oromia Credit and Saving Share Co. (OCS share co.) has a branch office in Goma. The scheme available by the company is not sufficient to start cattle fattening programmes because the upper limit of the credit is _____. There is no credit scheme focused for cattle fattening. However, if interested and selected farmers organised, IPMS's credit scheme could be used to support the programme. In addition to cattle fattening, it could be used to support the trained paravets to start activities. Private farmers should also be encouraged and supported to start private feed supply system similar to that of Metema.

However, as some farmers may be capable of using their own financial resources, these types of farmers need to be encouraged. Selection of appropriate time when most farmers have enough money starting from around October. During this period, most of the farmers get enough money from coffee. This should be the time to encourage farmers to start business using own money.

Areas to be addressed	**Potential Intervention**	**Responsibility**
No cattle fattening focused credit scheme	Avail IPMS credit scheme for selected and organised farmers	OoARD, OCS share co., IPMS
OCS share co. credit upper limit not sufficient to initiate cattle fattening	• Negotiate with OCS share co. to support fattening programme • Avail IPMS credit scheme	OoARD, OCS share co., IPMS
Encourage capable and interested farmers to start fattening	Initiate, train and follow up of interested farmers	OoARD, OCS share co., IPMS, JU
Lack of credit to start private veterinary and feed supply system	Avail IPMS credit scheme to support these programmes	OoARD, OCS share co., IPMS
Marketing		

There are no organised cattle marketing in Goma. Cattle traders from both Agaro (Goma) and Addis come and buy the animals during market days. Except under few conditions, work oxen are simply brought to the market and sold. Only few farmers tether their oxen which are normally kep for longer period of time because of lack of improved fattening practises. The business in general is not business oriented. There is only 1 slaughter house and about 15 butcher shops in Goma. Because the industry is not widely practised, only few farmers benefit from this activity.

Areas which need to be addressed	**Possible intervention**	**Responsibility**
The existing activity on fattening is not market oriented	Train farmers in market oriented fattening programme	OoARD, IPMS, JU
Oxen used for fattening are small in size.	Training of farmers on how to select best animals for fattening	OoARD, IPMS, JU
Inexistence of market information resulting in low prices of fattened animals	Avail market information (experience from Alaba and other web based systems in the country)	OoARD, IPMS, JU, Oromiya Marketing Agency
Limited linkage with traders	Increase linkages with local and export market system	OoARD, IPMS, JU, Oromiya Marketing Agency
Low prices of fattened animals due to poor feeding system	Develop proper feeding systems	OoARD, IPMS, JU
Limited local market	Increase linkages with local and export market system	OoARD, IPMS, JU, Oromiya Marketing Agency

Table 20. Poultry

Production

Local chicken-based poultry production is very common in Goma. There are about 210,000 chickens, where a house hold would have about 5 chickens on average. Management of these chickens is traditional. However, they are more disease resistant and survive with little feed, but yield small number of eggs. Oromiya of Agriculture and Rural development (OBoARD) introduced about 7,000 improved chicken of *Bovine brown* breed from ELFORA. These chickens were distributed 5 each to 1400 households on credit. Each household was credited for 138 birr. However, productivity of the breed was very poor and farmers did not like them at all. This is because

- The chicken were susceptible to different diseases
- Egg laying was not regular (e.g. lay for about 10 days but stops for about 5 days)
- The chicken were hybrids hence not for reproduction
- The breed was only egg laying type (not meat type)
- The chicken could not escape wild animals' attack because they can not run fast
- Even though the chicken died farmers were forced to pay the credit back, even though it was without their consent that they were distributed
- Egg does not peel when boiled and is very soft before boiling,. Looks like it is without shell.

For all these reasons many farmers did not want to consider these types of chicken and even did not want to consider poultry as a priority commodity. However, some farmers showed interest to include dual purpose chicken (Rhode Island Red) or local poultry as a priority commodity. They believed that even though productivity of the local chicken is low, they are preferred because they have no problem regarding all the above problems. On the other hand they can also be used to hatch eggs from the improved breeds.

Areas which need to be addressed	**Possible intervention**	**Responsibility**
Hybrid chicken were distributed to farmers without their consent	Consultation of farmers essential	OoARD, IPMS
Focus was on imported chicken despite all the above problems	Focus need to be on local chicken	OoARD, IPMS, JU
Despite women are important players in poultry production, they were left out	• Target women in poultry commodity development • In addition focus need to be made also on jobless youth	OoARD, IPMS, JU
No support of the poultry development with regards to veterinary services and feed	• Encourage private/farmer input and service delivery system • Training of Paravets	OoARD, IPMS, JU
Poor poultry management practices	Training of farmers on modern poultry production	OoARD, IPMS, JU
Lack of diversified use of distributed chicken (only for eggs)	Introduction of dual purpose local chicken and improved chicken	OoARD, IPMS, JU
Traditional poultry production system even for the "improved chicken"	• Training on improved management of poultry • Introduce hay box brooder	OoARD, IPMS, JU

