

**Food Security Coordination & Disaster Prevention Office  
Bureau of Agriculture and Rural Development  
The Government of Amhara National Regional State  
The Federal Democratic Republic of Ethiopia**

**THE DEVELOPMENT STUDY  
ON  
THE IMPROVEMENT OF LIVELIHOOD  
THROUGH  
INTEGRATED WATERSHED MANAGEMENT  
IN AMHARA REGION**

**FINAL REPORT  
(APPENDIX)**

**March 2011**

**Japan International Cooperation Agency  
SANYU CONSULTANTS INC.**

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***Appendix A: Assignment Schedule of the Study Team and  
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Assignment Schedule for THE DEVELOPMENT STUDY ON THE IMPROVEMENT OF LIVELIHOOD THROUGH INTEGRATED WATERSHED MANAGEMENT IN AMHARA REGION, THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

Expertise	Name	Company	2008												2009												2010												2011																							
			The 1 <sup>st</sup> Year						The 2 <sup>nd</sup> Year						The 3 <sup>rd</sup> Year						The 4 <sup>th</sup> Year																																									
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12																								
Field Study	Team Leader/ Rural Development	SCI	Phase I												Phase II																																															
	Deputy Team Leader/ Soil Conservation/ Rural Infrastructure	SCI	Phase I												Phase II																																															
	Watershed Management/ Remote Sensing	SCI	Phase I												Phase II																																															
	Farming/ Agro-Product Marketing	SCI*1	Phase I												Phase II																																															
	Rural society/ Livelihood improvement/ Gender	SCI*2	Phase I												Phase II																																															
	Verification Study Management/ Watershed Management (B)	SCI	Phase I												Phase II																																															
	Coordinator/ Rural Infrastructure (B)	SCI	Phase I												Phase II																																															
	Team Leader/ Rural Development	SCI	Phase I												Phase II																																															
Work in Japan	Watershed Management/ Remote Sensing	SCI	Phase I												Phase II																																															
	Verification Study Management/ Watershed Management (B)	SCI	Phase I												Phase II																																															
	Report	Period of Submission (indicating Δ and the name of Report)	Phase I												Phase II																																															
Study Process & Total			1 <sup>st</sup> Field Study												2 <sup>nd</sup> Field Study												3 <sup>rd</sup> Field Study												4 <sup>th</sup> Field Study												5 <sup>th</sup> Field Study											
Legend: ■ Field Study □ Homework																																																														

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 SCI : Sanyu Consultants Inc.      \*1 : Agro-x Limited.



## Jica/Amhara Livelihood IMProvement Study (JALIMPS)

(Formal Name: The Development Study on the Improvement of Livelihood through Integrated Watershed Management in Amhara Region)



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(Formal Name: The Development Study on the Improvement of Livelihood through Integrated Watershed Management in Amhara Region)



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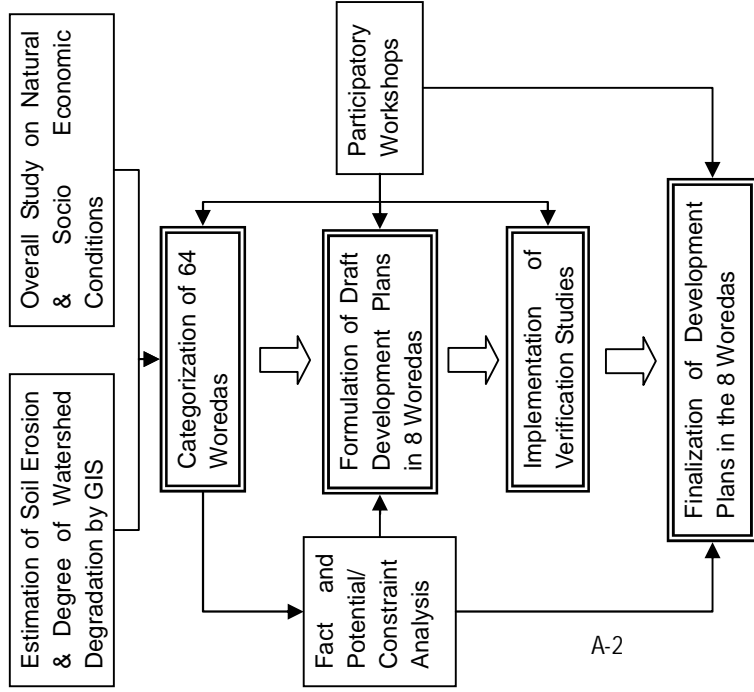
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## Flowchart of the Study



A-2

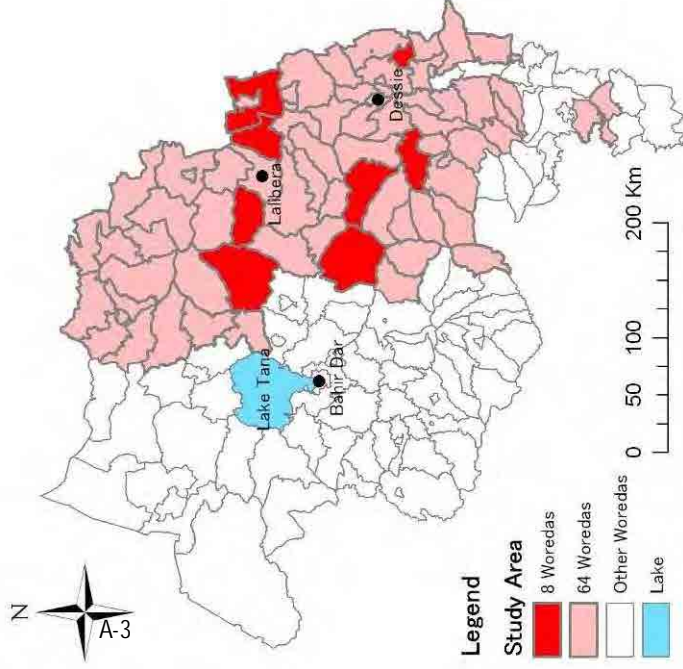
## Schedule of the Study

	Year	2008	2009	2010	2011
<b>Phase I</b>					
Formulation of the Draft Development Plans			→		
<b>Phase II</b>					
Implementation of the Verification Studies				→	
Finalization of the Development Plans					→

## The Study Area

The target area of the Study covers 64 Woredas suffering from food deficit in the Amhara National Regional State (ANRS). These target Woredas are located in central to the eastern side of the region.

Also, 8 Woredas (Ebinate, Simada, Bugena, Gidan, Kobo, Aregoba Special, Mekedela and Legambo) are the target area for development plan formulation and verification studies.



Map of ANRS and the Study Areas

## Background of the Study

ANRS has the area of 159,174 km<sup>2</sup> and the population of 19.6 million, which account for 15% and 25% of the national total respectively. In ANRS, 6.3 million people are threatened by food deficiency. In particular, the eastern area of the ANRS



has been exposed to recurrent drought for past three decades, thus considered as the most gravely suffering area from food shortage.

The food shortage in this area is supposed to be resulted from various inter-related and chain-reacting causative factors including low-leveled farming techniques, excessive land reclamation, destructive deforestation, soil erosion, and so forth.

## Objectives of the Study

The objectives of the Study include:

1. To formulate development plans for the extension of appropriate watershed management and rural development in food insecure area through implementation of verification study, and
2. To carry out capacity development of Ethiopian counterpart personnel as well as communities concerned.

## Formulation of Development Plans

To formulate Woreda Development Plans, opinions will be collected through discussions with the various stakeholders at the major stages of the Study. Participatory process will begin with kick-off Workshop (WS) at the regional level, followed by analytical WS at Woreda level and analytical & planning WS at community level.

Consequently, in line with the results obtained in a series of WS, planning WS at the Woreda level will be held.



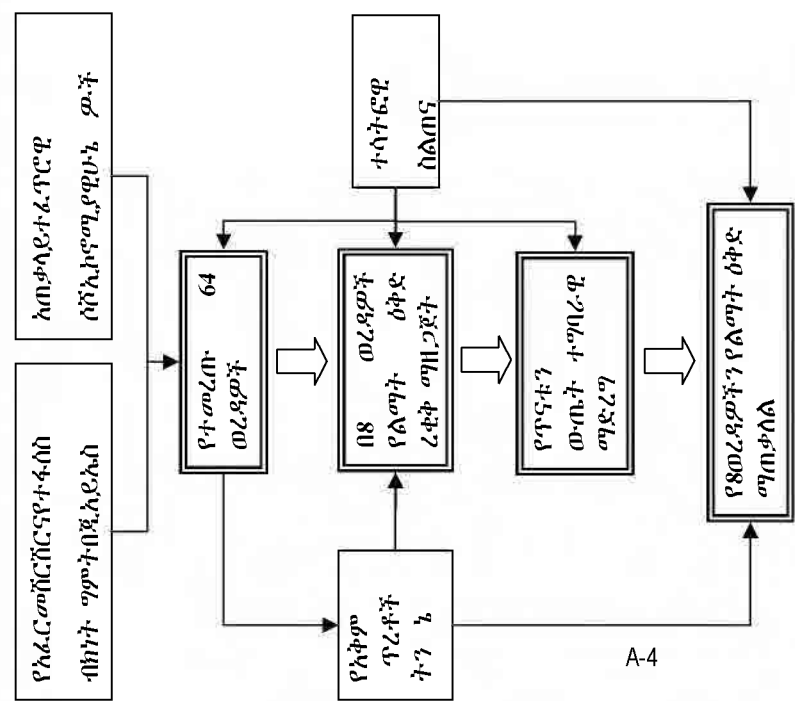
Community Workshop in Ebinate Woreda

## Verification Studies

The verification studies implemented in course of the Study is characterized as trials not only to pursue successful results but also to identify how activities are managed and what is the limit of activities.

In other words, the significance of implementing the verification study is to find the "how" and "limit" in implementing development plan.

# የጥናቱ የፍላጎት ቻርት



፳፭

# የጥናቱ የጊዜ ሠሌዳ

ክፍል	ዓመት	2000	2001	2002	2003
<b>ክፍል 1</b>	የልማቱን ዕቅድ ረቂቅ ማዘጋጀት		↑		
<b>ክፍል 2</b>	የልማቱን ዕቅድ ትግበራ ጥናት ማድረግ			↑	
	የልማት ዕቅዱን ማጠቃለል				↑

ጃይክ /በአማራ ክልል የኑሮ ማሻሻያ ጥናት/  
(ጃኦኑማጥ/ ጃሊምፕስ)  
(በአማራ ክልል የተቀናጀ ተፋሰስ ልማትን መሰረት  
ያደረገ ኑሮ ማሻሻያ የልማት ጥናት)



በአማራ ብሔራዊ ክልላዊ መንግስት

የምግብ ዋስትና ማስተባባሪያ ና አዳጋ መከላከል ጽ/ቤት  
ቀበሌ 11 ባህር ዳር  
ፖስት 497  
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ፋክስ: +251-(0)58-218-2129

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ቀበሌ 3 ባህር ዳር  
ፖስት 437  
ሥልክ : +251-(0)58-220-0955



የጃፓን ዓለም ዓቀፍ ትብብር ድርጅት  
ኢትዮጵያ  
ሚና ህንፃ 6 ና 7 ወለል አዲስ አበባ  
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ለማሻሻሪያ ጥያቄ አድራሻችን  
ጃሊምፕስ ጽ/ቤት

ቢሮ ቁጥር 54 ምግብ ዋስትና ማስተባባሪያ ና አዳጋ መከላከል  
ጽ/ቤት  
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(ጃኦኑማጥ/ ጃሊምፕስ)  
(በአማራ ክልል የተቀናጀ ተፋሰስ ልማትን መሰረት  
ያደረገ የኑሮ ማሻሻያ የልማት ጥናት)



## ጥናቱ የሚያካትቱ ቸውቦ ዎች

ጥናቱ የሚያካትቱ ቸውቦ ዎች በአማራ ብሔራዊ ክልላዊ መንግስት ክልል የሚገኙ 64 የምግብ ጥረት የአለባቸውን ወረዳዎች ነው።

በተለይም በ8 ወረዳዎች ላይ ( ብናት ሲማዳ ቡግና ጊዳን ቆቦ አርጎባ መቅደላና ለጋመቦ) በቀጥ ጥናቱ የሚያተኩር ባቸው ና የልማት ዕቅድ ዝግጁት የሚከሄድባቸው ናቸው።

## የጥናቱ መነሻዎች

የአማራ ክልላዊ መንግስት 159 174 ኪ.ሜ<sup>2</sup> ስፋት ና 19.6 ሚሊዮን ህዝብ ሲኖርበት 15%ና 25% የአገሪቱን ስፋትና ህዝብ ብዛት በቅደም ተከተል ይወክላል። በአብዛኛው 6.3 ሚሊዮን ሚሆን ህዝብ በአስጊ የምግብ ጥረት ውስጥ ይገኛል። በተለይም ምስራቅ አማራ በኩል ያሉ ወረዳዎች ላለፉት 3 ዓመት ለተደጋጋሚ ድርቅ ተጋልጠዋል።

በ ነዚህ አካባቢዎች ለምግብ ጥረት መበባስ የተለያዩ ምክንያቶች ይጠቀሳሉ ። ማለትም ላቀር የአስተራረስ ዘዴ ጠፍ መሪቶችን በተደጋጋሚ ማረስ በክልሉ የተሸረሸካ መሪዎች ደኖችን መጨፍጨፍ ና ማጥፋት የአፈር መሸርሸር ና መሳሰሉት ለችግኝ መንስዔ ተያያዥነት አላቸው።

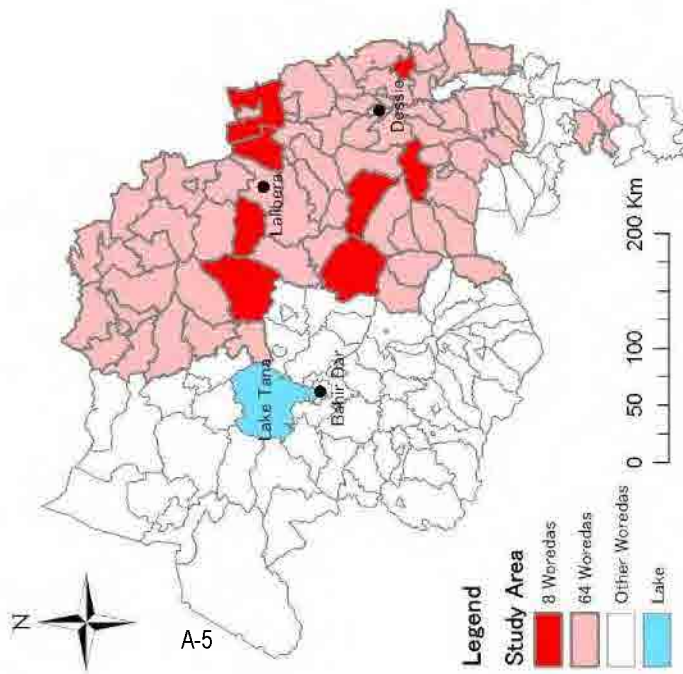


በመቀጠል ከዚህ ስልጠና በ ላ በወረዳ ደረጃ በዕቅድ ላይ ስልጠና ይዘጋጃል።

በ ብናት ወረዳ የ ብረተሰብ ስልጠና

## የጥናት ማረጋገጫ

በጥናቱ ሂደት የጥናቱ የሙከራ ውጤት የሚረጋገጠው በውጤ ማነቱ ብቻ ሳይሆን የስራ ዝርዝሮች ንዲት ንደሚሰኝ ና ምን አይነት ችግሮች ንዳሉ መለየት ነው። ማለትም የጥናቱ ውጤት ተግባራዊነት ማረጋገጫ የልማት ዕቅድ ንዴት መስራት ንዳለበት ማወቅ ና ጥረቶችን መለየት ነው።



A-5

- የጥናቱ ዓላማ የሚያካትቱ ቸው

  1. በምግብ ጥረት ለተጋለጡ አካባቢዎች በጥናቱ ውጤት መሰረት የተፋሰስ ልማት ና የገጠር ልማት ለማስፋፋት የልማት ዕቅድ ማዘጋጀት ና
  2. የኢትዮጵያን ሠራተኞችም ሆነ ህብረተሰቡን የአቅም ማጎልበት ስራ መስራት ።

የአማራ ብሔራዊ መንግስት ክር ና የጥናት ቦ ዎች





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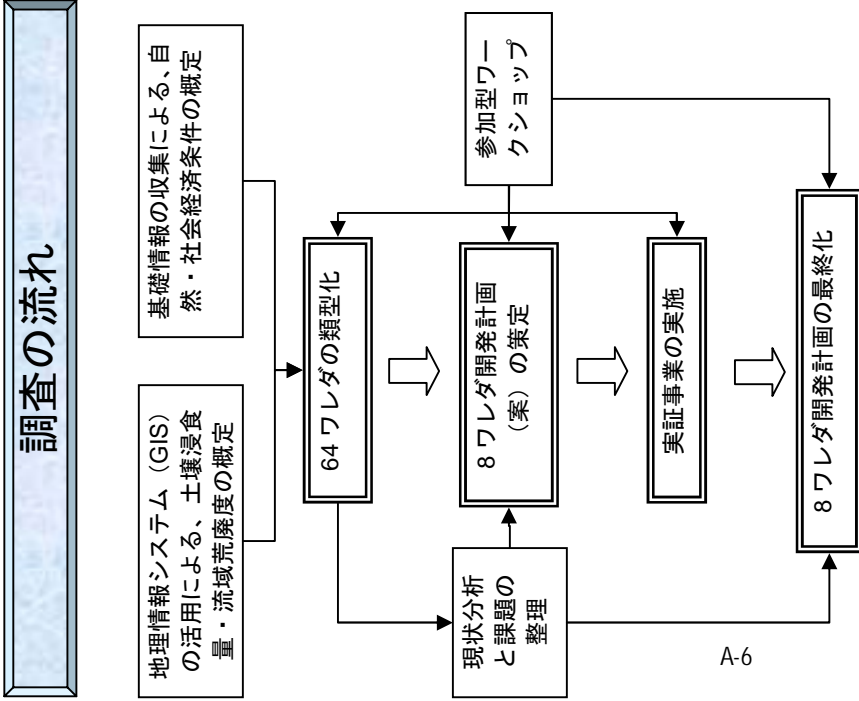