Input Supply		
There is a poultry breeding centre in Bedele located about 100 km north west of Agaro town. Besides this, there is a small poultry breeding centre at Jima University. It was at this university where the improved chicken brooder was developed. The hybrid chicken distributed in 2005 did not come from any of these centres. Hence, poultry input supply is imported chicken base and yet it is an incomplete package. Once these imported chickens are introduced to farmers, there is no sufficient technical support (veterinary and feed support). In addition to this, there is less focus to improving the local chickens.		
Areas which need to be addressed	**Possible intervention**	**Responsibility**
Imported chicken based development	Encourage small farmer based local chicken (improved) supply system	OoARD, IPMS, JU
Single breed was distributed in the current package	• Provisions for better breeds • Community based breeding of improved breeding services • Assess why breeding centre in Jima is not used to supply input needs for Goma	OoARD, IPMS, JU
High price for improved breeds despite that they are even not preferred by farmers	Encourage small farmer based local chicken (improved) supply system	OoARD, IPMS, JU
Marketing		
Marketing of chicken is handled individually.		
Areas which need to be addressed	**Possible intervention**	**Responsibility**
Lack of ready and nearby markets	Linking farmers' with a marketing network (eggs and live chicken)	OoARD, IPMS, JU

5 OUTLINE OF PROGRAM OF WORK FOR GOMA PLW

5.1 Farming Systems and Priority commodities identified

During planning workshop, major stakeholders suggested areas to be focussed and commodities to be considered in 2007 physical year in Goma PLW.

Farming Systems identified

- Forest coffee/livestock farming system
- Cereal livestock system

Priority commodities identified for intervention in the first year

Crop

- Coffee
- Fruits (avocado, mango, orange)
- Spices (ginger intercropping with coffee)

Livestock

- Ruminant meat production (sheep, goats and cattle)
- Apiculture
- Poultry

5.2 knowledge management- general (RBM code 100 series)

To systematize capturing and sharing of knowledge on propriety commodities in Goma PLW, current status and knowledge gaps in the woreda has to be assessed. Preliminary assessment on the capability of OoARD technical staff on the use of soft wares which will assist them accessing knowledge source has been conducted. Further assessment will be carried on to capture available knowledge within woreda and zone and will be synthesized in various forms and stored in Knowledge Centre already established in the woreda OoARD building.

Based on gap assessment conducted an intensive training will be rendered to all OoARD technical staff including instructors working in selected FTCs on computer, literacy and various soft wares managing skill which will capacitate them to use knowledge center effectively. Currently establishing woreda net is in progress and in May 2007 a one month training was rendered by Oromia regional government to OoARD head and woreda administrator who is also WALC chairman. Thus an effort will be made to establish linkage to knowledge Centre so that knowledge sharing network could be promoted. The status of other networks such as school-net and agri-net at woreda level will be assessed and strategy will be devised to integrate IPMS knowledge management with this components functioning in the woreda.

Table 21. Project support for Goma PLW knowledge management system

Activities	Target	Responsibilities
Further assessment of knowledge requirement based on field work and metings	Woreda institutions	Woreda institutions involved in extension, input supply, micro finance, cooperatives, and marketing under the supervision of project staff
Collection and synthesis of data for PLW (GIS) data base, including all valuable socioeconomic data found in hard copy in the woreda.	Woreda	Project staff with woreda agricultural office
Preparation of extension materials, methods and training materials, assessing extension system at use	Woreda, Zone	Research and development partners with the help of project funding
Purchase and installation of computers and hard ware	WOoARD institutions and farmers	Project staff
Training of staff in computer literacy and electronic knowledge management skill	WOoARD members, WALC members and other relevant technical staff.	Project staff

5.2 Public institutions capacity building

Much emphasis will be given to training public institutions staff in innovative technology transfer methods, communication skill, inter-institutional collaboration and cross cutting themes like gender, and environmental assessment. Materials already produced by IMPS staff and other partner organization on innovative technology transfer, communication skill, inter-institutional collaboration etc. will be used and developing additional materials using consultant will be initiated if need arises. Private institutions staff will also take part in the training to promote integration with public institution staff. The lessons learned will become an integral part of follow up training events

Table 22. Institutional staff capacity building

Discipline	**No of participants**	**Remark**
Coffee	8	4 will be FTC instructors
Livestock (beef, ruminants)	6	
Apiculture	8	
Poultry	4	
Fruits and species	4	
Microfinance	2	
Women affairs office	1	
Rural women affairs desk	1	

HIV/AIDS office	1	
Total	35	

Major areas to be focused and potential targets for capacity building training are shown on table 5.3

Table 23. Training activities for capacity building

Area of activity	Targets	Remark
Innovations in extension	DAs, Researchers, experts, Office heads, team leaders	
Gender and environment	DAs, Researchers, experts, Office heads, team leaders	
Input, market and rural finance	DAs, Researchers, experts, Office heads, team leaders	
Exchange visit to other PLW	DAs, Researchers, experts, Office heads, team leaders	
Exhibitions on improved agricultural technologies or practices at Goma PLW or zone level	Farmers, private traders, entrepreneurs,	
Demonstration materials at FTCs	Define role of FTC, Participate in FTC curriculum setting and/or revising, focus on priority commodities practical oriented training	
FTCs selected (Bulbulo, Beshasha, Lim, Kilole)	As farming systems are more or less the same improved practices and technologies on all priority commodities(Coffee, ginger, livestock, poultry, fruits) could be exercised in each	

Building the capacity of the woreda and FTC staff in use of innovative methods, institutional arrangement, technical training on the priority commodity including new propagation and production methods/ techniques, farmers/ group/ cooperatives based input supply and marketing system will be an integral part of the programme in Goma PLW.

To this end the project will facilitate the selected 4 FTCs with basic audio visual teaching materials, computers, DVDs, television, overhead projector, LCDs, internet connections whenever possible and basic office and class furniture. Organizing demonstration fields, including providing field materials like improved seeds, seedlings, cuttings, splits, and other appropriate technologies will be assisted by the programme. The use of these innovative methods by FTC staff will be monitored and evaluated by the project staff and based on the evaluation result adjustment will be devised for future training.