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調査の工程		2008	2009	2010	2011
フェーズ I					
開発計画(案)の策定	→				
フェーズ II					
実証事業の実施	→				
開発計画の最終化	→				

## 調査対象地域

本調査の対象地域はアムハラ州 (ANRS) の中央部から東部に広がる 64 のワレダです。これらのワレダは、エチオピア国内でも、特に慢性的な食糧不足に悩まされています。

64 のワレダのうち、8 のワレダ (エビナット、シマダ、ブゲナ、ギダン、コボ、アレゴバ、メケデラ、レガンボ) については、開発計画策定および実証事業実施の対象となります。

## 調査の背景

エチオピア国の北部に位置するアムハラ州は、面積 159,174 km<sup>2</sup> (全土の約 15%) で、約 1,960 万人 (全国の約 25%) が居住しています。そのうち 300 万人が慢性的な食糧不足に、330 万人が一時的な食料不足と、合計 660 万人 (全州の 34%) もが食糧不足に苦しんでいます。特に、同州東部は過去 30 年にわたって繰り返す早魃に襲われており、国内で最も食糧不足の深刻な地域となっています。



アムハラ州の荒廃した土地

こうした食糧不足の原因は多数あり、(1)低い農業技術、(2)過剰な開墾、(3)集中的な降雨による土壌浸食などが、複合的かつ連鎖的に絡み合っており発生しています。

## 調査の目的

本調査の主な目的は以下のとおりです。

1. アムハラ州の東部の 8 ワレダにおいて、実証事業を伴う開発計画策定を通じて、対象地域全体の適切な総合流域管理・農村開発の方策を明らかにする。
2. 流域管理および生計改善にかかるエチオピア国政府実施機関および住民の能力が向上する。

## 開発計画の策定

本調査のワレダ開発計画策定では、様々な関係者との情報交換および議論を通じた参加型プロセスに重点を置いていきます。最初に州レベルでのキックオフワークショップを実施した後、続いてワレダレベルでの分析ワークショップ、コミュニティレベルでの分析・計画ワークショップを実施していきます。

これら一連のワークショップの後は、ワレダレベルでの計画ワークショップを実施します。

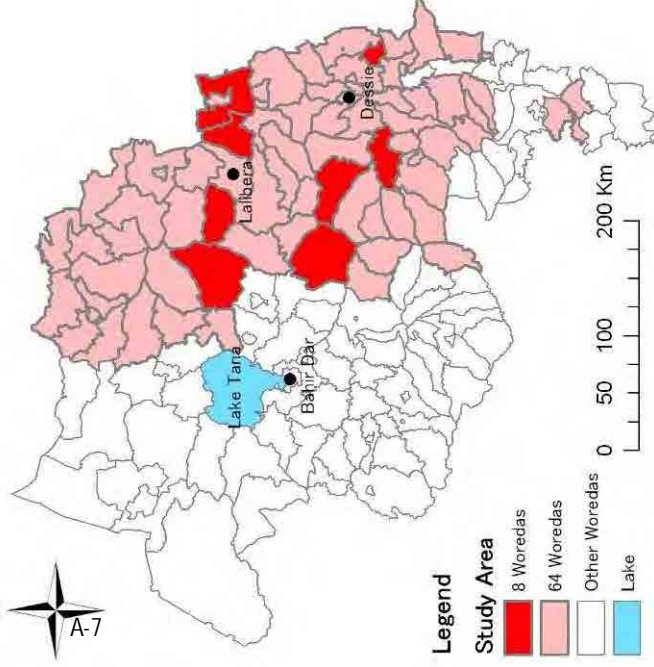


コミュニティにおけるワークショップ風景

## 実証事業の実施

本調査で実施する実証事業では、プロジェクトの成果や目標の達成だけを目的とするのではなく、アムハラ州政府のカウンターパート機関が、主体的にプロジェクトを実施する際の「やり方 (How)」と「限界 (Limit)」を知るための試行としても位置づけられます。

すなわち、実証事業を実施することにより、プログラムやプロジェクトを実施する際の「How」と「Limit」を具体的に知ることができ、より機能する開発計画を策定する事を目指します。



調査対象地域位置図

***Appendix B: Supplemental Data on Natural Environment***

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## 1. Meteorology in the 64 Woredas

### 1.1. Rainfall

#### 1.1.1. Summary of Mean Rainfall

**Table 1.1 Summary of Mean Monthly Rainfall**

No.	Station	Woreda	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Period of Measurement
7	Debark	Debark	North Gondar	1.8	3.2	18.0	39.7	76.8	141.8	316.0	280.8	107.0	92.3	21.8	7.7	1,024.6	1955-2006
20	Ayna Bugena	Bugena	North Wello	3.4	17.8	15.9	36.4	14.8	37.9	259.7	381.6	110.4	0.0	6.3	14.8	899.1	2004-2007
22	Wogel Tena	Delanta	North Wello	12.0	19.1	51.7	53.1	38.4	35.3	241.2	258.4	63.9	8.7	12.9	7.5	803.3	1978-2008
23	Muja	Gidan	North Wello	12.8	8.6	53.9	41.1	47.2	32.6	242.9	224.8	32.2	9.8	18.2	11.0	735.0	1996-2005
24	Sirinka	Guba Lafto	North Wello	40.1	75.4	99.1	209.1	48.7	83.2	255.5	281.8	363.1	74.2	99.7	23.9	1,653.8	1995-2007
25	Merssa	Habru	North Wello	56.4	60.3	88.1	109.8	38.4	17.3	272.2	277.6	86.9	41.5	16.5	55.3	1,120.2	1995-2004
26	Kobo	Kobo	North Wello	34.2	24.5	25.3	79.3	34.7	11.3	179.8	215.8	45.1	22.2	20.1	10.6	702.8	1988-2005
36	Nefas Mewcha	Laye Gayint	South Gondar	15.9	13.9	60.0	53.7	50.5	78.2	334.9	301.1	84.3	46.9	27.4	14.3	1,080.8	1996-2005
38	Simada	Simada	South Gondar	9.5	0.0	37.3	50.8	82.3	161.5	341.8	312.1	184.0	43.0	34.7	4.7	1,278.3	2005-2007
41	Wuchale	Ambassel	South Wello	82.4	35.6	97.9	96.5	58.2	38.2	292.7	311.8	114.0	64.2	36.4	41.7	1,269.6	1996-2005
45	Jamma Degollo	Jamma	South Wello	23.4	4.9	60.4	37.7	35.2	67.8	343.2	308.9	80.2	12.5	6.4	5.1	963.3	1994-2008
46	Ancharo	Kalu	South Wello	13.5	38.2	134.1	117.1	58.3	17.5	267.3	300.6	97.3	23.0	10.3	42.8	1,119.8	1994-2007
46	Harubu	Kalu	South Wello	30.6	17.0	95.9	104.4	53.2	33.5	319.5	331.3	93.4	44.3	27.4	21.4	1,148.2	1987-2005
49	Akesta	Legambo	South Wello	36.8	25.4	97.3	59.6	44.8	40.3	312.1	241.7	31.5	12.7	12.2	19.5	933.9	1995-2004
54	Haik	Tehulederie	South Wello	33.6	68.0	105.9	106.3	75.8	31.8	260.6	271.9	136.3	41.3	21.5	23.5	1,192.7	1975-2004
55	Amba Mariam	Tenta	South Wello	15.5	14.9	62.7	67.4	44.1	38.8	322.7	286.6	338.0	6.4	10.8	7.1	1,245.7	1992-2008
57	Wore Illu	Wore Illu	South Wello	20.6	9.5	48.9	34.0	24.3	37.7	345.4	291.1	60.0	5.7	11.6	9.1	896.6	1995-2008
63	Seqota	Seqota	Wag Himera	2.5	2.5	24.9	24.0	23.0	48.6	213.4	203.6	31.7	6.5	2.0	5.1	599.2	1972-2006

(Source: Data processed from National Meteorological Agency)

**Table 1.2 Summary of Mean Annual Rainfall**

No.	Station	Woreda	Zone	Rainfall (mm)				Seasonal/Annual Rainfall (%)			Period of Measurement
				Annual	Kiremt*	Belg**	Bega***	Kiremt	Belg	Bega	
7	Debark	Debark	North Gondar	1,024.6	845.6	134.6	126.8	82.5	13.1	12.4	1955-2006
20	Ayna Bugena	Bugena	North Wello	899.1	789.6	67.1	42.4	87.8	7.5	4.7	2004-2007
22	Wogel Tena	Delanta	North Wello	803.3	598.9	143.2	60.2	74.6	17.8	7.5	1978-2008
23	Muja	Gidan	North Wello	735.0	532.5	142.2	60.4	72.4	19.3	8.2	1996-2005
24	Sirinka	Guba Lafto	North Wello	1,653.8	983.6	356.9	313.3	59.5	21.6	18.9	1995-2007
25	Merssa	Habru	North Wello	1,120.2	654.0	236.2	230.0	58.4	21.1	20.5	1995-2004
26	Kobo	Kobo	North Wello	702.8	452.0	139.2	111.6	64.3	19.8	15.9	1988-2005
36	Nefas Mewcha	Laye Gayint	South Gondar	1,080.8	798.4	164.2	118.3	73.9	15.2	10.9	1996-2005
38	Simada	Simada	South Gondar	1,278.3	999.4	170.3	91.9	78.2	13.3	7.2	2005-2007
41	Wuchale	Ambassel	South Wello	1,269.6	756.7	252.7	260.3	59.6	19.9	20.5	1996-2005
45	Jamma Degollo	Jamma	South Wello	963.3	800.1	133.3	52.3	83.1	13.8	5.4	1994-2008
46	Ancharo	Kalu	South Wello	1,119.8	682.6	309.5	127.7	61.0	27.6	11.4	1994-2007
46	Harubu	Kalu	South Wello	1,148.2	777.8	253.5	140.6	67.7	22.1	12.2	1987-2005
49	Akesta	Legambo	South Wello	933.9	625.6	201.7	106.7	67.0	21.6	11.4	1995-2004
54	Haik	Tehulederie	South Wello	1,192.7	700.6	288.0	188.0	58.7	24.1	15.8	1975-2004
55	Amba Mariam	Tenta	South Wello	1,245.7	986.1	174.2	54.7	79.2	14.0	4.4	1992-2008
57	Wore Illu	Wore Illu	South Wello	896.6	734.2	107.3	56.5	81.9	12.0	6.3	1995-2008
63	Seqota	Seqota	Wag Himera	599.2	497.3	72.0	18.6	83.0	12.0	3.1	1972-2006
Average				1,037.1	734.2	185.9	120.0	71.8	17.6	10.9	

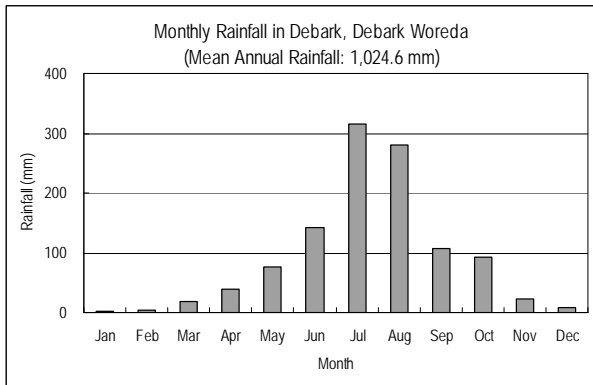
\* Kiremt: Main Rainy Season from June to September, which correspond to Meher

\*\* Belg: Small Rainy Season from March to May

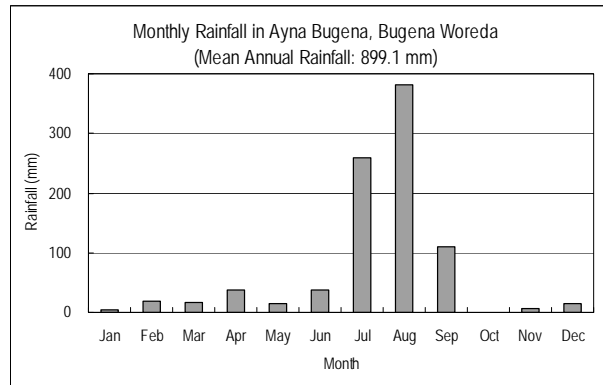
\*\*\* Bega: Dry Season from October to February

(Source: National Meteorological Agency)

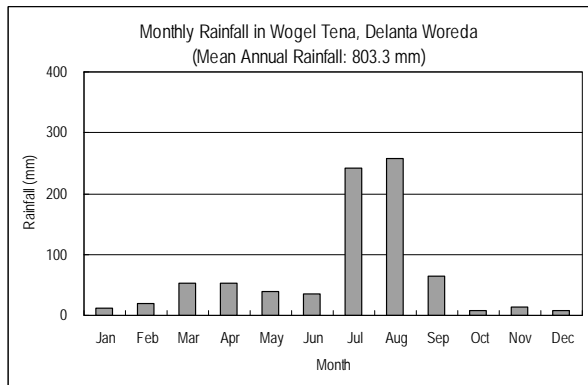
**1.1.2. Mean Monthly Rainfall at each Meteorological Station**



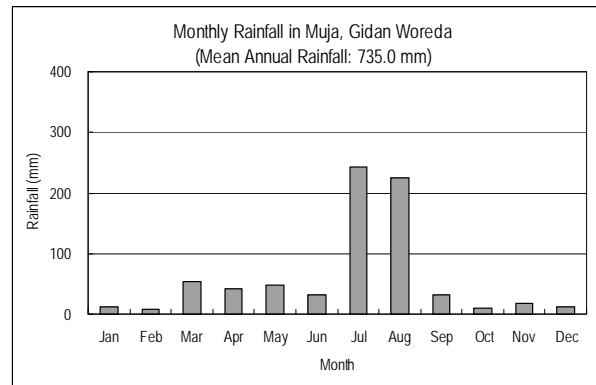
No. 7 Debarik Woreda, North Gondar Zone



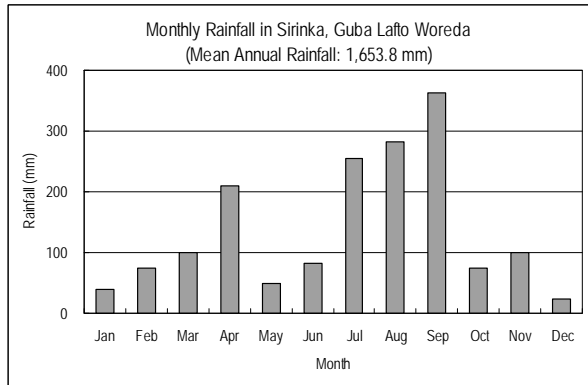
No.20 Bugena Woreda, North Wello Zone



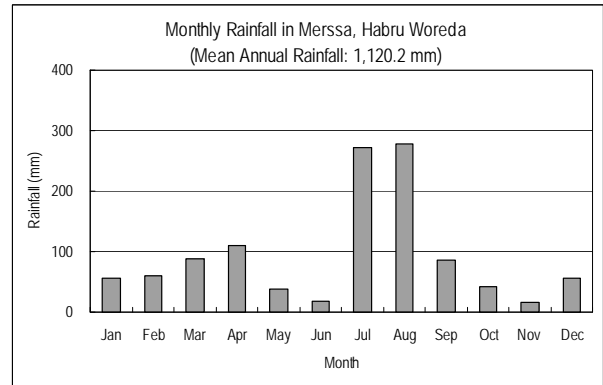
No.22 Delanta Woreda, North Wello Zone



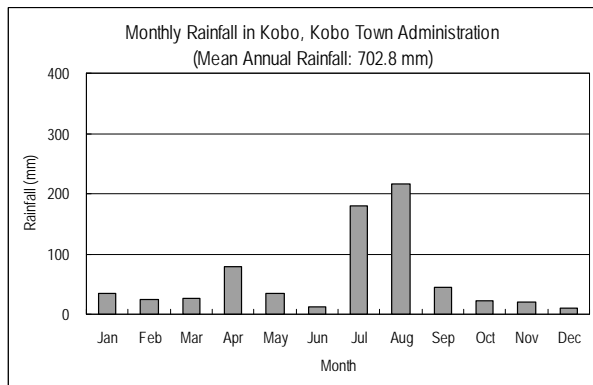
No.23 Gidan Woreda, North Wello Zone



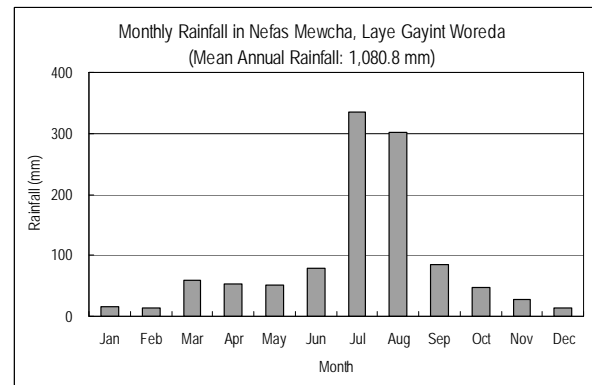
No. 24 Guba Lafto Woreda, North Wello Zone



No. 25 Habru Woreda, North Wello Zone

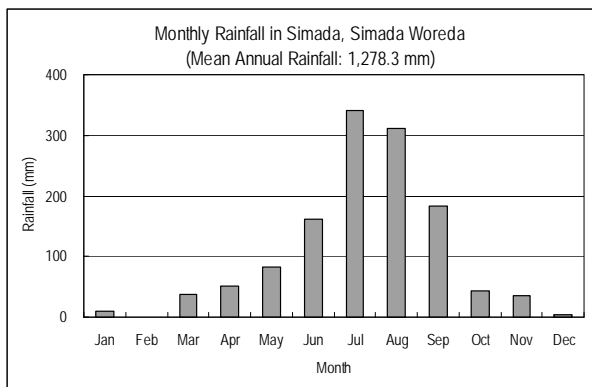


No. 26. Kobo Woreda, North Wello Zone

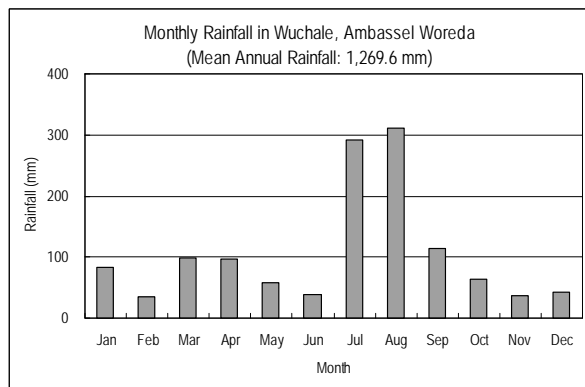


No. 36. Laye Gayint Woreda, South Gondar Zone

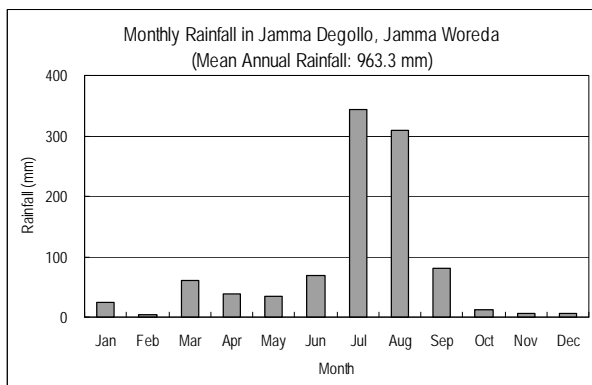
(Source: National Meteorological Agency)



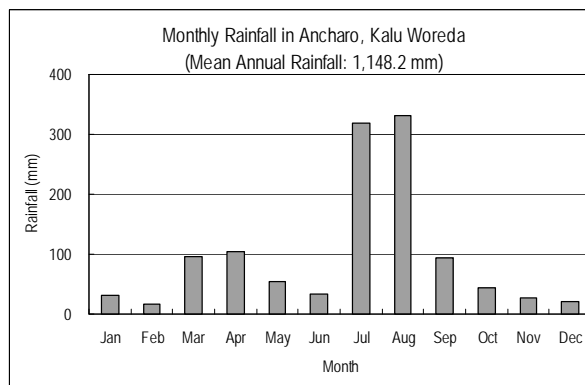
**No. 38. Simada Woreda, South Gondar Zone**



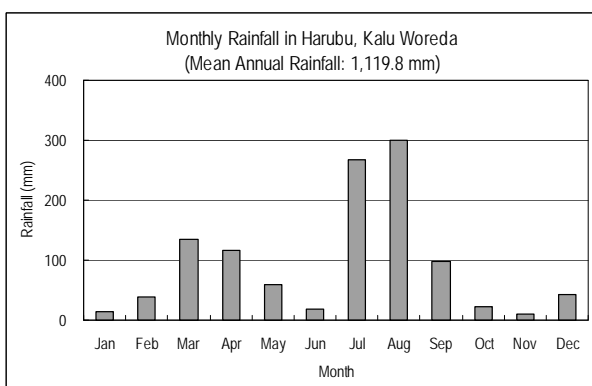
**No. 41. Ambassel Woreda, South Wello Zone**



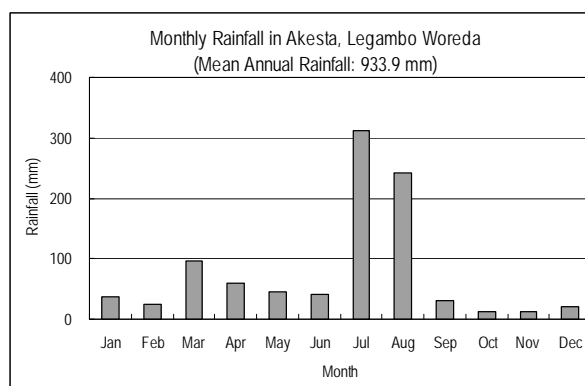
**No. 45. Jamma Woreda, South Wello Zone**



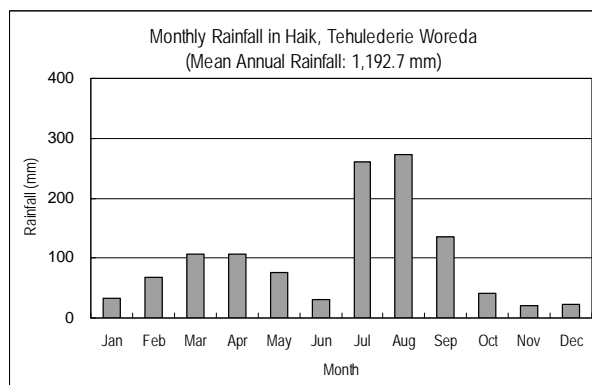
**No.46. Kalu Woreda (Ancharo), South Wello**



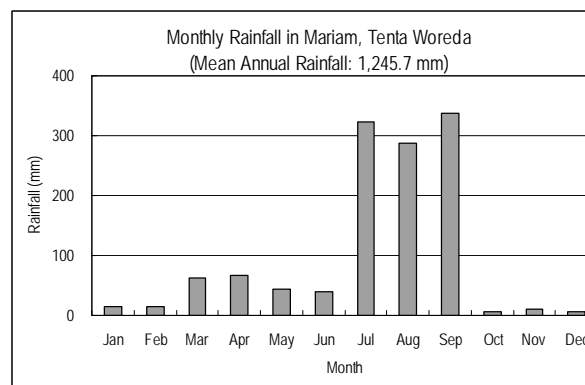
**No. 46. Kalu Woreda (Harubu), South Wello Zone**



**No. 49. Legambo Woreda, South Wello Zone**

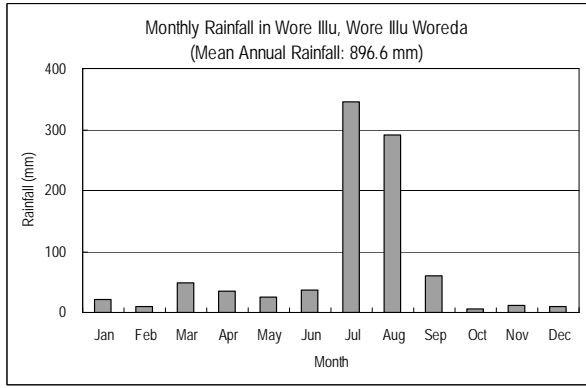


**No.54. Tehulederie Woreda, South Wello Zone**

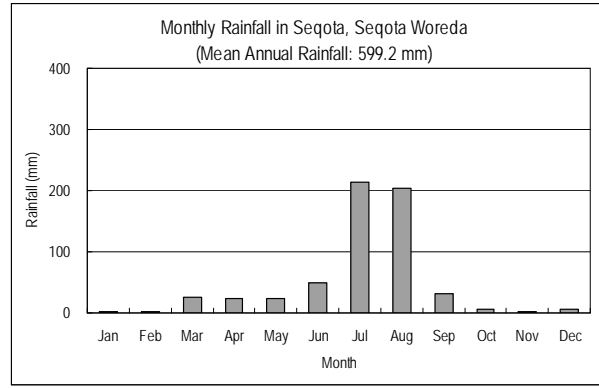


**No. 55. Tenta Woreda, South Wello Zone**

(Source: National Meteorological Agency)



No.57. Wore Illu Woreda, South Wollo Zone



No. 63. Seqota Woreda, Wag Himera Zone

(Source: National Meteorological Agency)

## 1.2. Temperature

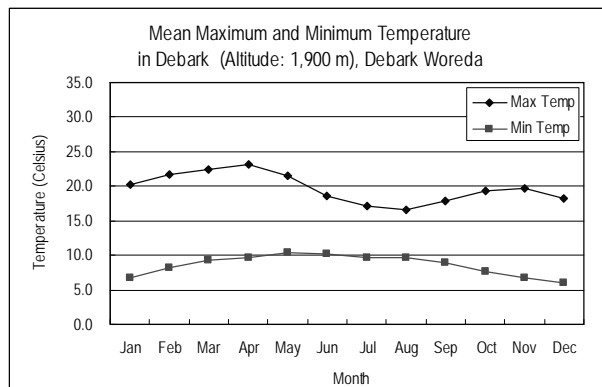
### 1.2.1. Summary of Mean Temperature

Table 1.3 Summary of Mean Temperature

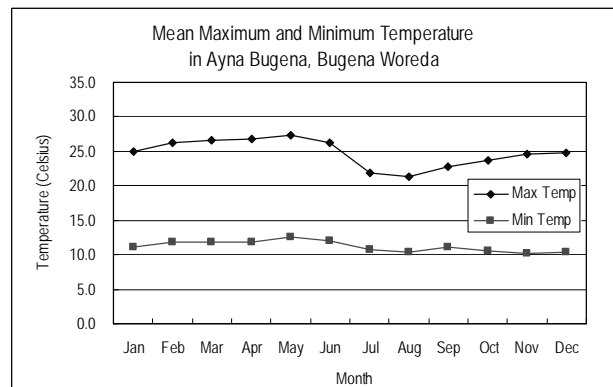
No.	Station	Woreda	Zone	Mean Max Temp (Celsius)	Mean Min Temp (Celsius)	Elevation (m)	Period of Measurement
7	Debark	Debark Woreda	North Gondar	19.8	8.8	1,900	1973-2008
20	Ayna Bugena	Bugena	North Wello	24.7	11.3		1997-2005
22	Wogel Tena	Delanta	North Wello	19.5	7.0	3,000	1994-2008
24	Sirinka	Guba Lafto	North Wello	26.7	14.0	2,000	1995-2007
25	Merssa	Habru	North Wello	29.2	12.6	2,300	1989-2003
26	Kobo	Kobo	North Wello	30.5	15.1	1,470	1989-2005
31	Bati	Bati	Oromiya	28.4	14.7	1,660	1994-2005
36	Nefas Mewcha	Laye Gayint	South Gondar	24.7	8.0	3,000	1997-2005
38	Simada	Simada	South Gondar	23.8	11.5	2,480	2005-2008
43	Mekane Selam	Debre Sina	South Wello	22.2	11.2	2,600	1994-2007
45	Jamma Degollo	Jamma	South Wello	24.2	8.0	2,690	1999-2008
46	Harubu	Kalu	South Wello	31.2	14.0		1985-2005
52	Masha	Mekedela	South Wello	21.8	11.5		1995-2005
54	Haik	Tehulederie	South Wello	26.2	11.2	1,900	1994-2006
55	Amba Mariam	Tenta	South Wello	19.5	7.9		1995-2008
57	Wore Illu	Wore Illu	South Wello	21.7	9.3	2,690	1995-2008
63	Seqota	Seqota	Wag Himera	26.0	12.9	1,850	1995-2006

(Source: National Meteorological Agency)

### 1.2.2. Mean Monthly Temperature at each Meteorological Station



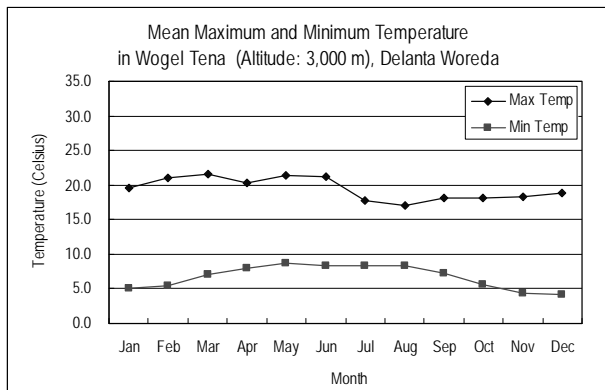
No. 7. Debark Woreda, North Gondar Zone



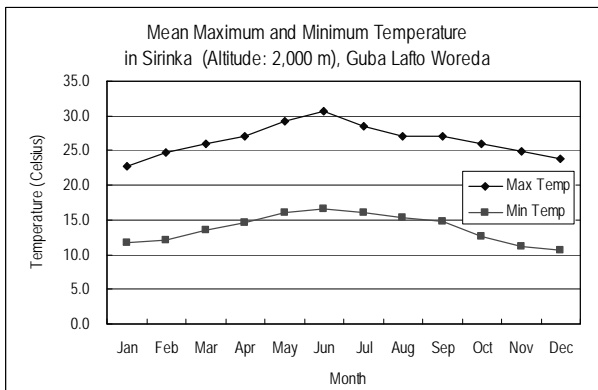
No. 20. Bugena Woreda, North Wello Zone

(Source: National Meteorological Agency)

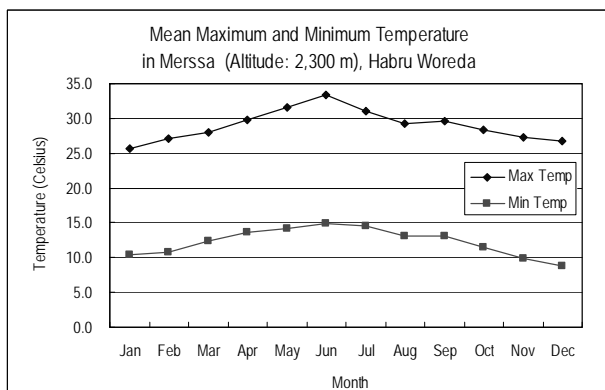




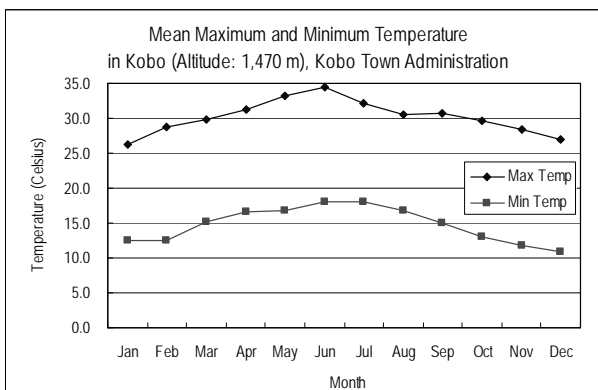
**No. 22. Delanta Woreda, North Wello Zone**



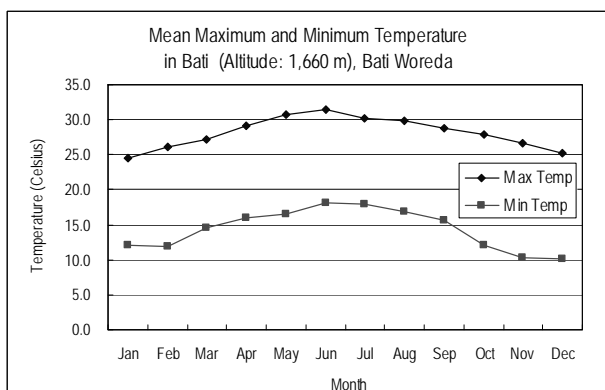
**No. 24. Guba Lafto Woreda, North Wello Zone**



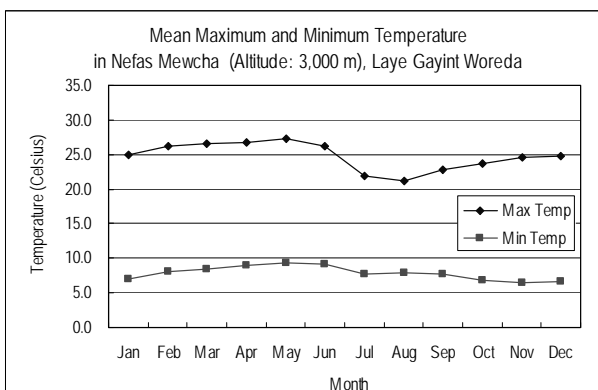
**No. 25. Habru Woreda, North Wello Zone**



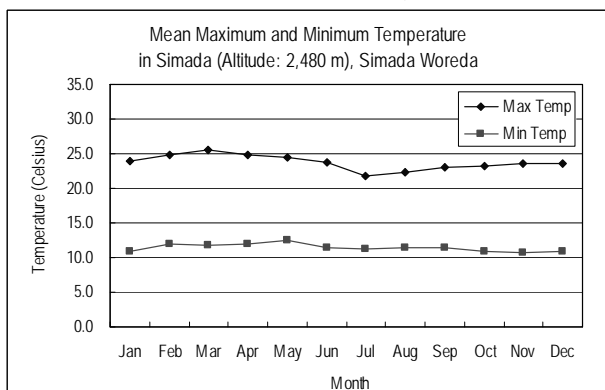
**No. 26. Kobo Woreda, North Wello Zone**