Table 24. Commodity based technical training for experts and development agents

Commodity	Staff category	Area of specialization	No	Remark
Coffee	Team leaders Experts Supervisors DAs	Agronomist Protection expert Processing expert Extension expert Marketing expert DAs	1 1 1 1 1 30	
Livestock (Poultry and fattening)	Team leader Production expert A/Veternarian Marketing expert	Animal production Animal health Rangeland mgmt. Forage DAs	1 2 2 1 30	
Livestock (Apiculture)	Team Leader Experts Innovative farmers	Apiculture expert Veterinarian	2	
Fruits and species(ginger)				

Attention will be given to alleviating challenges to up take of improved technologies and practices and new institutional arrangements for market oriented commodities production and marketing. A fund will be allocated to conduct study on Market, conducive institutional arrangement, linkages, etc. for priority commodities. An inter-institutional learning system at woreda and FTC level will be facilitated and monitored by Wored Advisory and learning committee (WALC) and funds will be allocated for WALC to undertake this and other responsibilities as per the work plan of WALC. To motivate technical staff, a rewarding system will be developed and effected by WALC to those who perform better in relation to IPMS objectives and strategies.

Table 25. Project support for PLW general capacity building

Activities	Target	Responsibility
(200) Training and follow up innovative extension methods	Woreda staff and FTC staff	Project staff and consultant
(200) Training and follow up in environmental assessment	Woreda staff and FTC staff	Project staff and consultant
(200) Development of a reward system for public or private institutions and/ or staff	Woreda staff and FTC staff	WALC, Project staff
(200) WALC learning activities including field visit and workshops	WALC	Project staff

5.4 Pilot Learning Woreda Livelihood development (RBM code 300)

The project will give attention to innovative technologies, practices and institutional innovations with farmers and communities near Farmers Training Centres particularly on priority commodities such as coffee, livestock, fruits and species and apiculture. As all priority commodities perform equally well in all FTCs similar emphasis will be given in all FTCs.

Table 26. FTCs with potential for priority commodities

FTC	Priority commodities				
	Coffee	Livestock	Fruits and species	Apiculture	Poultry
Bulbulo	X	X	X	X	X
Limu shye	X	X	X	X	X
Beshasha	X	X	X	X	X
Kilole	X	X	X	X	X

5.4.1 Status of coffee production

Coffee plantation in Goma is dominated by naturally grown forest coffee and very limited area is covered by improved CBD resistant selections and hybrids developed recently. Productivity of CBD resistant selections is reported to be 7-8 qt at farmers field and 12-18 at research stations and those of hybrid could go up to 24-28 qt per ha. At researches and 15 qt at farmers condition. Major challenges to coffee production are diseases, poor yield of forest coffee, less or no inputs, poor management, etc.

5.4.2 Production constraints

Despite, very good results observed in CBD resistant varieties majority of farmers still use forest coffee which is very susceptible to CBD and genetically poor yielding. Thus productivity is quite low.

5.4.3 Biological, technical and physical constraints

Genetic material: It is reported that CBD resistant selections developed by EARO could perform well with productivity ranging between 12-18 qt at farmers level. In adition recently developed hybrids could produce 15 qt at farmers conditions. The uptake of these selections by the farmers is so high but very slow propagation technique and lack of inputs such as seeds, polybags etc were found to be major limitations.

EARO has also developed 4 released varieties for highland ecology and demonstrating various propagation techniques for selections as well as hybrids. Some propagation techniques such as cuttings and grafting are on verification at OoARD demonstration fields while tissue culture not yet matured.

5.4.4 Socioeconomic constraints

Socio-economic constraints are composed of farmers limited management capabilities, skill and motive to make correct decisions to improve productivity of coffee. The nature of forest coffee has also contributed to lack of farmers motive as it could yield some amount without any management practices. The relatively very low or no cultural practices such shade regulation, pruning, timely weeding, fertilizing, lack of coffee berry disease control are major source of inefficiencies.

Because of limited access to credit, farmers are forced to sell their coffee product at early harvesting stage at very low price to fulfil their social obligations. Lack of quality input supplier and sustainable extension service are also important limitations observed in coffee production,

5.4.5 Opportunities for coffee improvement

During 2007/2008 the woreda has planned to increase both dry and wet processed coffee yield from____ to _____ tons and seedlings distribution from _____ to ____ Currently more than 80% of the woreda seedlings demand is covered by private farmers which are nearly _____ million seedlings. However, data collected so far indicate that number of seedlings expected from farmers is _____ and it is estimated to be much lower than the demand.

There are number of technologies and practices that can help farmers achieve the target. Mass propagation of high yielding CBD resistant selections has to be introduced in order to meet farmers' seedlings need. Private farmers could play major role in seedlings propagation provided that they are assisted in accessing appropriate inputs and seedlings production technical capacity building. Scaling out CABI experience in promoting improved sun dried coffee processing could also improve coffee quality and there by income of the farmers. Introduction of organic vs inorganic management (in terms of fertilizer, diseses control, watering), alternative disease management system, introduction of hybrid varities with Limu quality, rejuvenate through stumping are some of the areas to focus.

The following sections deal with activities on priority commodities which are envisaged to be accomplished with in the first year of the project life.

5.4.6 Coffee

Production/Processing

Focus will be given to CBD resistant selection seedlings mass propagation by private farmers and introduction of recently developed high yielding hybrids. In addition scaling out improved sun drying process introduced by CABI through mobilizing larger number of producers through business oriented approach.