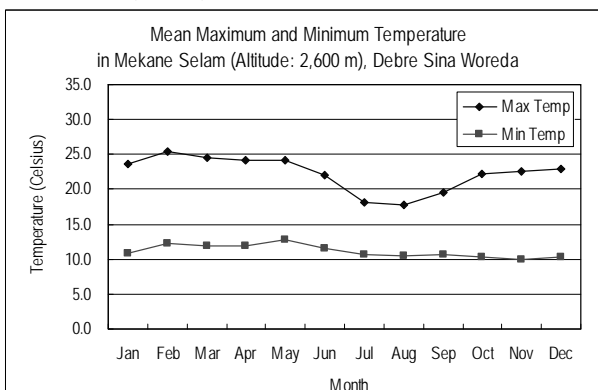
**No. 31. Bati Woreda, Oromiya Zone**



**No. 36. Laye Gayint Woreda, South Gondar Zone**

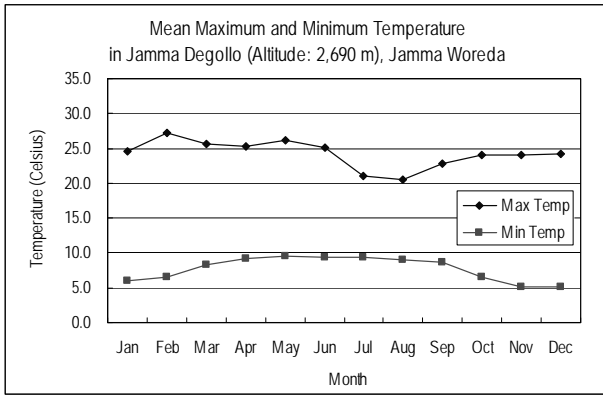


**No. 38. Simada Woreda, South Gondar Zone**

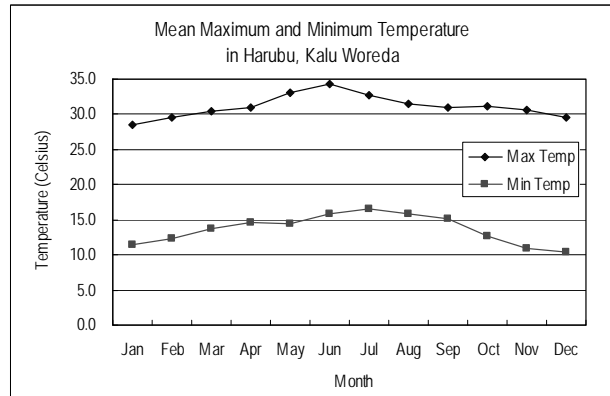


**No. 43. Debre Sina Woreda, South Wello Zone**

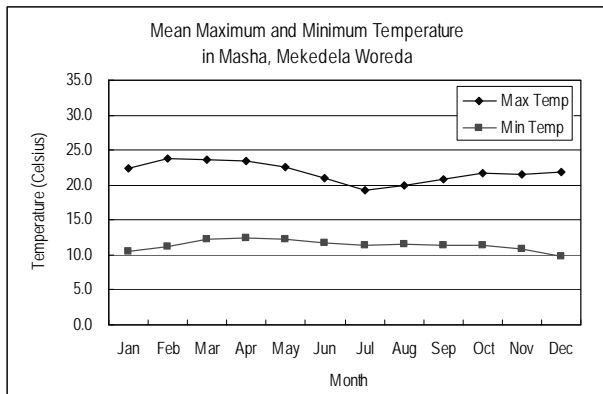
(Source: National Meteorological Agency)



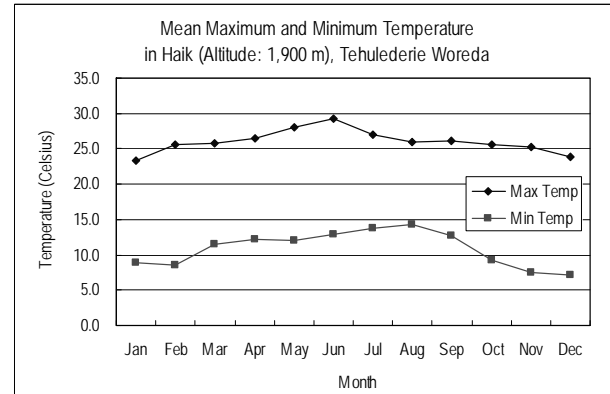
No. 45. Jamma Woreda, South Wello Zone



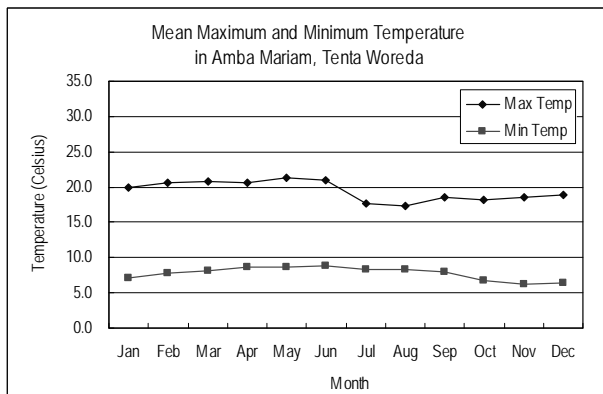
No. 46. Kalu Woreda, South Wello Zone



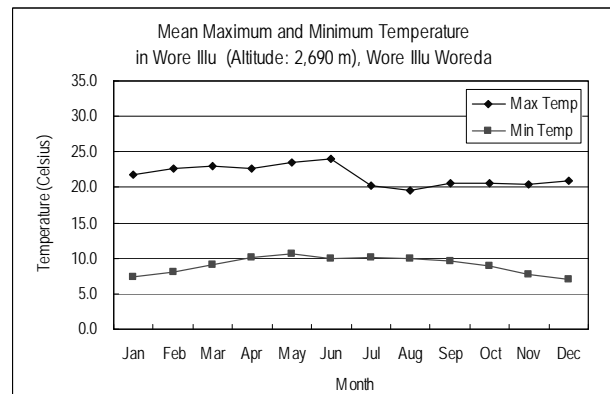
No. 52. Mekedela Woreda, South Wello Zone



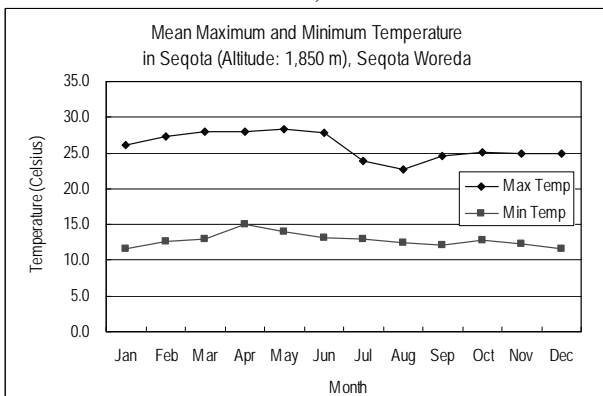
No. 54. Tehulederie Woreda, South Wello Zone



No. 55. Tenta Woreda, South Wello Zone



No. 57. Wore Illu Woreda, South Wello Zone



No. 63. Seqota Woreda, Wag Himera Zone

(Source: National Meteorological Agency)



**Table 2.2 Type of Domestic Potable Water Sources in Two Major Seasons**

No	Woreda	Zone	Developed Spring		Hand Dug Well		Borehole		Tap Water	
			Bega	Kiremt	Bega	Kiremt	Bega	Kiremt	Bega	Kiremt
			1	Enebse Sar Mider	East Gojam	49.5	47.0	8.5	7.7	4.0
2	Goncha Siso Enese	East Gojam	53.1	56.2	15.4	15.4	3.1	1.5	28.5	26.9
3	Shebele Berenta	East Gojam	11.9	12.0	27.5	28.5	10.0	8.9	50.6	50.6
4	Adarekaye	North Gonder	69.5	54.6	4.6	5.9	4.6	9.2	21.4	30.3
5	Beyeda	North Gonder	73.5	55.6	5.9	13.0	5.9	9.3	14.7	22.2
6	Dabat	North Gonder	50.2	49.1	15.9	2.6	3.7	8.1	30.2	40.2
7	Debark	North Gonder	80.0	80.0	0.0	0.0	0.0	0.0	20.0	20.0
8	East Belesa	North Gonder	46.6	69.4	24.1	6.4	25.2	9.8	4.2	14.5
9	Janamora	North Gonder	53.8	38.5	1.9	9.2	15.4	16.9	28.8	35.4
10	Telemt	North Gonder	69.5	54.6	4.6	5.9	4.6	9.2	21.4	30.3
11	West Belesa	North Gonder	43.3	32.1	15.6	15.1	25.6	26.4	15.6	26.4
12	Wogera	North Gonder	78.7	77.3	3.0	2.9	0.9	1.3	17.4	18.5
13	Angolelana Tera	North Shewa	60.0	58.0	16.0	15.9	0.0	0.0	24.0	26.1
14	Asagirt	North Shewa	96.2	77.8	0.0	22.2	3.8	0.0	0.0	0.0
15	Gishe Rabele	North Shewa	98.4	100.0	1.6	0.0	0.0	0.0	0.0	0.0
16	Menze Gera Mider	North Shewa	80.1	77.2	2.3	3.9	0.0	0.3	17.6	18.7
17	Menze Lalo Mider	North Shewa	87.5	79.2	3.8	9.1	1.0	2.6	7.7	9.1
18	Menze Mama Mider	North Shewa	87.5	79.2	3.8	9.1	1.0	2.6	7.7	9.1
19	Menze Oeya Gabriel	North Shewa	80.1	77.2	2.3	3.9	0.0	0.3	17.6	18.7
20	<b>Bugena</b>	<b>North Wello</b>	<b>69.2</b>	<b>49.7</b>	<b>16.8</b>	<b>26.2</b>	<b>7.9</b>	<b>12.8</b>	<b>6.2</b>	<b>11.3</b>
21	Dawunt	North Wello	34.2	33.5	21.0	22.9	20.7	14.4	24.1	29.3
22	Delanta	North Wello	34.2	33.5	21.0	22.9	20.7	14.4	24.1	29.3
23	<b>Gidan</b>	<b>North Wello</b>	<b>52.6</b>	<b>48.7</b>	<b>3.5</b>	<b>7.7</b>	<b>5.3</b>	<b>7.7</b>	<b>38.6</b>	<b>35.9</b>
24	Guba Lafto	North Wello	45.7	48.8	10.3	6.4	7.9	8.8	36.1	36.0
25	Habru	North Wello	58.7	57.7	16.5	16.3	17.7	18.3	7.2	7.7
26	<b>Kobo</b>	<b>North Wello</b>	<b>78.3</b>	<b>78.9</b>	<b>1.0</b>	<b>1.0</b>	<b>1.3</b>	<b>1.0</b>	<b>19.3</b>	<b>19.1</b>
27	Lasta	North Wello	69.2	49.7	16.8	26.2	7.9	12.8	6.2	11.3
28	Mekete	North Wello	54.3	53.1	12.1	11.3	7.2	7.3	26.5	28.3
29	Wadela	North Wello	66.5	67.0	15.3	14.5	11.6	11.3	6.6	7.2
30	Artuma Fursi	Oromiya	15.6	18.2	34.2	39.2	48.8	41.6	1.3	1.0
31	Bati	Oromiya	30.9	31.2	19.3	17.9	30.6	23.5	19.3	27.4
32	Dewa Chefa	Oromiya	66.3	65.5	3.1	3.1	1.7	1.4	28.9	29.9
33	Dewa Harewa	Oromiya	66.3	65.5	3.1	3.1	1.7	1.4	28.9	29.9
34	Jilena Timuga	Oromiya	1.3	1.8	52.7	51.8	11.5	11.0	34.5	35.3
35	<b>Ebinate</b>	<b>South Gonder</b>	<b>15.3</b>	<b>17.7</b>	<b>5.6</b>	<b>4.8</b>	<b>9.7</b>	<b>9.7</b>	<b>69.4</b>	<b>67.7</b>
36	Laye Gayint	South Gonder	76.7	74.0	10.7	14.0	1.0	0.0	11.7	12.0
37	Libo Kemkem	South Gonder	34.9	39.6	9.3	10.2	52.5	43.5	3.3	6.7
38	<b>Simada</b>	<b>South Gonder</b>	<b>60.5</b>	<b>53.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>39.5</b>	<b>46.4</b>
39	Tach Gayint	South Gonder	54.1	54.5	3.3	3.9	2.7	2.2	39.9	39.3
40	Alebuko	South Wello	87.1	78.3	4.3	7.2	2.9	4.3	5.7	10.1
41	Ambassel	South Wello	22.9	14.4	0.9	3.1	0.9	1.0	75.2	81.4
42	<b>Aregoba Special</b>	<b>South Wello</b>	<b>52.1</b>	<b>50.9</b>	<b>3.0</b>	<b>2.8</b>	<b>6.3</b>	<b>6.2</b>	<b>38.6</b>	<b>40.1</b>
43	Debre Sina	South Wello	82.4	83.2	2.0	0.7	0.7	0.7	14.9	15.4
44	Dessie Zuria	South Wello	43.4	65.5	8.9	14.8	6.3	15.8	41.4	3.9
45	Jamma	South Wello	45.9	46.7	1.1	0.5	1.1	1.1	51.9	51.6
46	Kalu	South Wello	52.1	50.9	3.0	2.8	6.3	6.2	38.6	40.1
47	Kelela	South Wello	47.2	46.5	21.3	19.1	19.2	20.4	12.3	14.0
48	Kuta Ber	South Wello	63.2	60.2	0.0	0.5	0.9	0.9	35.9	38.4
49	<b>Legambo</b>	<b>South Wello</b>	<b>49.0</b>	<b>58.5</b>	<b>16.7</b>	<b>9.9</b>	<b>16.3</b>	<b>9.4</b>	<b>18.1</b>	<b>22.3</b>
50	Legehida	South Wello	65.6	65.5	14.9	3.1	15.5	1.4	4.0	29.9
51	Mehal Sayint	South Wello	70.1	77.6	21.6	9.8	3.0	4.9	5.4	7.7
52	<b>Mekedela</b>	<b>South Wello</b>	<b>73.8</b>	<b>64.8</b>	<b>3.6</b>	<b>6.6</b>	<b>4.8</b>	<b>9.9</b>	<b>17.9</b>	<b>18.7</b>
53	Sayint	South Wello	70.1	77.6	21.6	9.8	3.0	4.9	5.4	7.7
54	Tehulederie	South Wello	25.0	24.4	5.6	6.3	17.8	17.0	51.7	52.3
55	Tenta	South Wello	64.4	66.8	1.8	1.5	1.1	0.7	32.7	31.0
56	Wogedi	South Wello	73.7	72.4	5.8	6.6	5.8	5.9	14.7	15.1
57	Wore Illu	South Wello	65.6	65.5	14.9	3.1	15.5	1.4	4.0	29.9
58	Worebabu	South Wello	49.0	31.3	4.8	38.1	31.7	19.7	14.4	10.9
59	Abergelie	Wag Himera	46.3	35.0	12.9	15.2	14.5	17.2	26.3	32.6
60	Dahena	Wag Himera	35.6	84.2	0.0	4.3	4.4	2.9	60.0	8.6
61	Gazgibela	Wag Himera	46.3	35.0	12.9	15.2	14.5	17.2	26.3	32.6
62	Sehala	Wag Himera	65.4	79.4	3.9	3.8	14.2	8.4	16.5	8.4
63	Seqota	Wag Himera	46.3	35.0	12.9	15.2	14.5	17.2	26.3	32.6
64	Zequala	Wag Himera	65.4	79.4	3.9	3.8	14.2	8.4	16.5	8.4
Average			57.2	55.7	9.9	10.7	9.6	8.7	23.3	24.9

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. XV Water Resources (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. XV Water Resources (2004), ANRS Bureau of Finance and Economic Development)

### 3. Forest Resources in the 64 Woredas

**Table 3.1 Tree Planting Practices on Private Land Holdings**

No	Woreda	Zone	Respondant (%)		Reasons for Not Planting Trees (%)					
			Engaged	Not Engaged	Inavailability of Seedlings	Shortage of Land	Low Survival Rate	Availability of Natural Forest	Tenure Insecurity	Lack of Interest
1	Enebe Sar Mider	East Gojam	40.7	59.3	17.3	48.8	21.8	5.7	5.2	1.2
2	Goncha Siso Enese	East Gojam	77.1	22.9	12.8	32.9	30.9	1.3	0.7	9.4
3	Shebele Berenta	East Gojam	46.3	53.7	6.4	29.9	52.9	1.3	9.6	0.0
4	Adarekaye	North Gonder	33.6	66.4	34.5	29.9	14.4	10.2	10.0	1.2
5	Beyeda	North Gonder	49.0	51.0	8.1	47.4	35.9	1.0	6.2	1.4
6	Dabal	North Gonder	53.6	46.4	31.0	37.4	13.4	4.3	9.6	2.5
7	Debark	North Gonder	61.3	38.7	29.8	22.5	14.2	26.6	0.0	3.2
8	East Belesa	North Gonder	15.9	84.1	25.5	43.8	17.1	2.1	9.1	2.3
9	Janamora	North Gonder	45.7	54.3	13.5	45.9	30.1	0.8	8.7	0.8
10	Telemt	North Gonder	33.6	66.4	34.5	29.9	14.4	10.2	10.0	1.2
11	West Belesa	North Gonder	20.9	79.1	13.8	47.9	22.2	3.1	12.1	0.9
12	Wogera	North Gonder	61.2	38.8	20.1	23.5	45.1	3.4	0.0	3.9
13	Angolelana Tera	North Shewa	59.8	40.2	6.8	62.4	24.8	0.0	0.0	5.1
14	Asagirt	North Shewa	39.5	60.5	10.3	30.8	50.6	3.2	1.3	3.8
15	Gishe Rabele	North Shewa	88.1	11.9	5.9	76.5	0.0	0.0	17.6	0.0
16	Menze Gera Mider	North Shewa	72.3	27.7	4.2	63.4	16.2	2.1	13.4	0.7
17	Menze Lalo Mider	North Shewa	52.5	47.5	4.1	81.7	11.0	0.4	2.8	0.0
18	Menze Mama Mider	North Shewa	52.5	47.5	4.1	81.7	11.0	0.4	2.8	0.0
19	Menze Qeya Gabriel	North Shewa	72.3	27.7	4.2	63.4	16.2	2.1	13.4	0.7
20	<b>Bugena</b>	<b>North Wello</b>	<b>44.1</b>	<b>55.9</b>	<b>8.5</b>	<b>42.2</b>	<b>33.4</b>	<b>1.2</b>	<b>12.0</b>	<b>2.7</b>
21	Dawunt	North Wello	61.6	38.4	3.1	67.4	23.3	1.4	4.5	0.3
22	Delanta	North Wello	61.6	38.4	3.1	67.4	23.3	1.4	4.5	0.3
23	<b>Gidan</b>	<b>North Wello</b>	<b>63.5</b>	<b>36.5</b>	<b>5.0</b>	<b>64.7</b>	<b>18.7</b>	<b>2.2</b>	<b>6.5</b>	<b>2.9</b>
24	Guba Lafto	North Wello	70.8	29.2	2.1	36.6	34.0	0.5	0.0	3.7
25	Habru	North Wello	59.9	40.1	2.5	44.3	14.4	4.5	0.5	27.4
26	<b>Kobo</b>	<b>North Wello</b>	<b>24.5</b>	<b>75.5</b>	<b>12.4</b>	<b>61.2</b>	<b>12.4</b>	<b>3.3</b>	<b>0.5</b>	<b>6.9</b>
27	Lasta	North Wello	44.1	55.9	8.5	42.2	33.4	1.2	12.0	2.7
28	Mekete	North Wello	51.0	49.0	1.6	40.8	41.8	1.3	0.3	3.5
29	Wadela	North Wello	73.5	26.5	4.3	76.3	11.5	0.7	7.2	0.0
30	Artuma Fursi	Oromiya	38.6	61.4	10.4	49.6	13.9	2.6	20.0	3.5
31	Bati	Oromiya	39.6	60.4	3.8	36.0	39.7	6.7	10.9	2.9
32	Dewa Chefa	Oromiya	55.7	44.3	15.6	44.4	27.4	0.7	0.0	5.2
33	Dewa Harewa	Oromiya	55.7	44.3	15.6	44.4	27.4	0.7	0.0	5.2
34	Jilena Timuga	Oromiya	35.5	64.5	17.3	35.8	34.7	0.6	11.0	0.6
35	<b>Ebinate</b>	<b>South Gonder</b>	<b>48.6</b>	<b>51.4</b>	<b>12.4</b>	<b>20.3</b>	<b>56.2</b>	<b>0.7</b>	<b>0.0</b>	<b>2.6</b>
36	Laye Gayint	South Gonder	66.0	34.0	7.6	40.8	31.2	0.6	0.0	5.1
37	Libo Kemkem	South Gonder	49.5	50.5	7.7	63.8	15.8	1.9	9.2	1.5
38	<b>Simada</b>	<b>South Gonder</b>	<b>48.7</b>	<b>51.3</b>	<b>2.5</b>	<b>36.9</b>	<b>41.1</b>	<b>0.6</b>	<b>0.3</b>	<b>2.9</b>
39	Tach Gayint	South Gonder	72.3	27.7	1.5	47.1	45.6	1.5	0.0	0.0
40	Alebuko	South Wello	66.3	33.7	8.0	68.2	8.0	8.0	6.8	1.1
41	Ambassel	South Wello	78.9	21.1	6.4	64.9	12.8	2.1	6.4	7.4
42	<b>Aregoba Special</b>	<b>South Wello</b>	<b>46.2</b>	<b>53.8</b>	<b>9.6</b>	<b>43.8</b>	<b>28.4</b>	<b>2.1</b>	<b>8.6</b>	<b>7.5</b>
43	Debre Sina	South Wello	69.8	30.2	20.1	50.3	11.8	0.0	0.0	6.5
44	Dessie Zuria	South Wello	82.3	17.7	9.6	63.7	4.4	3.0	2.2	4.4
45	Jamma	South Wello	64.1	35.9	9.4	26.8	44.1	0.0	3.1	4.7
46	Kalu	South Wello	46.2	53.8	9.6	43.8	28.4	2.1	8.6	7.5
47	Kelela	South Wello	47.3	52.7	10.5	55.4	26.0	3.9	3.9	0.3
48	Kuta Ber	South Wello	79.3	20.7	4.8	41.7	39.3	1.2	10.7	2.4
49	<b>Legambo</b>	<b>South Wello</b>	<b>66.3</b>	<b>33.7</b>	<b>8.0</b>	<b>71.4</b>	<b>8.9</b>	<b>1.4</b>	<b>0.5</b>	<b>3.8</b>
50	Leghida	South Wello	80.6	19.4	6.3	53.7	22.1	1.1	2.1	5.3
51	Mehal Sayint	South Wello	56.7	43.3	15.3	65.4	12.1	1.4	4.0	1.7
52	<b>Mekedela</b>	<b>South Wello</b>	<b>62.3</b>	<b>37.3</b>	<b>9.0</b>	<b>62.6</b>	<b>23.0</b>	<b>0.0</b>	<b>4.1</b>	<b>1.4</b>
53	Sayint	South Wello	56.7	43.3	15.3	65.4	12.1	1.4	4.0	1.7
54	Tehulederie	South Wello	69.8	30.2	1.0	42.3	42.3	0.0	0.0	3.1
55	Tenta	South Wello	61.7	38.3	7.2	63.4	11.7	0.0	10.9	6.8
56	Wogedi	South Wello	61.9	38.1	9.6	39.6	25.9	0.0	0.5	13.2
57	Wore Illu	South Wello	80.6	19.4	6.3	53.7	22.1	1.1	2.1	5.3
58	Worebabu	South Wello	42.3	57.7	20.1	34.9	32.1	3.8	6.7	2.4
59	Abergelle	Wag Himera	22.8	77.2	12.2	12.0	43.7	3.4	0.4	13.1
60	Dahena	Wag Himera	29.4	70.6	7.4	52.2	28.7	4.4	5.7	1.6
61	Gazgibela	Wag Himera	22.8	77.2	12.2	12.0	43.7	3.4	0.4	13.1
62	Sehala	Wag Himera	12.6	87.4	32.7	8.7	32.4	12.1	12.4	1.7
63	Seqola	Wag Himera	22.8	77.2	12.2	12.0	43.7	3.4	0.4	13.1
64	Zequala	Wag Himera	12.6	87.4	32.7	8.7	32.4	12.1	12.4	1.7
Average			52.9	47.1	11.4	46.5	26.0	2.9	5.5	3.9

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. V Natural Resources (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. V Natural Resources (2004), ANRS Bureau of Finance and Economic Development

Table 3.2 Main Leguminous Trees/Shrubs Species Planted by Households

No.	Woreda	Zone	Percentage by Species			
			<i>Sesbania sesban</i>	<i>Chamaecytisus proliferus</i> (Tree lucern)	<i>Cajajus cajan</i> (Pigeon pea)	Others
1	Enebse Sar Mider	East Gojam	74.2	6.7	0.0	19.1
2	Goncha Siso Enese	East Gojam	35.1	4.6	0.0	60.3
3	Shebele Berenta	East Gojam	83.3	0.0	0.0	16.7
4	Adarekaye	North Gonder	16.0	0.0	18.7	65.3
5	Beyeda	North Gonder	8.3	0.0	0.0	91.7
6	Dabat	North Gonder	28.6	21.4	0.0	50.0
7	Debark	North Gonder	0.0	0.0	0.0	100.0
8	East Belesa	North Gonder	55.6	0.0	0.0	44.4
9	Janamora	North Gonder	9.1	4.5	4.5	81.8
10	Telemt	North Gonder	16.0	0.0	18.7	65.3
11	West Belesa	North Gonder	50.0	0.0	0.0	50.0
12	Wogera	North Gonder	11.1	3.7	2.5	82.7
13	Angolelana Tera	North Shewa	0.0	12.5	12.5	75.0
14	Asagirt	North Shewa	10.0	10.0	0.0	80.0
15	Gishe Rabele	North Shewa	0.0	66.7	33.3	0.0
16	Menze Gera Mider	North Shewa	2.9	17.6	0.0	79.4
17	Menze Lalo Mider	North Shewa	26.7	46.7	0.0	26.7
18	Menze Mama Mider	North Shewa	26.7	46.7	0.0	26.7
19	Menze Oeya Gebriel	North Shewa	2.9	17.6	0.0	79.4
20	Bugena	North Wello	5.6	11.1	16.7	66.7
21	Dawunt	North Wello	25.0	8.3	20.8	45.8
22	Delanta	North Wello	25.0	8.3	20.8	45.8
23	Gidan	North Wello	25.0	12.5	0.0	62.5
24	Guba Lafto	North Wello	19.4	2.8	72.2	5.6
25	Habru	North Wello	9.0	3.0	25.4	62.7
26	Kobo	North Wello	4.9	2.4	12.2	80.5
27	Lasta	North Wello	5.6	11.1	16.7	66.7
28	Mekete	North Wello	0.0	2.3	0.0	97.7
29	Wadela	North Wello	4.4	84.4	2.2	8.9
30	Artuma Fursi	Oromiya	51.6	3.2	6.5	38.7
31	Bati	Oromiya	5.7	1.9	62.3	30.2
32	Dewa Chefa	Oromiya	10.0	0.0	5.0	85.0
33	Dewa Harewa	Oromiya	10.0	0.0	5.0	85.0
34	Jilena Timuga	Oromiya	11.1	0.0	11.1	77.8
35	Ebinate	South Gonder	41.0	12.8	0.0	46.2
36	Laye Gayint	South Gonder	6.3	18.8	25.0	50.0
37	Libo Kemkem	South Gonder	26.7	0.0	0.0	73.3
38	Simada	South Gonder	64.7	0.0	0.0	35.3
39	Tach Gayint	South Gonder	35.7	7.1	42.9	14.3
40	Alebuko	South Wello	20.0	20.0	40.0	20.0
41	Ambassel	South Wello	35.2	6.6	53.8	4.4
42	Aregoba Special	South Wello	26.1	4.3	56.5	13.0
43	Debre Sina	South Wello	45.5	18.2	0.0	36.4
44	Dessie Zuria	South Wello	6.7	0.0	20.0	73.3
45	Jamma	South Wello	50.0	0.0	0.0	50.0
46	Kalu	South Wello	26.1	4.3	56.5	13.0
47	Kelela	South Wello	87.5	0.0	3.1	9.4
48	Kuta Ber	South Wello	60.6	9.1	27.3	3.0
49	Legambo	South Wello	43.6	28.7	22.8	5.0
50	Legehida	South Wello	21.7	47.8	17.4	13.0
51	Mehal Sayint	South Wello	25.0	62.5	4.2	8.3
52	Mekedela	South Wello	28.6	57.1	0.0	14.3
53	Sayint	South Wello	25.0	62.5	4.2	8.3
54	Tehulederie	South Wello	66.7	16.7	0.0	16.7
55	Tenta	South Wello	5.9	41.2	17.6	35.3
56	Wogedi	South Wello	74.3	0.0	0.0	25.7
57	Wore Illu	South Wello	21.7	47.8	17.4	13.0
58	Worebabu	South Wello	30.0	0.0	40.0	30.0
59	Abergelie	Wag Himera	76.6	1.5	2.2	19.7
60	Dahena	Wag Himera	85.7	0.0	0.0	14.3
61	Gazgibela	Wag Himera	76.6	1.5	2.2	19.7
62	Sehala	Wag Himera	30.0	60.0	0.0	10.0
63	Seqota	Wag Himera	76.6	1.5	2.2	19.7
64	Zequala	Wag Himera	30.0	60.0	0.0	10.0
	Average		30.0	15.6	12.8	41.5

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. V Natural Resources (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. V Natural Resources (2004), ANRS Bureau of Finance and Economic Development

**Table 3.3 Household's Average Number of Trees by Species/Categories**

No	Woreda/ACZ	Zone	Average Number of Trees by Species/Categories (%)		
			Eucalyptus	Exotic	Indigenous
1	Enebse Sar Mider	East Gojam	68.3	14.9	16.8
2	Goncha Siso Enese	East Gojam	90.2	4.6	5.2
3	Shebele Berenta	East Gojam	85.5	9.3	5.2
4	Adarekaye	North Gonder	22.7	26.1	51.2
5	Beyeda	North Gonder	89.3	9.2	1.5
6	Dabat	North Gonder	89.3	6.9	3.8
7	Debark	North Gonder	84.7	0.3	14.9
8	East Belesa	North Gonder	40.3	26.6	33.1
9	Janamora	North Gonder	79.9	10.7	9.5
10	Telemt	North Gonder	22.7	26.1	51.2
11	West Belesa	North Gonder	57.5	21.6	20.9
12	Wogera	North Gonder	89.8	5.0	5.2
13	Angolelana Tera	North Shewa	99.9	0.0	0.1
14	Asagirt	North Shewa	89.2	5.5	5.3
15	Gishe Rabele	North Shewa	98.8	1.1	0.1
16	Menze Gera Mider	North Shewa	97.3	1.8	1.0
17	Menze Lalo Mider	North Shewa	96.3	2.5	1.2
18	Menze Mama Mider	North Shewa	96.3	2.5	1.2
19	Menze Oeya Gebriel	North Shewa	97.3	1.8	1.0
20	<b>Bugena</b>	<b>North Wello</b>	<b>83.5</b>	<b>8.2</b>	<b>8.3</b>
21	Dawunt	North Wello	93.1	4.7	2.2
22	Delanta	North Wello	93.1	4.7	2.2
23	<b>Gidan</b>	<b>North Wello</b>	<b>89.4</b>	<b>5.1</b>	<b>5.4</b>
24	Guba Lafto	North Wello	93.0	2.0	5.0
25	Habru	North Wello	78.0	3.0	19.0
26	<b>Kobo</b>	<b>North Wello</b>	<b>88.5</b>	<b>1.3</b>	<b>10.2</b>
27	Lasta	North Wello	83.5	8.2	8.3
28	Mekete	North Wello	96.5	0.9	2.6
29	Wadela	North Wello	98.0	1.4	0.5
30	Artuma Fursi	Oromiya	77.9	17.1	5.0
31	Bati	Oromiya	69.2	10.6	20.2
32	Dewa Chefa	Oromiya	93.7	1.9	4.3
33	Dewa Harewa	Oromiya	93.7	1.9	4.3
34	Jilena Timuga	Oromiya	70.8	21.5	7.7
35	<b>Ebinate</b>	<b>South Gonder</b>	<b>74.0</b>	<b>2.6</b>	<b>23.4</b>
36	Laye Gayint	South Gonder	94.6	2.1	3.3
37	Libo Kemkem	South Gonder	88.3	4.4	7.3
38	<b>Simada</b>	<b>South Gonder</b>	<b>85.2</b>	<b>4.9</b>	<b>9.9</b>
39	Tach Gayint	South Gonder	93.6	4.6	1.8
40	Alebuko	South Wello	94.4	1.6	4.0
41	Ambassel	South Wello	94.1	3.4	2.5
42	<b>Aregoba Special</b>	<b>South Wello</b>	<b>80.3</b>	<b>10.1</b>	<b>9.6</b>
43	Debre Sina	South Wello	92.2	2.7	5.1
44	Dessie Zuria	South Wello	90.5	6.8	2.7
45	Jamma	South Wello	92.7	5.7	1.6
46	Kalu	South Wello	80.3	10.1	9.6
47	Kelela	South Wello	88.1	5.0	6.9
48	Kuta Ber	South Wello	94.6	3.3	2.0
49	<b>Legambo</b>	<b>South Wello</b>	<b>99.0</b>	<b>0.3</b>	<b>0.7</b>
50	Leghida	South Wello	99.7	0.3	0.0
51	Mehal Sayint	South Wello	94.1	2.3	3.6
52	<b>Mekedela</b>	<b>South Wello</b>	<b>96.3</b>	<b>2.2</b>	<b>1.5</b>
53	Sayint	South Wello	94.1	2.3	3.6
54	Tehulederie	South Wello	97.6	1.2	1.3
55	Tenta	South Wello	98.1	0.9	1.0
56	Wogedi	South Wello	87.6	6.9	5.5
57	Wore Illu	South Wello	99.7	0.3	0.0
58	Worebabu	South Wello	82.3	10.4	7.3
59	Abergelie	Wag Himera	56.4	6.1	37.5
60	Dahena	Wag Himera	92.1	3.6	4.3
61	Gazgibela	Wag Himera	56.4	6.1	37.5
62	Sehala	Wag Himera	23.4	40.9	35.7
63	Seqota	Wag Himera	56.4	6.1	37.5
64	Zequala	Wag Himera	23.4	40.9	35.7
	Average		82.8	7.3	9.9

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. V Natural Resources (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. V Natural Resources (2004), ANRS Bureau of Finance and Economic Development