Table 27. Project support coffee production

Activity	Target	Responsibility
(200) Demonstrate improved sun drying process	550 farmers in 11 PAs	OoARD, RDO, Cooperatives, Women Affair office,
(200) Demonstrate community based quality control mechanism	10 community based quality control group	
(200) Produce guide lines and implementation strategies for community based improved varieties and hibreeds propagation		JARC, IPMS

Input Supply

Major problem in dry coffee processing is supply of inputs required for dry processing

Table 28. project support input supply

Activity	Target	Responsibility
(400) study the existing farm input supply system and identify potential area for improvement	Potential input suppliers	OoARD, RDO, OCSSC
(400) facilitate discussion between potential input suppliers and farmers on quality and time of delivery of inputs	Input suppliers and improved dry processing practitioners	OoRD, RDO
(400) Facilitate credit fund through OCSSC	Improved dry processing practitioners	OCSSC, OoARD, RDO, WALC

Marketing

Access to market of improved dry processes coffee could be a challenge since the impact of improved dry processing on coffee quality and market price is not fully understood by majority coffee traders.

Table 29. Project support to sun dried coffee marketing

Activity	Target	Responsibility
(400) Communicate potential coffee traders and develop awareness on improved dry processing	Potential coffee traders, exporters	OoARD, RDO, OCSSC
(400) Facilitate forum for producers and coffee traders regarding improved dry processing	Input suppliers and improved dry processing practitioners	OoRD, RDO
(400) Facilitate contractual agreement between producers and exporters and traders	Improved dry processing practitioners	OCSSC, OoARD, RDO, WALC, PAs ,OoARD, RDOs
(400) conduct farm training on improved sun drying	Farmers, DAs	OoARD,
(400) develop market information system and release information regularly	Farmers, DA	Woreda Knowledge Center

5.4.7 Livestock

Various documented evidences and consultations with community and other stakeholders revelled that livestock is important source of livelihood to Goma woreda community. Despite, relatively high cattle population productivity and production of livestock remained quite low. Local dairy cow productivity is less than 1.4 lit. of milk per day. Low productivity could be attributed to poor management, low genetic potential, very low extension and veterinary services, lack of feed, less attention given to livestock compared to other commodities such as coffee both by farmers and service giving institutions. Consequently milk production and marketing is not widely practiced. Local demand for milk is reported to be high but feed shortage is challenge to expand dairy. This focus should be given to improving forage development, improving feed supply using various mechanisms.

A) Apiculture

Goma woreda has a high honey production potential and also Agaro town is used as collection and distribution centre for honey from within and neighbouring woredas such as Gera who produce mass of white honey. More than 7000 modern bee hives and 10,000 traditional are reported to be available in the hands of farmers engaged in honey production. Annual honey and wax production of the woreda is estimated to be 617,504 and 79, 544 kg respectively. Lack of market for honey, lack of standard inputs such as modern hives, queen excluders, wax stamp for foundation sheet production etc. reported to be constraints

Production

To contribute to improvement in honey production emphasis will be given to capacity development and improving institutional arrangement

Table 30. Project support for production and marketing of honey

Activity	**Target**	**Responsibility**
(400) facilitate stakeholders platform	Leading stakeholders	OoARD, RDO, OCSSC
(400) Conduct market assessment on quality honey production potential supply and demand issue	Producers, honey traders,	OoRD, RDO,
(300) Train farmers, local bee hive producers and experts, DAs	Farmers, DAs, experts, local input producers and suppliers	OoARD, Jima university, holeta research
(400) Conduct study on standard input production and supply system	Honey producers, input producers and suppliers	OoARD, RDO,
(400) Facilitate study tour for experts, producers, input suppliers and traders	Producers, experts, traders, input suppliers,	OoARD

Fattening (big and small ruminants)

Large and small ruminant animals fattening has been the tradition of Goma community. Office of agriculture and rural development women desk reported that particularly women were engaged in small ruminant animals fattening and were very successful in making a difference in their livelihood. Cattle fattening by men using traditional method which takes more than 6 months is also a common practice. Market for fattened animals is with in the community and also transported to Addis and other market places out of Goma . However, during community consultation, feed shortage and lack of veterinary services are reported to be a major challenge to expand the commodity.

Table 31. Project support for fattening

Activity	Target	Responsibility
(200) training in market oriented fattening	Experts, DAs and FTC instructors	OoARD, Jima university
(200) provision of training materials on fattening (posters, DVDs, leaflets, books, etc)	FTCs and DAs	IPMS, OoARD,
(200) provision of demonstration materials	Farmers engaged in fattening	OoARD, IPMS

(urea molasses etc.) for improved fattening programme		
(200) farmers training and follow up on the use of concentrate feed.	Farmers engaged in fattening	OoARD
(200) Training farmers and para-viets in livestock disease control	Farmers and selected paravets	

Input and credit for fattening

Table 32. Project support for input supply and credit for fattening

Activities	**Target**	**Responsibility**
(200) Supply of forage seeds, cuttings, splits, germ plasm for demonstration		
(200) facilitating community owned viet clinic with revolving fund in selected locations		
(200) Provision of credit for purchase of animals for fattening		

Marketing

Local market for fattened animals reported to be high at the moment. However as production increases demand may decrease and to curb such problems strategy has to be devised.

Table 33. Project support on marketing of animal fattening

Activities	Target	Responsibility
(400) study the market supply and demand of fattened animals and market mechanisms with traders	Farmers and traders	IPMS
(200) TOT in the formation of marketing groups	Experts, DAs , FTC instructors	IPMS
(300) Training farmers in the formation of marketing groups,	Farmers	Experts, DAs

Poultry

Production

Backyard chicken production is very common among rural farming community and many resource poor households generate small income particularly from selling of eggs to cover cost of some consumption items. So far little is done to improve land races or local breed and improved varieties introduced through extension service were not appreciated by the farmers because of their less tolerance to diseases and easy exposure to wild animals attack. As far as market is concerned demand is reasonably high compared to supply and production increase as the result of intervention could be absorbed for time to come.

Table 34. Project support for poultry production

Activities	Target	Responsibility
(200) Introduction of improved egg and chicken production system using local breed	farmers/women and youth	Jima University, IPMS,
(200) Introduction of improved chicken rearing and housing system for locals	Farmers/women and youth	Jima university, IPMS
(200) introduction better feeding systems and egg management system	Farmers/women and youth	Jima university, IPMS
(200) formation of women and youth group to undertake improved local breed management activities	Farmers/women and youth	Jima university, IPMS

Inputs

Major challenge to poultry production is supply of inputs such as improved genetic material, veterinary service, and lack technical and material service to upgrade the productivity level of local breeds which are tolerant to diseases and much acclimatized to local harsh conditions.

Table 35. Project support for poultry input supply

Activities	Target	Responsibility
(200) TOT on the use of hay brooder and vaccine	Experts, DAs, FTC instructors	Jima university,
(300) train farmers on the use of hay brooders	Farmers	OoARD

(200) supply of brooders and low cost hatchery for demonstration	Farmers	IPMS
(300) facilitate credit for interested women/youth	Farmers	OoARD, OCSSC

Fruits and spices

Production

Production of fruits such as avocado, mango, orange, etc is practiced by reasonable number of farmers in Goma woreda. Type and source of these widely produced varieties are unknown to the research centre and also production constraints such as diseases prevailing in these fruit trees and appropriate cultural practices are not yet effectively addressed. However, JARC which is a national centre for fruit research has developed known and good yielding varieties for mango avocado, pineapple etc and this is a good opportunity for IPMS to introduce and scale up promising fruits and varieties. Many farmers and also experts stressed intercropping ginger with coffee as a good means of diversification of farmers income through intensification of the existing coffee area.

Table 36. Project support on fruit production

Activities	Target	Responsibilitity
(400) Assess and identify potential released varities of avcado, mango and pinaple which are suitable to Goma	JARC	JARC, OoARD.IPMS
(300) Identify appropriate propagation techniques for selected fruit types and varieties	JRC	JARC, OoARD.IPMS
(200) TOT in propagation and cultural practices of these varieties	Experts, DAs,	JARC. IPMS
(300) Train selected farmers on propagation techniques	Farmers	OoARD,
(400) study ginger production potential and constraints	Farmers	JARC. OoARD, IPMS

Table 37. Project support for fruits Input supply system

Activities	Target	Responsibility
(200) supply of seeds, seedlings, scions of selected fruit varieties	Selected farmers	JARC, IPMS
(200) Supply of tools implements and chemical needed for seedling production	Selected farmers	IPMS

Marketing

Market demand for quality fruits is quite enormous at national level. However in Goma condition local market is not effectively developed and also in most cases it is seasonal. Besides, value adding which could fetch better price is not addressed. Thus developing efficient market system and channel should be an area for IPMS intervention.

Table 38. Project support for fruit market

Activities	Target	Responsibility
(400) study market possibilities and production potential	Traders	JARC, IPMS
(400) identify potential traders and linking with producers	Traders and farmers	IPMS
(300) formation of market groups and market information systems	Traders and farmers	OoARD

Table 39. Budget

No	Activities description	Unit	Target	Estimated cost	Remark
1	**Knowledge management**				
1.1	Training on innovative technology transfer, mgmt. etc	Prs	35	10,000	4 days training
1.2	Training on computer literacy and electronics operation	Prs	49	15,900	
1.3	Training on innovative extension, gender, environment, input market and rural financing	Prs	35	10,000	4 days training
1.4	Exchange visit on improved agricultural technologies (apiculture, Para viet)	Prs	16	7000	Two trips 8 people per trip for 6 days
1.5	Facilitating exhibition on improved technologies and practices			100,000	Detail to be worked out
1.6	Facilitating 4FTCs with computers and furniture			460,000	Detail to be worked out
2	**Coffee**				
2.1	Training farmers in improved dry processing	Prs	550	38,500	2 Days training
2.2	Device community based propagation techniques			50,000	Proposal and guide line to be produced by JARC
2.3	Credit for demonstrating of improved sun drying	Prs	550	1,694,000	3080 bir per person for a complete package
2.4	Facilitate market linkage, community quality control and input supply mechanism			5000	
3	**Livestock**				
3.1	**Aiculture**				
3.1.1	Facilitating platform	Prs	45	3600	
3.1.2	Training experts, DAs, FTC instructors on improved apiculture	Prs	16	7000	4 days intensive training
3.1.3	Supplying demonstration material in FTCs			40,000	4 FTCs will be facilitated with standard training and demonstration materials
3.1.4	Facilitate credit for interested farmers to boost production	Prs	20	100,000	
3.2	**Fattening**				
3.2.1	Training experts and DAs on Market oriented fattening programme and techniques	Prs	25	7000	3 days training
3.2.2	Training farmers/women on improved fattening and concentrate feed preparation	Prs	60	7000	3 days training
3.2.3	Provide inputs such as urea molasses for demonstration			50,000	
3.2.4	Train para viets	Prs	8	44400	For three months
3.2.5	Establish community owned viet post with revolving fund	No	3	120,000	
3.2.5	Establish women group for fattening	no	10		