**Table 3.4 Household's Plantation Sites**

No.	Woreda	Zone	Homestead	Farm Boundary	In Farm Land	Shared Degraded Land	Private Own Grazing land
1	Enebe Sar Mider	East Gojam	80.2	14.8	3.4	1.3	0.3
2	Goncha Siso Enese	East Gojam	39.3	53.7	3.7	2.8	0.6
3	Shebele Berenta	East Gojam	89.5	8.1	1.7	0.6	0.0
4	Adarekaye	North Gonder	63.2	33.2	3.6	0.0	0.0
5	Beyeda	North Gonder	65.1	20.9	4.3	6.8	3.0
6	Dabat	North Gonder	94.2	4.6	0.3	0.3	0.6
7	Debark	North Gonder	84.8	2.3	11.8	0.8	0.5
8	East Belesa	North Gonder	37.6	15.3	9.4	30.6	7.1
9	Janamora	North Gonder	75.7	19.9	0.3	3.0	1.2
10	Telemt	North Gonder	63.2	33.2	3.6	0.0	0.0
11	West Belesa	North Gonder	54.0	30.2	4.8	9.5	1.6
12	Wogera	North Gonder	87.6	9.1	2.0	0.9	0.4
13	Angolelana Tera	North Shewa	81.3	9.4	1.3	6.3	1.8
14	Asagirt	North Shewa	70.5	9.8	2.7	11.6	5.4
15	Gishe Rabele	North Shewa	36.5	43.7	0.6	3.6	15.6
16	Menze Gera Mider	North Shewa	58.6	27.0	0.6	3.4	10.4
17	Menze Lalo Mider	North Shewa	90.6	6.3	0.0	1.4	1.7
18	Menze Mama Mider	North Shewa	90.6	6.3	0.0	1.4	1.7
19	Menze Qeya Gebriel	North Shewa	58.6	27.0	0.6	3.4	10.4
20	Bugena	North Wello	82.5	7.0	0.8	7.0	2.8
21	Dawunt	North Wello	94.3	2.6	0.5	0.7	1.8
22	Delanta	North Wello	94.3	2.6	0.5	0.7	1.8
23	Gidan	North Wello	60.5	15.5	0.6	11.2	12.2
24	Guba Lafto	North Wello	71.6	5.0	0.2	8.3	14.9
25	Habru	North Wello	88.4	5.3	1.0	2.8	2.5
26	Kobo	North Wello	91.8	6.1	0.3	1.9	0.0
27	Lasta	North Wello	82.5	7.0	0.8	7.0	2.8
28	Mekete	North Wello	63.0	23.1	1.0	12.5	0.4
29	Wadela	North Wello	86.0	8.1	0.4	4.0	1.5
30	Artuma Fursi	Oromiya	78.3	12.4	3.9	5.4	0.0
31	Bati	Oromiya	59.4	29.0	3.4	3.9	4.3
32	Dewa Chefa	Oromiya	87.0	9.2	1.0	1.0	1.7
33	Dewa Harewa	Oromiya	87.0	9.2	1.0	1.0	1.7
34	Jilena Timuga	Oromiya	77.4	16.1	2.4	3.2	0.8
35	Ebinate	South Gonder	75.8	20.9	0.6	2.7	0.0
36	Laye Gayint	South Gonder	77.3	17.6	0.3	2.4	2.4
37	Libo Kemkem	South Gonder	75.5	19.8	0.9	3.1	0.6
38	Simada	South Gonder	77.5	17.7	0.8	1.4	2.5
39	Tach Gayint	South Gonder	97.4	1.3	0.9	0.4	0.0
40	Alebuko	South Wello	55.6	23.9	0.8	11.1	8.6
41	Ambassel	South Wello	52.1	25.2	2.0	16.0	4.7
42	Aregoba Special	South Wello	64.7	19.6	3.6	8.8	3.3
43	Debre Sina	South Wello	97.6	1.0	0.3	0.5	0.5
44	Dessie Zuria	South Wello	49.6	4.2	1.0	37.9	7.3
45	Jamma	South Wello	85.7	14.0	0.3	0.0	0.0
46	Kalu	South Wello	64.7	19.6	3.6	8.8	3.3
47	Kelela	South Wello	93.8	2.2	0.2	2.2	1.5
48	Kuta Ber	South Wello	44.7	6.0	1.1	12.6	35.6
49	Legambo	South Wello	87.9	4.5	0.8	2.8	4.0
50	Legehida	South Wello	91.6	7.1	0.0	0.6	0.8
51	Mehal Sayint	South Wello	79.8	12.7	0.0	5.4	2.1
52	Mekedela	South Wello	81.9	6.3	0.7	5.6	5.6
53	Sayint	South Wello	79.8	12.7	0.0	5.4	2.1
54	Tehulederie	South Wello	73.9	5.2	2.1	18.1	0.6
55	Tenta	South Wello	83.2	5.5	0.2	6.4	4.7
56	Wogedi	South Wello	96.7	1.7	0.4	1.1	0.0
57	Wore Illu	South Wello	91.6	7.1	0.0	0.6	0.8
58	Worebabu	South Wello	55.8	30.5	2.5	4.1	7.1
59	Abergelie	Wag Himera	46.4	30.4	2.3	20.7	0.2
60	Dahena	Wag Himera	85.2	6.0	0.0	6.5	2.3
61	Gazgibela	Wag Himera	46.4	30.4	2.3	20.7	0.2
62	Sehala	Wag Himera	71.7	5.7	0.0	22.6	0.0
63	Seqota	Wag Himera	46.4	30.4	2.3	20.7	0.2
64	Zequala	Wag Himera	71.7	5.7	0.0	22.6	0.0
Average			73.9	14.5	1.6	6.7	3.3

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. V Natural Resources (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. V Natural Resources (2004), ANRS Bureau of Finance and Economic Development



**Table 3.5 Purpose of Planting Trees on Private Land Holdings**

No.	Woreda/Age	Zone	Fuel Wood	Construction Wood	Income Generation	Soil Conservation	Others
1	Enebse Sar Mider	East Gojam	29.4	61.5	1.0	6.4	1.7
2	Goncha Siso Enese	East Gojam	17.3	59.2	0.7	16.0	6.9
3	Shebele Berenta	East Gojam	10.7	67.9	19.0	1.8	0.6
4	Adarekaye	North Gonder	11.1	72.8	4.5	7.3	4.2
5	Beyeda	North Gonder	17.7	78.5	1.0	1.7	1.0
6	Dabat	North Gonder	19.5	70.7	6.9	0.3	2.7
7	Debark	North Gonder	3.6	52.9	3.8	0.7	39.0
8	East Belesa	North Gonder	3.2	66.0	14.9	6.4	9.6
9	Janamora	North Gonder	20.1	66.5	4.7	1.2	7.6
10	Telemt	North Gonder	11.1	72.8	4.5	7.3	4.2
11	West Belesa	North Gonder	4.8	81.3	9.0	0.6	4.2
12	Wogera	North Gonder	20.3	68.0	10.7	0.6	0.4
13	Angolelana Tera	North Shewa	9.1	82.2	5.8	1.2	1.7
14	Asagirt	North Shewa	3.8	89.6	0.9	2.8	2.8
15	Gishe Rabele	North Shewa	16.4	72.7	7.3	2.4	1.2
16	Menze Gera Mider	North Shewa	18.8	75.0	5.1	0.7	0.5
17	Menze Lalo Mider	North Shewa	11.2	77.6	2.1	1.0	8.0
18	Menze Mama Mider	North Shewa	11.2	77.6	2.1	1.0	8.0
19	Menze Qeya Gebriel	North Shewa	18.8	75.0	5.1	0.7	0.5
20	<b>Bugena</b>	<b>North Wello</b>	<b>6.8</b>	<b>80.8</b>	<b>7.4</b>	<b>2.5</b>	<b>2.5</b>
21	Dawunt	North Wello	15.3	67.7	2.6	0.7	13.6
22	Delanta	North Wello	15.3	67.7	2.6	0.7	13.6
23	<b>Gidan</b>	<b>North Wello</b>	<b>28.9</b>	<b>61.2</b>	<b>5.5</b>	<b>0.6</b>	<b>3.8</b>
24	Guba Lafto	North Wello	26.1	44.4	22.9	2.8	3.8
25	Habru	North Wello	16.0	59.5	21.1	2.5	0.9
26	<b>Kobo</b>	<b>North Wello</b>	<b>6.4</b>	<b>53.9</b>	<b>37.0</b>	<b>1.1</b>	<b>1.6</b>
27	Lasta	North Wello	6.8	80.8	7.4	2.5	2.5
28	Mekete	North Wello	14.6	69.1	7.8	3.7	4.7
29	Wadela	North Wello	14.7	66.5	14.7	1.1	3.0
30	Artuma Fursi	Oromiya	5.8	76.9	13.2	0.8	3.3
31	Bati	Oromiya	5.5	87.2	4.6	1.4	1.4
32	Dewa Chefa	Oromiya	13.2	58.7	22.8	3.2	2.1
33	Dewa Harewa	Oromiya	13.2	58.7	22.8	3.2	2.1
34	Jilena Timuga	Oromiya	1.6	92.2	3.1	2.3	0.8
35	<b>Ebinate</b>	<b>South Gonder</b>	<b>3.0</b>	<b>87.2</b>	<b>4.9</b>	<b>2.2</b>	<b>2.8</b>
36	Laye Gayint	South Gonder	7.8	67.9	3.3	2.4	18.6
37	Libo Kemkem	South Gonder	14.1	82.0	1.8	0.6	1.5
38	<b>Simada</b>	<b>South Gonder</b>	<b>7.4</b>	<b>81.1</b>	<b>0.8</b>	<b>2.9</b>	<b>7.7</b>
39	Tach Gayint	South Gonder	10.4	86.4	2.7	0.5	0.0
40	Alebuko	South Wello	38.4	56.5	1.3	0.4	3.4
41	Ambassel	South Wello	28.6	63.6	0.9	2.3	4.5
42	<b>Aregoba Special</b>	<b>South Wello</b>	<b>9.6</b>	<b>64.9</b>	<b>21.9</b>	<b>3.3</b>	<b>0.3</b>
43	Debre Sina	South Wello	46.7	48.3	0.6	0.6	3.9
44	Dessie Zuria	South Wello	14.6	59.5	24.1	1.0	0.7
45	Jamma	South Wello	23.5	60.8	3.3	1.0	11.4
46	Kalu	South Wello	9.6	64.9	21.9	3.3	0.3
47	Kelela	South Wello	2.2	89.7	6.5	0.5	1.1
48	Kuta Ber	South Wello	22.1	59.7	13.7	4.2	0.3
49	<b>Legambo</b>	<b>South Wello</b>	<b>16.9</b>	<b>43.5</b>	<b>16.5</b>	<b>1.3</b>	<b>21.9</b>
50	Legehida	South Wello	12.2	76.3	9.8	0.4	1.4
51	Mehal Sayint	South Wello	51.6	45.5	1.7	1.2	0.0
52	<b>Mekedela</b>	<b>South Wello</b>	<b>10.1</b>	<b>77.4</b>	<b>1.6</b>	<b>2.7</b>	<b>8.2</b>
53	Sayint	South Wello	51.6	45.5	1.7	1.2	0.0
54	Tehulederie	South Wello	13.9	69.9	14.6	1.3	0.3
55	Tenta	South Wello	11.8	70.7	3.5	4.6	9.4
56	Wogedi	South Wello	14.3	83.1	1.1	0.7	0.9
57	Wore Illu	South Wello	12.2	76.3	9.8	0.4	1.4
58	Worebabu	South Wello	20.4	69.7	4.3	1.9	3.8
59	Abergelie	Wag Himera	1.8	77.8	11.3	4.0	5.3
60	Dahena	Wag Himera	7.3	82.4	9.8	0.0	0.5
61	Gazgibela	Wag Himera	1.8	77.8	11.3	4.0	5.3
62	Sehala	Wag Himera	1.5	62.7	10.4	20.9	4.5
63	Seqota	Wag Himera	1.8	77.8	11.3	4.0	5.3
64	Zequala	Wag Himera	1.5	62.7	10.4	20.9	4.5
Average			14.3	69.8	8.5	2.9	4.6

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. V Natural Resources (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. V Natural Resources (2004), ANRS Bureau of Finance and Economic Development

**Table 3.6 Source of Tree Seedlings for Households**

No.	Woreda	Zone	Own Nursery	Free from NGO Nursery	Purchased from Private Nursery	Free from Gov't Nursery	Purchased from Gov't/NGO Nursery	Naturally Raised
1	Enebse Sar Mider	East Gojam	21.4	3.9	22.8	44.9	1.1	6.0
2	Goncha Siso Enese	East Gojam	59.2	2.2	6.5	12.3	0.4	19.4
3	Shebele Berenta	East Gojam	26.8	1.8	43.5	14.3	7.7	6.0
4	Adarekaye	North Gonder	12.4	0.4	4.0	61.0	2.4	19.9
5	Beyeda	North Gonder	65.1	1.3	10.8	16.4	0.0	6.5
6	Dabat	North Gonder	34.8	1.5	3.4	18.3	33.2	8.8
7	Debark	North Gonder	51.5	1.2	10.0	6.4	2.7	28.2
8	East Belesa	North Gonder	16.7	6.7	1.1	63.3	2.2	10.0
9	Janamora	North Gonder	44.0	0.9	10.5	43.4	0.6	0.6
10	Telemt	North Gonder	12.4	0.4	4.0	61.0	2.4	19.9
11	West Belesa	North Gonder	26.7	11.7	10.8	45.0	0.8	5.0
12	Wogera	North Gonder	43.9	0.4	11.1	9.8	3.1	31.7
13	Angolelana Tera	North Shewa	21.6	1.2	75.6	0.4	0.4	0.8
14	Asagirt	North Shewa	12.1	9.3	46.7	23.4	3.7	4.7
15	Gishe Rabele	North Shewa	4.9	1.2	4.3	89.5	0.0	0.0
16	Menze Gera Mider	North Shewa	12.4	6.1	17.6	49.5	14.2	0.2
17	Menze Lalo Mider	North Shewa	5.9	1.7	10.5	11.8	70.0	0.0
18	Menze Mama Mider	North Shewa	5.9	1.7	10.5	11.8	70.0	0.0
19	Menze Qeya Gebriel	North Shewa	12.4	6.1	17.6	49.5	14.2	0.2
20	Bugena	North Wello	30.4	1.1	6.6	16.3	43.3	2.3
21	Dawunt	North Wello	24.2	1.5	6.1	63.5	4.3	0.4
22	Delanta	North Wello	24.2	1.5	6.1	63.5	4.3	0.4
23	Gidan	North Wello	59.9	0.9	14.4	7.5	17.1	0.3
24	Guba Lafto	North Wello	9.0	1.3	23.4	45.2	19.1	2.1
25	Habru	North Wello	11.2	2.8	18.1	53.0	0.4	14.4
26	Kobo	North Wello	12.3	0.5	13.3	61.6	3.1	9.2
27	Lasta	North Wello	30.4	1.1	6.6	16.3	43.3	2.3
28	Mekete	North Wello	24.9	5.0	8.1	23.6	23.9	14.4
29	Wadela	North Wello	31.2	0.9	13.7	10.3	44.0	0.0
30	Artuma Fursi	Oromiya	16.0	0.0	16.0	65.6	0.0	2.3
31	Bati	Oromiya	7.5	0.5	2.0	87.5	0.0	2.5
32	Dewa Chefa	Oromiya	23.8	9.0	17.6	23.8	24.1	1.7
33	Dewa Harewa	Oromiya	23.8	9.0	17.6	23.8	24.1	1.7
34	Jilena Timuga	Oromiya	1.7	3.4	11.9	61.0	22.0	0.0
35	Ebinate	South Gonder	23.3	0.6	7.4	33.3	7.4	28.1
36	Laye Gayint	South Gonder	39.0	13.4	9.3	9.3	25.3	3.8
37	Libo Kemkem	South Gonder	65.3	1.0	4.1	11.5	14.0	4.1
38	Simada	South Gonder	46.4	10.7	2.9	30.0	3.5	6.6
39	Tach Gayint	South Gonder	49.6	3.5	6.6	30.1	8.0	2.2
40	Alebuko	South Wello	47.7	0.4	25.3	26.1	0.4	0.0
41	Ambassel	South Wello	29.6	1.6	3.6	63.6	1.4	0.2
42	Aregoba Special	South Wello	15.8	0.3	10.4	71.4	1.7	0.3
43	Debre Sina	South Wello	16.3	1.4	66.4	5.7	2.7	7.5
44	Dessie Zuria	South Wello	47.6	0.3	41.3	3.8	1.9	5.2
45	Jamma	South Wello	16.1	0.3	28.6	2.3	47.3	5.5
46	Kalu	South Wello	15.8	0.3	10.4	71.4	1.7	0.3
47	Kelela	South Wello	32.9	2.7	24.9	13.0	25.4	1.0
48	Kuta Ber	South Wello	14.6	23.1	19.6	4.7	37.7	0.3
49	Legambo	South Wello	40.0	4.6	44.4	9.6	0.6	0.6
50	Legehida	South Wello	29.7	1.2	37.3	31.7	0.2	0.0
51	Mehal Sayint	South Wello	42.1	1.8	29.8	25.4	0.4	0.5
52	Mekedela	South Wello	61.3	0.7	27.7	3.2	5.8	1.2
53	Sayint	South Wello	42.1	1.8	29.8	25.4	0.4	0.5
54	Tehulederie	South Wello	26.1	0.0	4.9	67.8	0.0	1.1
55	Tenta	South Wello	44.6	8.6	14.2	23.4	9.2	0.0
56	Wogedi	South Wello	11.4	0.4	44.9	16.7	8.6	17.9
57	Wore Illu	South Wello	29.7	1.2	37.3	31.7	0.2	0.0
58	Worebabu	South Wello	36.1	2.6	27.3	7.2	26.3	0.5
59	Abergelle	Wag Himera	1.6	0.7	8.1	38.3	1.9	49.4
60	Dahena	Wag Himera	23.5	1.8	6.9	64.5	1.8	1.4
61	Gazgibela	Wag Himera	1.6	0.7	8.1	38.3	1.9	49.4
62	Sehala	Wag Himera	0.0	1.8	1.8	81.8	0.0	14.5
63	Seqota	Wag Himera	1.6	0.7	8.1	38.3	1.9	49.4
64	Zequala	Wag Himera	0.0	1.8	1.8	81.8	0.0	14.5
Average			26.1	2.9	17.1	34.6	11.6	7.6