No	Activities description	Unit	Target	Estimated cost	Remark
	programme				
3.2.6	Provide credit	Prs	120	150,000	1250 birr for each
3.3	**Poultry**				
3.3.1	TOT on improved local breed production techniques	Prs	25	7000	3 days training
3.3.2	Train women and youth in improved local breed management technique	Prs	60	7000	3 days training
3.3.3	Provide inputs, such as low cost hatchery, and other materials for demonstration			20,000	
3.3.4	Facilitate credit for inputs such as hatchery, and accessories	Prs	60	60,000	
3.3.5					
4	**Fruits**				
	In consultation with JRC select appropriate mango and avocado variety and its propagation techniques			50	To produce a document
	Select interested farmers to demonstrate selected fruits propagation techniques. and provide them with demonstration material		8	10,000	
	Assess production potential and market for currently produced mango and avocado			5000	
	Assess the potential for ginger intercropping and market access			5000	
5	**General**				
	Conducting baseline survey on Gender, HIV/AIDS, environment			120,000	
	Total			**3,153,450**	

Annex 1. List of participants during the expert consultation meeting
April 23, 2007
Agaro, Goma

No.	Name	Organisation	Telephone address
1	Hirko Dibaba	Jima University	0917-803 339
2	Dr. Dhuguma Adugna	Jima University	0917-800 914
3	Zenebe Asfaw	Goma OoARD	
4	Sileshi Deresse	Goma OoARD	
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6	Raya Ousman	Goma OoARD	0472 212 234
7	Seid Mohamed	Goma OoARD	0472 211 928
8	Gonche Sisay	Goma OoARD	0472 212 405
9	Geremew Negero	Goma OoARD	0472 211 785
10	Girma Tadesse	Goma OoARD	0472 211 969
11	Alazar Tafesse	Goma OoARD	0472 211 973
12	Jemal Aba bura	Limu Sadech Coop.	0471 129 124
13	Serawit Hailemariam	Goma OoARD	0472 211 792
14	Letifa Aba Dura	Goma OoARD	0472 211 178
15	Alem G. Egziabher	Goma OoARD	0472 211 178
16	Bogale Gula	Goma OoARD	0472 211 915
17	Nasir Aba Garoi	Goma Rural Roads	0472 211 828
18	Fekadu Gerbi	Goma OoARD	0471 115 646
19	Tegegne Bayu	Goma OoARD	0472 212 644
20	Merga Feyissa	Goma OoARD	0917 822 678
21	Kelbessa Seboka	Goma OoARD	0472 212 232
22	Gadissa Mossisa	Goma OoARD	0917 814 136
23	Behailu Atero	JARC	0917 809 621
24	Haileab Atsebaha	JARC	0911 900 989
25	Kebede Terfessa	Goma OoARD	
26	Endale Kumsa	Goma OoARD	0472 213 831
27	Mohammed Aba Temam	Goma OoARD (DA)	0471 190 106 0917 809 380
28	Tamiu Gebre	Goma OoARD (DA)	0471 190 107
29	Ayisha Abdulber	Wereda woman Affairs office	0912 198 678
30	Tofik Raya	Goma OoARD	0911 971 580
31	Mohammed Aba Rago	Goma OoARD (Head)	0472 211 178
32	Dechasa Dugassa	Oromia BoARD	0911376993
33	Dirk Hoekstra	IPMS Addis	0116 460 259
34	Dr. Azage Tegegne	IPMS Addis	0911 246 442
35	Kahsay Berhe	IPMS Addis	0911 400 448
36	Yieshak Baredo	IPMS Goma	0912 111 688

Annex 2. Cropping calendar of Goma wereda

Crop type/major operations	Months											
	January	February	March	April	May	June	July	August	September	October	November	
Coffee												
Planting												
Seed collection												
Seeding												
Seedling preparation												
Transplanting to polybag												
Permanent Field preparation												
Planting												
Stumping												
Processing												
Red cherry picking												
Dry cherry picking												
Maize												
Land preparation												
Planting												
Harvesting												
Rice												
Land preparation												
Planting												
Harvesting												
Soya bean												
Land preparation												
Planting												
Harvesting												
Sesame												
Land preparation												
Planting												
Harvesting												

Crop type/major operations	Months											
	January	February	March	April	May	June	July	August	September	October	November	
Fruits												
Mango												
Seed collection												
Seedling preparation												
Transplanting to polybag												
Planting												
Avocado												
Seed collection												
Seedling preparation												
Transplanting to polybag												
Permanent field preparation												
Planting												
Papaya												
Seed collection												
Seedling preparation												
Transplanting to polybag												
Planting												
Vegetables and spices												
Onion												
Seed collection												
Seeding												
Transplanting												
Ginger												
Seed/planting material collection												
Seeding												
Transplanting												