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. V Natural Resources (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. V Natural Resources (2004), ANRS Bureau of Finance and Economic Development

**Table 3.7 Households on Sales of Wood and Charcoal**

No	Woreda/ACZ	Zone	Response (%)		Source of wood (%)			
			Sale	Do not Sale	Private woodlot	State Forest	Communal Woodland	Purchasing from Private Woodlot
1	Enebse Sar Mider	East Gojam	5.0	95.0	31.4	31.4	34.3	2.9
2	Goncha Siso Enese	East Gojam	5.6	94.4	66.7	21.2	9.1	0.0
3	Shebele Berenta	East Gojam	5.0	95.0	13.3	20.0	60.0	6.7
4	Adarekaye	North Gonder	2.4	97.6	20.0	30.0	50.0	0.0
5	Beyeda	North Gonder	8.6	91.4	80.0	6.7	13.3	0.0
6	Dabat	North Gonder	17.7	82.3	80.7	6.4	10.1	2.8
7	Debark	North Gonder	16.9	83.1	82.3	4.2	3.1	2.1
8	East Belesa	North Gonder	6.1	93.9	3.1	21.9	50.0	25.0
9	Janamora	North Gonder	0.9	99.1	55.6	11.1	0.0	0.0
10	Telemt	North Gonder	2.4	97.6	20.0	30.0	50.0	0.0
11	West Belesa	North Gonder	5.7	94.3	34.4	6.3	59.4	0.0
12	Wogera	North Gonder	13.1	86.9	40.8	25.4	8.5	25.4
13	Angolelana Tera	North Shewa	3.3	96.7	55.6	0.0	0.0	44.4
14	Asagirt	North Shewa	5.1	94.9	53.8	30.8	15.4	0.0
15	Gishe Rabele	North Shewa	11.4	88.6	90.0	10.0	0.0	0.0
16	Menze Gera Mider	North Shewa	8.4	91.6	78.0	4.9	9.8	7.3
17	Menze Lalo Mider	North Shewa	2.2	97.8	30.0	40.0	30.0	0.0
18	Menze Mama Mider	North Shewa	2.2	97.8	30.0	40.0	30.0	0.0
19	Menze Qeya Gebriel	North Shewa	8.4	91.6	78.0	4.9	9.8	7.3
20	<b>Bugena</b>	<b>North Wello</b>	<b>7.1</b>	<b>92.9</b>	<b>65.8</b>	<b>7.9</b>	<b>26.3</b>	<b>0.0</b>
21	Dawunt	North Wello	5.6	94.4	51.2	11.6	34.9	2.3
22	Delanta	North Wello	5.6	94.4	51.2	11.6	34.9	2.3
23	<b>Gidan</b>	<b>North Wello</b>	<b>6.3</b>	<b>93.7</b>	<b>83.3</b>	<b>6.7</b>	<b>3.3</b>	<b>6.7</b>
24	Guba Lafto	North Wello	14.2	85.8	83.7	4.3	0.0	2.2
25	Habru	North Wello	7.9	92.1	76.1	10.9	6.5	2.2
26	<b>Kobo</b>	<b>North Wello</b>	<b>2.7</b>	<b>97.3</b>	<b>6.7</b>	<b>80.0</b>	<b>13.3</b>	<b>0.0</b>
27	Lasta	North Wello	7.1	92.9	65.8	7.9	26.3	0.0
28	Mekete	North Wello	10.1	89.9	93.8	1.6	1.6	3.1
29	Wadela	North Wello	12.0	88.0	93.0	0.0	1.4	5.6
30	Artuma Fursi	Oromiya	15.2	84.8	21.3	48.9	29.8	0.0
31	Bati	Oromiya	21.7	78.3	17.3	29.8	51.9	1.0
32	Dewa Chefa	Oromiya	4.1	95.9	31.3	37.5	31.3	0.0
33	Dewa Harewa	Oromiya	4.1	95.9	31.3	37.5	31.3	0.0
34	Jilena Timuga	Oromiya	25.3	74.7	1.2	7.1	91.8	0.0
35	<b>Ebinate</b>	<b>South Gonder</b>	<b>3.9</b>	<b>96.1</b>	<b>40.7</b>	<b>33.3</b>	<b>22.2</b>	<b>0.0</b>
36	Laye Gayint	South Gonder	10.2	89.8	84.4	2.2	13.3	0.0
37	Libo Kemkem	South Gonder	6.5	93.5	44.8	6.9	34.5	13.8
38	<b>Simada</b>	<b>South Gonder</b>	<b>2.1</b>	<b>97.9</b>	<b>27.3</b>	<b>0.0</b>	<b>36.4</b>	<b>0.0</b>
39	Tach Gayint	South Gonder	3.7	96.3	81.8	9.1	0.0	0.0
40	Alebuko	South Wello	4.0	96.0	84.6	0.0	15.4	0.0
41	Ambassel	South Wello	3.6	96.4	58.8	17.6	5.9	17.6
42	<b>Aregoba Special</b>	<b>South Wello</b>	<b>8.3</b>	<b>91.7</b>	<b>71.2</b>	<b>15.4</b>	<b>9.6</b>	<b>3.8</b>
43	Debre Sina	South Wello	6.8	93.2	97.8	0.0	0.0	2.2
44	Dessie Zuria	South Wello	38.6	61.4	90.7	0.3	0.3	8.6
45	Jamma	South Wello	5.1	94.9	53.3	46.7	0.0	0.0
46	Kalu	South Wello	8.3	91.7	71.2	15.4	9.6	3.8
47	Kelela	South Wello	6.3	93.7	30.9	23.6	43.6	1.8
48	Kuta Ber	South Wello	11.9	88.1	94.1	0.0	3.9	2.0
49	<b>Legambo</b>	<b>South Wello</b>	<b>11.7</b>	<b>88.3</b>	<b>92.0</b>	<b>4.0</b>	<b>0.0</b>	<b>2.7</b>
50	Legehida	South Wello	4.9	3.5	84.0	8.0	0.0	8.0
51	Mehal Sayint	South Wello	4.7	95.3	75.6	14.6	4.9	4.9
52	<b>Mekedela</b>	<b>South Wello</b>	<b>2.4</b>	<b>97.6</b>	<b>78.6</b>	<b>7.1</b>	<b>7.1</b>	<b>7.1</b>
53	Sayint	South Wello	4.7	95.3	75.6	14.6	4.9	4.9
54	Tehulederie	South Wello	9.8	90.2	88.9	2.8	0.0	8.3
55	Tenta	South Wello	4.6	95.4	73.1	3.8	19.2	3.8
56	Wogedi	South Wello	4.4	95.6	30.8	15.4	53.8	0.0
57	Wore Illu	South Wello	4.9	3.5	84.0	8.0	0.0	8.0
58	Worebabu	South Wello	2.5	97.5	40.0	0.0	50.0	10.0
59	Abergelie	Wag Himera	4.7	95.3	10.2	42.9	22.4	2.0
60	Dahena	Wag Himera	6.7	93.3	47.6	14.3	35.7	2.4
61	Gazgibela	Wag Himera	4.7	95.3	10.2	42.9	22.4	2.0
62	Sehala	Wag Himera	2.3	97.7	12.5	0.0	50.0	37.5
63	Seqota	Wag Himera	4.7	95.3	10.2	42.9	22.4	2.0
64	Zequala	Wag Himera	2.3	97.7	12.5	0.0	50.0	37.5
Average			7.5	89.7	54.3	16.3	21.3	5.4

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. V Natural Resources (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. V Natural Resources (2004), ANRS Bureau of Finance and Economic Development

**Table 3.8 Percentage of Various Tree Seedlings Planted for the Last Five Years**

No	Woreda	Zone	Types of Tree Species Planted				
			Eucalyptus	Acacia	Ornamental Trees	Fodder Trees	Indigenous
1	Enebse Sar Mider	East Gojam	96.2	1.1	0.5	0.6	1.7
2	Goncha Siso Enese	East Gojam	13.7	49.9	0.0	33.8	2.6
3	Shebele Berenta	East Gojam	56.6	8.6	31.5	3.3	0.0
4	Adarekaye	North Gonder	69.2	0.0	23.4	7.0	0.4
5	Beyeda	North Gonder	99.7	0.0	0.3	0.0	0.0
6	Dabat	North Gonder	0.0	0.0	0.0	0.0	0.0
7	Debark	North Gonder	100.0	0.0	0.0	0.0	0.0
8	East Belesa	North Gonder	22.6	6.6	32.3	21.9	16.5
9	Janamora	North Gonder	98.1	0.8	1.1	0.0	0.0
10	Telemt	North Gonder	69.2	0.0	23.4	7.0	0.4
11	West Belesa	North Gonder	61.9	0.0	5.7	12.4	20.0
12	Wogera	North Gonder	100.0	0.0	0.0	0.0	0.0
13	Angolelana Tera	North Shewa	11.0	0.0	0.0	14.5	74.5
14	Asagirt	North Shewa	0.0	0.0	0.0	0.0	0.0
15	Gishe Rabele	North Shewa	62.5	0.0	37.5	0.0	0.0
16	Menze Gera Mider	North Shewa	99.6	0.0	0.4	0.0	0.0
17	Menze Lalo Mider	North Shewa	100.0	0.0	0.0	0.0	0.0
18	Menze Mama Mider	North Shewa	100.0	0.0	0.0	0.0	0.0
19	Menze Qeya Gebriel	North Shewa	99.6	0.0	0.4	0.0	0.0
20	Bugena	North Wello	58.0	0.0	27.7	6.4	7.8
21	Dawunt	North Wello	93.8	0.0	6.1	0.0	0.2
22	Delanta	North Wello	93.8	0.0	6.1	0.0	0.2
23	Gidan	North Wello	85.1	0.1	14.3	0.4	0.1
24	Guba Lafto	North Wello	0.0	0.0	0.0	0.0	0.0
25	Habru	North Wello	62.8	0.4	2.9	9.9	24.1
26	Kobo	North Wello	0.0	0.0	0.0	0.0	0.0
27	Lasta	North Wello	58.0	0.0	27.7	6.4	7.8
28	Mekete	North Wello	74.3	0.0	13.3	0.0	12.4
29	Wadela	North Wello	94.8	0.6	4.5	0.1	0.0
30	Artuma Fursi	Oromiya	79.2	0.0	18.9	0.0	2.0
31	Bati	Oromiya	88.7	2.2	4.0	0.0	5.1
32	Dewa Chefa	Oromiya	82.6	7.2	0.0	3.0	7.2
33	Dewa Harewa	Oromiya	82.6	7.2	0.0	3.0	7.2
34	Jilena Timuga	Oromiya	75.5	0.0	0.0	0.0	24.5
35	Ebinate	South Gonder	96.7	0.2	0.8	0.4	2.0
36	Laye Gayint	South Gonder	72.3	0.7	7.2	2.9	16.9
37	Libo Kemkem	South Gonder	73.4	3.3	10.2	6.9	6.1
38	Simada	South Gonder	67.5	11.2	0.0	21.3	0.0
39	Tach Gayint	South Gonder	39.6	51.6	0.0	8.8	0.0
40	Alebuko	South Wello	78.7	0.0	21.3	0.0	0.0
41	Ambassel	South Wello	91.4	0.2	4.9	1.2	2.3
42	Aregoba Special	South Wello	38.4	9.1	22.5	12.3	17.6
43	Debre Sina	South Wello	63.2	4.1	0.0	19.0	13.7
44	Dessie Zuria	South Wello	90.3	0.0	0.0	0.0	9.7
45	Jamma	South Wello	94.8	1.9	0.8	0.1	2.5
46	Kalu	South Wello	38.4	9.1	22.5	12.3	17.6
47	Kelela	South Wello	85.3	11.1	1.6	1.4	0.7
48	Kuta Ber	South Wello	60.3	1.7	21.3	16.1	0.6
49	Legambo	South Wello	76.9	1.6	0.0	21.2	0.4
50	Legehida	South Wello	99.6	0.1	0.0	0.3	0.1
51	Mehal Sayint	South Wello	71.1	6.5	1.0	21.4	0.0
52	Mekedela	South Wello	50.0	13.9	0.0	36.1	0.0
53	Sayint	South Wello	71.1	6.5	1.0	21.4	0.0
54	Tehulederie	South Wello	91.5	0.0	0.0	8.5	0.0
55	Tenta	South Wello	62.6	4.9	9.1	19.1	4.4
56	Wogedi	South Wello	35.6	0.3	9.0	39.6	15.4
57	Wore Illu	South Wello	99.6	0.1	0.0	0.3	0.1
58	Worebabu	South Wello	92.9	3.6	0.0	3.6	0.0
59	Abergelie	Wag Himera	64.3	0.0	35.7	0.0	0.0
60	Dahena	Wag Himera	74.0	4.8	3.2	11.8	6.1
61	Gazgibela	Wag Himera	64.3	0.0	35.7	0.0	0.0
62	Sehala	Wag Himera	3.8	14.7	27.4	13.9	40.1
63	Seqota	Wag Himera	64.3	0.0	35.7	0.0	0.0
64	Zequala	Wag Himera	3.8	14.7	27.4	13.9	40.1
Average			67.3	4.1	9.1	6.9	6.4

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. V Natural Resources (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. V Natural Resources (2004), ANRS Bureau of Finance and Economic Development



Table 4.2 Sources of Fuel Wood

No.	Woreda	Zone	Source (%)			
			Own Plantation	Community Forest	Natural Forest	State Forest
1	Enebse Sar Mider	East Gojam	28.2	3.5	68.1	0.3
2	Goncha Siso Enese	East Gojam	51.6	4.2	43.6	0.6
3	Shebele Berenta	East Gojam	3.2	13.0	83.9	0.0
4	Adarekaye	North Gonder	7.1	31.4	61.2	0.4
5	Beyeda	North Gonder	12.9	37.5	49.2	0.4
6	Dabat	North Gonder	36.7	3.7	59.6	0.0
7	Debark	North Gonder	28.0	5.8	66.0	0.2
8	East Belesa	North Gonder	1.4	2.9	95.0	0.7
9	Janamora	North Gonder	10.2	9.0	80.5	0.3
10	Telemt	North Gonder	7.1	31.4	61.2	0.4
11	West Belesa	North Gonder	4.3	22.0	73.2	0.6
12	Wogera	North Gonder	31.9	1.9	65.7	0.5
13	Angolelana Tera	North Shewa	45.8	7.0	46.7	0.6
14	Asagirt	North Shewa	15.5	3.4	80.7	0.3
15	Gishe Rabele	North Shewa	80.1	1.5	17.9	0.5
16	Menze Gera Mider	North Shewa	48.2	3.0	48.5	0.3
17	Menze Lalo Mider	North Shewa	25.7	8.6	64.4	1.3
18	Menze Mama Mider	North Shewa	25.7	8.6	64.4	1.3
19	Menze Qeya Gebriel	North Shewa	48.2	3.0	48.5	0.3
20	Bugena	North Wello	4.4	2.5	92.2	1.0
21	Dawunt	North Wello	40.6	1.9	57.0	0.5
22	Delanta	North Wello	40.6	1.9	57.0	0.5
23	Gidan	North Wello	42.4	5.3	51.4	0.9
24	Guba Laflo	North Wello	50.0	4.5	45.2	0.3
25	Habru	North Wello	17.2	12.9	66.1	3.7
26	Kobo	North Wello	4.3	4.7	85.1	5.8
27	Lasta	North Wello	4.4	2.5	92.2	1.0
28	Mekete	North Wello	34.6	12.7	52.3	0.5
29	Wadela	North Wello	51.1	5.2	43.3	0.5
30	Artuma Fursi	Oromiya	10.7	16.8	72.2	0.3
31	Bati	Oromiya	21.2	16.2	62.5	0.2
32	Dewa Chefa	Oromiya	10.2	30.3	51.2	8.3
33	Dewa Harewa	Oromiya	10.2	30.3	51.2	8.3
34	Jilena Timuga	Oromiya	0.8	12.2	85.9	1.1
35	Ebinate	South Gonder	5.9	5.4	88.1	0.6
36	Laye Gayint	South Gonder	42.3	0.6	56.8	0.2
37	Libo Kemkem	South Gonder	44.2	20.7	34.7	0.4
38	Simada	South Gonder	21.3	1.2	77.2	0.3
39	Tach Gayint	South Gonder	58.6	1.4	40.0	0.0
40	Alebuko	South Wello	37.2	1.0	60.4	1.3
41	Ambassel	South Wello	67.3	9.3	19.6	3.9
42	Aregoba Special	South Wello	20.8	17.1	61.2	0.9
43	Debre Sina	South Wello	60.9	22.6	16.2	0.3
44	Dessie Zuria	South Wello	68.6	3.4	27.4	0.5
45	Jamma	South Wello	41.1	24.2	34.4	0.3
46	Kalu	South Wello	20.8	17.1	61.2	0.9
47	Kelela	South Wello	17.6	32.6	46.5	3.3
48	Kuta Ber	South Wello	61.7	5.3	32.8	0.2
49	Legambo	South Wello	70.5	13.9	15.1	0.6
50	Leghida	South Wello	67.1	10.2	22.5	0.2
51	Mehal Sayint	South Wello	42.4	11.2	45.6	0.8
52	Mekedela	South Wello	43.2	19.3	37.2	0.3
53	Sayint	South Wello	42.4	11.2	45.6	0.8
54	Tehulederie	South Wello	59.6	8.2	31.4	0.8
55	Tenta	South Wello	44.6	5.9	49.5	0.0
56	Wogedi	South Wello	23.3	37.5	37.0	2.2
57	Wore Illu	South Wello	67.1	10.2	22.5	0.2
58	Worebabu	South Wello	25.2	33.8	40.2	0.8
59	Abergelle	Wag Himera	1.4	2.7	95.5	0.4
60	Dahena	Wag Himera	3.0	7.0	89.7	0.4
61	Gazgibela	Wag Himera	1.4	2.7	95.5	0.4
62	Sehala	Wag Himera	1.5	23.4	74.9	0.2
63	Seqota	Wag Himera	1.4	2.7	95.5	0.4
64	Zequala	Wag Himera	1.5	23.4	74.9	0.2
Average			30.0	11.7	57.4	1.0