Annex 3. Goma PLW Planning Workshop Program, May 21-22, 2007**,** Agaro, Goma

Date	Time	Activity	Presenter
May 21 (Monday)	8:30 – 9:00	Registration	OoARD/RDO (Organizers)
	9:00 – 9:10	Welcome Address	Ato Tsegaye Umeta, Administrator and WALC Chairman
	9:10 – 9:20	Programme introduction	Mohamed Aba gero/OoARD
Chairperson Dr. Berhanu Gebremedhin, IPMS/ILRI Rapporteur,			
	9:20 – 9:30	Project Background	Dirk Hoekstra, IPMS/ILRI
	9:20 – 9:40	PRA process, farming systems and priority commodities	Ato Yisehak Baredo, IPMS/ILRI
	9:40 – 9:50	Questions/discussions	Participants
	9:50 – 10:20	**Health Break**	**Organizers**
	10:20 – 10:40	Crop Production	Ato Kahsay Berhe, IPMS/ILRI
	10:40 – 11:00	Questions/discussions	Participants
	11:00 – 11:20	Livestock Production	Dr. Azage Tegegne, IPMS/ILRI
	11:20 – 11:40	Questions/discussions	Participants
	11:40 – 12:00	Institutions	Ato Yisehak Baredo, IPMS/ILRI
	12:00 – 12:20	Questions/discussions	Participants
	12:20 – 12:40	Organization for break up sessions	Dirk Hoekstra, IPMS/ILRI
	12:40 – 14:00	**Lunch Break**	**Organizers**
Chairpersons of break up sessions and Rapporteurs Coffee and spices: Mr. Dirk Hoekstra, IPMS/ Ato Anwar A/Sambi, OoARD Livestock: Dr. Azage Tegegne, IPMS/Ato Gonche Sisay, OoARD Apiculture: Dr. Berhanu Gebremedhin /Ato Fikru Abdissa, OoARD Tropical and temperate fruits: Ato Kahsay Berhe, IPMS/Ato Mergia Feyissa, OoARD			
	14:00 – 15:30	Break up sessions discussion	Participants
	15:30 – 16:00	**Health Break**	**Organizers**
	4:00 – 5:30	Break up session cont…	
May 22 (Tuesday)	8:30 – 10:00	Break up session cont….	Participants
	10:00 – 10:30	**Health Break**	**Organizers**
Chairperson: Dr. Berhanu Gebremedhin, IPMS/ Rapporteurs: Kahsay Berhe, IPMS/ILRI			
	10:30 – 10:50	Coffee and spice Production Group Report	Ato Anwar Aba Sambi, OoARD
	10:50 – 11:00	Questions/discussions	Participants
	11:00 – 11:20	Livestock Production Group Report	Ato Gonche Sisay, OoARD
	11:20 – 11:30	Questions/discussions	Participants
	11:30 – 11:50	Apiculture Group Report	Ato Fikru Abdissa, IPMS/ILRI
	11:50 – 12:00	Questions/discussions	Participants
	12:00 – 12:20	Fruits Group Report	Ato Mergia Feyissa, OoARD
	12:20 – 12:30	Questions/discussions	Participants
	12:30 – 13:30	**Lunch Break**	**Organizers**
Chairperson: Ato Ermias Sehai, IPMS/ Rapporteurs: Yisehak Baredo, IPMS/ILRI			
	13:30 – 14:30	General discussion	Participants
	14:30 – 14:50	Participants observations	Participants
	14:50 – 15:10	Wrap up and way forward	Dirk Hoekstra, IPMS/ILRI
	15:10 – 15:20	Closing Remark	Ato Yazid , V/Administrator
	15:20 –16:00	**Traditional Coffee ceremony**	**Organizers**

Annex 4. List of participants in the Goma PLW Planning Workshop**,** May 21-22, 2007 Agaro, Goma

No.	Name	Organisation	Telephone address
1	Ato Tsegaye Umeta	Goma wereda Admistration	
2	Ato Yazid Aba Gero	Goma Vice Administrator	
3	Hirko Dibaba	Jima University	0917-803 339
4	Dr. Feyissa Regassa	Jima University	
5	Taye Toleramariam	Jima University	
6	Zenebe Asfaw	Goma OoARD	
7	Sileshi Deresse	Goma OoARD	
8	Tefera Hailemariam	Goma OoARD	0472 211 155
9	Raya Ousman	Goma OoARD	0472 212 234
10	Seid Mohamed	Goma OoARD	0472 211 928
11	Gonche Sisay	Goma OoARD	0472 212 405
12	Geremew Negero	Goma OoARD	0472 211 785
13	Girma Tadesse	Goma OoARD	0472 211 969
14	Alazar Tafesse	Goma OoARD	0472 211 973
15	Jemal Aba bura	Limu Sadech Coop.	0471 129 124
16	Serawit Hailemariam	Goma OoARD	0472 211 792
17	Letifa Aba Dura	Goma OoARD	0472 211 178
18	Alem G. Egziabher	Goma OoARD	0472 211 178
19	Bogale Guta	Goma OoARD	0472 211 915
20	Nasir Aba Garoi	Goma Rural Roads	0472 211 828
21	Fekadu Gerbi	Goma OoARD	0471 115 646
22	Tegegne Bayu	Goma OoARD	0472 212 644
23	Mergia Feyissa	Goma OoARD	0917 822 678
24	Kelbessa Seboka	Goma OoARD	0472 212 232
25	Gadissa Mossisa	Goma OoARD	0917 814 136
26	Behailu Atero	JARC	0917 809 621
27	Dr. Taye Kufa	JARC	
28	Haileab Atsebaha	JARC	0911 900 989
29	Kebede Terfessa	Goma OoARD	
30	Endale Kumsa	Goma OoARD	0472 213 831
31	Mohammed Aba Temam	Goma OoARD (DA)	0471 190 106 0917 809 380
32	Tamiru Gebre	Goma OoARD (DA)	0471 190 107
33	Ayisha Abdulber	Wereda woman Affairs office	0912 198 678
34	Tofik Raya	Goma OoARD	0911 971 580
35	Mohammed Aba Rago	Goma OoARD (Head)	0472 211 178
36	Asrat Hailu	Oromia BoARD	
37	Lemecha Itana	Oromia BoARD	
38	Mohammed Yakin	Oromia BoARD	

39	Negusse Efa Gurmessa	CABI	0911882355
40	Dirk Hoekstra	IPMS Addis	0116 460 259
41	Dr. Azage Tegegne	IPMS Addis	0911 246 442
42	Dr. Berhanu G/medhin	IPMS Addis	0911406500
43	Ermias Sehai	IPMS Addis	0911252320
44	Kahsay Berhe	IPMS Addis	0911 400 448
45	Yasin Getahun	IPMS Addis	0911477011
46	Dr. Yigzaw Desalegn	IPMS, Bure	
47	Yieshak Baredo	IPMS Goma	0912 111 688
48	Kena'a Ayana	Farmer, Goga Kemise PA	0917820088
49	Imadi Aba bulga	Farmer, Koye Seja PA	
50	Sileshi Delelegn	Jima Zone, OoARD	
51	Mohammed Sali Kedir	HIV Office	
52	Abdo kedir	Goma Cooperative	
53	Negessu Debere	Jima Zone, OoARD	
54	Fikru Abdisa	Goma OoARD	
55	Negesu Debele	Goma OoARD	
56	Abita Kedir	Goma Cooperatives	
57	Emad Aba musa	Koyo Seja PA	
58	Seifu Siraj	Beshasha FTC	
59	Mecarimo Zirb	Koyo Seja	
60	Galib Abadura	Goma OoARD	
61	Kidane Gelan	Goma Cooperatives	
62	Meseret Alemayehu	Goma OoARD	
63	Seifu Mohamed	Goma OoARD	
64	Letifa Aba Dura	Goma OoARD	
65	Abdurahiman Shifa	Goma OoARD	
66	Amare Worku	Kese Hitu PA	
67	Jemal A/Fita	Omo Beko	
68	Keno Aba Diga	Omo Beko	
69	Ilryaas A/Temam	Kilole PA	
70	Degu Golja	Coffee Traders Association	
71	Asefa Filate	Coffee Traders Association	
72	Kedir Yasin	Coffee Traders Association	
73	Tofik Jebir	OoARD	
74	Endale Taye	OoARD	
75	Aba Temam Aba Bulgu	Keso Hite	
76	Awal Aba Bulgu	Keso Hite	
77	Kedir Aba Bulgu	Bulbulo PA	
78	Temam Aba Gidi	Bulbulo PA	
79	Zeleke Mekuria	Choche PA	
80	Beletu Asheber	Choche PA	
81	Temam Abdurahiman	Choche PA	
82	Hussen Siraji	Omo Gurude PA	

83	Nasir Abrahim	Jima Zone OoARD	
84	Mohamed Aba Ali	Jima Zone OoARD	
85	Nuru Aba Fita	Jima Zone OoARD	
86	Anwar Aba Sambi	OoARD	
87	Mohamed Aba Raya	OoARD	
88	Girum Tamir Ayehu	Kafe Limu Enterprise	
89	Suliman Ababiya	Goga kemise PA	
90	Beyan Aba Mecha	Woreda council	
91	Mohamed Abrahim	Public relation	
92	Seman Aba Rago	Farmer	

Annex 5. Goma wereda advisory and learning committee (WALC)

No.	Name	Organisation	Position	Role	Remark
1	Ato Tsegaye Umeta	Wereda Council member	Administrator	Chairman	
2	Mohamed Abarago	OoARD	Office Head	Secretary	
3	Anwar Abasambi	OoARD	Team leader	Member	
4	Ato Kelbesa Seboka	OoARD	Team leader	Member	
5	Ato Gadissa Mosissa	OoARD, NR	Team leader	Member	
6	W/o Rabia Abamilki	Women's Affairs Office	Office Head	Member	
7	Ato Mohammed Jemal	Finance ane Economy	Office Head	Member	
8	Mohammed Sali Kedir	HIV/AIDS Office	Office Head	Member	
9	Ato Jebel Abanura	Coop. Promotion Office	Office Head	Member	
10	Ato Jemal Abadura	Union	Representative	Member	
11		Research	Representative	Member	To be assigned

Annex 6. Methodology of PLW plan development

The first step in the PLW planning was the creation of a Woreda Advisory Learning Committee (WALC) (Annex 5.2), followed by an introduction of the project to the WALC members. The next step was to establish the wereda knowledge centre (WKC), where 3 computers, printer, 29" TV, DVD, CDs with an internet connection to one of the computers and arrangement to pay an annual internet bill. Along with this some published materials were also supplied to the WKC. Following this, identification of major farming systems in the PLW and the potential marketable commodities within them, together with the WALC members and based on the commodities identified in the strategic plans prepared by the regional and *woreda* agricultural staff. Farming systems and potential commodities were then discussed with the various *Woreda* agricultural service institutions (crop, livestock, natural resources, cooperative department, women affairs and HIV/AIDS officials)[8]. This was followed by field visits to the selected farming systems by teams (two to three) consisting of project staff, project research partners and *Woreda* staff. During these field visits, semi-structured interviews were conducted with field staff (DAs and supervisors) and community members (male as well as female) to explore the nature of the farming system, to identify the major marketable commodities and their production methods/problems (including natural resource management), input supply and marketing arrangements. Problems associated with the production to marketing continuum of the identified commodities were also discussed. Triangulation technique was used in order to validate information. The suitability and possibility of introduction of new commodities was also explored and discussed[9]. The findings of this initial PRA were then summarized, presented and discussed in a 2-day PLW planning workshops (one in each PLW) which were attended by representatives from the RALC, WALC, *Woreda* experts, DAs, community representatives, male and female farmers, NGOs, and national and international research partners (Annex 4).

[8] To facilitate this process the project staff had collected/prepared secondary data on the PLW, including GIS referenced maps with bio physical and socio economic data.

[9] The project team prepared guidelines for these PRA of institutions and community members as well as some notes on the different methods to be used for the PRA.