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. XV Rural Household Energy (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. XV Rural Household Energy (2004), ANRS Bureau of Finance and Economic Development

**Table 4.3 Collecting Fuel Wood and Average Time Required to arrive at the Fuel Source**

No.	Woreda	Zone	Household Member (%)								Average Time Required (hrs)
			Husband's		Wife's		Male Children's		Female Children's		
			Yes	No	Yes	No	Yes	No	Yes	No	
1	Enebe Sar Mider	East Gojam	33.1	66.9	86.1	13.9	30.8	69.2	47.9	52.1	1.1
2	Goncha Siso Enese	East Gojam	53.8	46.2	87.7	12.3	33.2	66.8	41.9	58.1	0.7
3	Shebele Berenta	East Gojam	33.3	66.7	82.6	17.4	32.8	67.2	53.0	47.0	2.3
4	Adarekaye	North Gonder	8.1	91.9	85.9	14.1	15.9	84.1	48.2	51.8	1.2
5	Beyeda	North Gonder	38.8	61.2	79.6	20.4	29.0	71.0	45.6	54.4	3.0
6	Dabat	North Gonder	22.2	77.8	84.1	15.9	25.6	74.4	54.2	45.8	1.6
7	Debarak	North Gonder	29.6	70.4	77.2	22.8	32.1	67.9	31.1	68.9	1.4
8	East Belesa	North Gonder	34.7	65.3	81.9	18.1	39.6	60.4	60.9	39.1	1.5
9	Janamora	North Gonder	31.2	68.8	75.3	24.7	32.0	68.0	45.2	54.8	2.4
10	Telemt	North Gonder	8.1	91.9	85.9	14.1	15.9	84.1	48.2	51.8	1.2
11	West Belesa	North Gonder	38.4	61.6	70.2	29.8	32.2	67.8	37.3	62.7	1.6
12	Wogera	North Gonder	15.1	84.9	90.2	9.8	10.4	89.6	23.1	76.9	2.2
13	Angolelana Tera	North Shewa	11.0	89.0	89.3	10.7	30.1	69.9	24.2	75.8	0.5
14	Asagirt	North Shewa	44.2	55.8	79.1	20.9	49.1	50.9	63.9	36.1	0.9
15	Gishe Rabele	North Shewa	26.3	73.8	78.6	21.4	18.9	81.1	33.3	66.7	0.9
16	Menze Gera Mider	North Shewa	36.7	63.3	83.3	16.7	26.0	74.0	51.7	48.3	1.1
17	Menze Lalo Mider	North Shewa	36.8	63.2	85.5	14.5	31.4	68.6	44.0	56.0	1.2
18	Menze Mama Mider	North Shewa	36.8	63.2	85.5	14.5	31.4	68.6	44.0	56.0	1.2
19	Menze Oeya Gebriel	North Shewa	36.7	63.3	83.3	16.7	26.0	74.0	51.7	48.3	1.1
20	Bugena	North Wello	36.5	63.5	71.6	28.4	31.9	68.1	39.0	61.0	2.3
21	Dawunt	North Wello	35.7	64.3	86.8	13.2	23.7	76.3	32.7	67.3	1.9
22	Delanta	North Wello	35.7	64.3	86.8	13.2	23.7	76.3	32.7	67.3	1.9
23	Gidan	North Wello	32.7	67.3	85.7	14.3	20.9	79.1	37.6	62.4	1.4
24	Guba Lafto	North Wello	41.9	58.1	88.0	12.0	37.5	62.5	32.4	67.6	2.1
25	Habru	North Wello	37.7	62.3	90.6	9.4	30.9	69.1	38.5	61.5	1.2
26	Kobo	North Wello	17.7	82.3	95.1	4.9	17.7	82.3	41.2	58.8	1.6
27	Lasta	North Wello	36.5	63.5	71.6	28.4	31.9	68.1	39.0	61.0	2.3
28	Mekete	North Wello	37.5	62.5	85.8	14.2	23.9	76.1	36.9	63.1	1.2
29	Wadela	North Wello	47.9	52.1	90.6	9.4	28.5	71.5	39.6	60.4	1.3
30	Artuma Fursi	Oromiya	16.2	83.8	83.4	16.6	14.3	85.7	46.3	53.7	2.0
31	Bati	Oromiya	19.6	80.4	87.2	12.8	13.4	86.6	32.3	67.7	0.7
32	Dewa Chefa	Oromiya	22.0	78.0	92.3	7.7	16.8	83.2	19.3	80.7	1.0
33	Dewa Harewa	Oromiya	22.0	78.0	92.3	7.7	16.8	83.2	19.3	80.7	1.0
34	Jilena Timuga	Oromiya	7.6	92.4	85.7	14.3	9.8	90.2	62.2	37.8	1.5
35	Ebinate	South Gonder	45.1	54.9	60.6	39.4	41.3	58.7	20.9	79.1	1.9
36	Laye Gayint	South Gonder	17.3	82.7	75.1	24.9	15.4	84.6	23.2	76.8	1.2
37	Libo Kemkem	South Gonder	32.5	67.5	84.2	15.8	35.3	64.7	51.4	48.6	2.8
38	Simada	South Gonder	37.7	62.3	76.4	23.6	30.7	69.3	31.3	68.7	1.2
39	Tach Gayint	South Gonder	46.0	54.0	76.3	23.7	19.2	80.8	31.0	69.0	1.5
40	Alebuko	South Wello	20.2	79.8	92.4	7.6	20.8	79.2	39.6	60.4	0.8
41	Ambassel	South Wello	39.9	60.1	87.1	12.9	25.5	74.5	49.3	50.7	1.0
42	Aregoba Special	South Wello	12.1	87.9	88.5	11.5	16.9	83.1	54.8	45.2	0.8
43	Debre Sina	South Wello	68.6	31.4	86.7	13.3	42.1	57.9	42.7	57.3	1.2
44	Dessie Zuria	South Wello	31.0	69.0	92.4	7.6	22.2	77.8	33.3	66.7	0.5
45	Jamma	South Wello	38.8	61.2	92.1	7.9	23.5	76.5	43.9	56.1	1.4
46	Kalu	South Wello	12.1	87.9	88.5	11.5	16.9	83.1	54.8	45.2	0.8
47	Kelela	South Wello	31.5	68.5	91.6	8.4	29.9	70.1	53.5	46.5	1.0
48	Kuta Ber	South Wello	25.9	74.1	90.6	9.4	16.3	83.7	49.8	50.2	0.8
49	Legambo	South Wello	29.5	70.5	94.6	5.4	16.4	83.6	24.2	75.8	1.3
50	Legehida	South Wello	24.7	75.3	92.9	7.1	35.0	65.0	63.6	36.4	0.9
51	Mehal Sayint	South Wello	50.0	50.0	91.4	8.6	28.8	71.2	42.9	57.1	1.2
52	Mekedela	South Wello	44.3	55.7	91.8	8.2	31.0	69.0	48.3	51.8	1.2
53	Sayint	South Wello	50.0	50.0	91.4	8.6	28.8	71.2	42.9	57.1	1.2
54	Tehulederie	South Wello	18.6	81.4	91.6	8.4	28.5	71.5	31.9	68.1	0.5
55	Tenta	South Wello	23.0	77.0	92.8	7.2	15.8	84.2	49.9	50.1	1.0
56	Wogedi	South Wello	41.5	58.5	95.4	4.6	26.4	73.6	30.3	69.7	1.9
57	Wore Illu	South Wello	24.7	75.3	92.9	7.1	35.0	65.0	63.6	36.4	0.9
58	Worebabu	South Wello	21.2	78.8	91.7	8.3	18.3	81.7	58.7	41.3	0.8
59	Abergelle	Wag Himera	27.0	73.0	82.7	17.3	34.1	65.9	27.0	73.0	2.5
60	Dahena	Wag Himera	40.6	59.4	79.2	20.8	31.5	68.5	37.8	62.2	1.4
61	Gazgibela	Wag Himera	27.0	73.0	82.7	17.3	34.1	65.9	27.0	73.0	2.5
62	Sehala	Wag Himera	21.7	78.3	82.4	17.6	30.2	69.8	49.7	50.3	1.9
63	Seqota	Wag Himera	27.0	73.0	82.7	17.3	34.1	65.9	27.0	73.0	2.5
64	Zequala	Wag Himera	21.7	78.3	82.4	17.6	30.2	69.8	49.7	50.3	1.9
Average			30.8	69.2	85.4	14.6	26.5	73.5	41.4	58.6	1.4

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. XV Rural Household Energy (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. XV Rural Household Energy (2004), ANRS Bureau of Finance and Economic Development

**Table 4.4 Prevalence of Fuel Shortage by Months of the Year**

No	Woreda	Zone	Fuel Shortage (%)		Severe Shortage Month (%)			
			Yes	No	June - August	Sept.-Nov.	Dec.-Feb.	March-May
1	Enebsa Sar Mider	East Gojam	94.1	5.9	98.8	1.1	0.1	0.0
2	Goncha Siso Enese	East Gojam	80.4	19.6	99.6	0.0	0.2	0.2
3	Shebele Berenta	East Gojam	85.2	14.8	92.3	7.4	0.3	0.0
4	Adarekaye	North Gonder	88.5	11.5	89.7	9.8	0.4	0.1
5	Beyeda	North Gonder	96.3	3.7	97.0	1.9	0.6	0.4
6	Dabat	North Gonder	89.6	10.4	79.6	19.4	0.8	0.2
7	Debark	North Gonder	70.2	29.8	97.1	2.6	0.0	0.2
8	East Belesa	North Gonder	88.6	11.4	98.2	0.8	0.8	0.2
9	Janamora	North Gonder	96.0	4.0	91.1	4.8	3.5	0.5
10	Telemt	North Gonder	88.5	11.5	89.7	9.8	0.4	0.1
11	West Belesa	North Gonder	98.2	1.8	96.5	1.7	1.5	0.3
12	Wogera	North Gonder	98.3	1.7	97.9	1.0	0.3	0.7
13	Angolelana Tera	North Shewa	43.0	57.0	99.4	0.6	0.0	0.0
14	Asagirt	North Shewa	68.6	31.4	96.0	3.0	1.0	0.0
15	Gishe Rabele	North Shewa	82.1	17.9	94.2	3.2	2.6	0.0
16	Menze Gera Mider	North Shewa	82.3	17.7	89.3	9.9	0.2	0.6
17	Menze Lalo Mider	North Shewa	77.6	22.4	85.6	12.7	1.2	0.5
18	Menze Mama Mider	North Shewa	77.6	22.4	85.6	12.7	1.2	0.5
19	Menze Qeya Gebriel	North Shewa	82.3	17.7	89.3	9.9	0.2	0.6
20	Bugena	North Wello	85.1	14.9	95.4	2.6	1.9	0.1
21	Dawunt	North Wello	80.0	20.0	88.5	10.3	0.6	0.7
22	Delanta	North Wello	80.0	20.0	88.5	10.3	0.6	0.7
23	Gidan	North Wello	74.6	25.4	95.1	4.4	0.2	0.2
24	Guba Lafto	North Wello	86.1	13.9	93.3	6.7	0.0	0.0
25	Habru	North Wello	72.8	27.2	84.2	14.8	0.2	0.7
26	Kobo	North Wello	68.2	31.8	100.0	0.0	0.0	0.0
27	Lasta	North Wello	85.1	14.9	95.4	2.6	1.9	0.1
28	Mekete	North Wello	65.8	34.2	92.5	6.2	1.1	0.2
29	Wadela	North Wello	75.1	24.9	91.9	7.3	0.8	0.0
30	Artuma Fursi	Oromiya	98.1	1.9	94.2	5.8	0.0	0.0
31	Bati	Oromiya	63.3	36.7	81.8	15.1	1.7	1.4
32	Dewa Chefa	Oromiya	63.1	36.9	67.6	32.4	0.0	0.0
33	Dewa Harewa	Oromiya	63.1	36.9	67.6	32.4	0.0	0.0
34	Jilena Timuga	Oromiya	65.0	35.0	96.7	1.7	1.2	0.4
35	Ebinate	South Gonder	88.0	12.0	95.8	4.1	0.2	0.0
36	Laye Gayint	South Gonder	84.2	15.8	94.8	5.0	0.2	0.0
37	Libo Kemkem	South Gonder	94.3	5.7	92.4	7.2	0.5	0.0
38	Simada	South Gonder	87.4	12.6	98.7	0.7	0.7	0.0
39	Tach Gayint	South Gonder	65.6	34.4	62.1	37.4	0.5	0.0
40	Alebuko	South Wello	69.4	30.6	92.2	6.3	1.2	0.4
41	Ambassel	South Wello	85.6	14.4	96.5	2.5	0.8	0.2
42	Aregoba Special	South Wello	95.0	5.0	85.6	14.2	0.2	0.0
43	Debre Sina	South Wello	96.4	3.6	95.1	4.5	0.3	0.1
44	Dessie Zuria	South Wello	39.4	60.6	73.5	26.5	0.0	0.0
45	Jamma	South Wello	85.4	14.6	98.8	1.2	0.0	0.0
46	Kalu	South Wello	95.0	5.0	85.6	14.2	0.2	0.0
47	Kelela	South Wello	73.7	26.3	87.3	11.3	1.5	0.0
48	Kuta Ber	South Wello	48.0	52.0	64.8	33.5	1.3	0.4
49	Legambo	South Wello	70.4	29.6	76.9	6.3	14.3	2.5
50	Legehida	South Wello	82.5	17.5	99.8	0.0	0.2	0.0
51	Mehal Sayint	South Wello	84.8	15.2	84.3	14.9	0.8	0.0
52	Mekedela	South Wello	87.8	12.2	96.0	3.9	0.2	0.0
53	Sayint	South Wello	84.8	15.2	84.3	14.9	0.8	0.0
54	Tehulederie	South Wello	53.6	46.4	98.0	2.0	0.0	0.0
55	Tenta	South Wello	76.9	23.1	73.2	24.6	1.5	0.7
56	Wogedi	South Wello	90.8	9.2	96.5	1.1	1.1	1.3
57	Wore Illu	South Wello	82.5	17.5	99.8	0.0	0.2	0.0
58	Worebabu	South Wello	60.6	39.4	87.5	12.2	0.3	0.0
59	Abergelle	Wag Himera	69.6	30.4	100.0	0.0	0.0	0.0
60	Dahena	Wag Himera	88.8	11.2	96.6	1.6	1.5	0.3
61	Gazgibela	Wag Himera	69.6	30.4	100.0	0.0	0.0	0.0
62	Sehala	Wag Himera	71.1	28.9	95.2	3.6	0.9	0.3
63	Seqota	Wag Himera	69.6	30.4	100.0	0.0	0.0	0.0
64	Zequala	Wag Himera	71.1	28.9	95.2	3.6	0.9	0.3
Average			78.7	21.3	90.7	8.2	0.9	0.3

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. XV Rural Household Energy (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. XV Rural Household Energy (2004), ANRS Bureau of Finance and Economic Development



**Table 4.5 Types of Stoves Used**

No.	Woreda	Zone	Type of Stove (%)						
			Open Fire	Charcoal	Cultural enclosed	Modern enclosed	Three stone & charcoal	Charcoal & Cultural enclosed	Charcoal & Modern enclosed
1	Enebe Sar Mider	East Gojam	98.7	0.5	0.3	0.0	0.5	0.0	0.0
2	Goncha Siso Enese	East Gojam	98.1	0.0	1.6	0.1	0.1	0.0	0.0
3	Shebele Berenta	East Gojam	92.5	1.5	5.7	0.0	0.0	0.0	0.3
4	Adarekaye	North Gondar	86.2	0.8	6.2	0.0	6.8	0.0	0.0
5	Beyeda	North Gondar	98.2	0.6	0.8	0.0	0.2	0.0	0.0
6	Dabab	North Gondar	97.1	2.0	0.3	0.1	0.4	0.0	0.0
7	Debark	North Gondar	98.2	0.2	1.5	0.2	0.0	0.0	0.0
8	East Belesa	North Gondar	96.6	1.2	1.0	0.0	1.2	0.0	0.0
9	Janamora	North Gondar	97.6	1.0	0.6	0.1	0.6	0.0	0.0
10	Telemt	North Gondar	86.2	0.8	6.2	0.0	6.8	0.0	0.0
11	West Belesa	North Gondar	96.5	0.7	0.1	0.1	2.5	0.0	0.0
12	Wogera	North Gondar	98.8	0.5	0.3	0.0	0.3	0.0	0.0
13	Angolelana Tera	North Shewa	70.5	1.8	27.7	0.0	0.0	0.0	0.0
14	Asaqirt	North Shewa	98.6	0.7	0.7	0.0	0.0	0.0	0.0
15	Gishe Rabele	North Shewa	56.8	2.1	40.6	0.0	0.5	0.0	0.0
16	Menze Gera Mider	North Shewa	89.8	0.7	7.5	0.4	0.9	0.6	0.0
17	Menze Lalo Mider	North Shewa	91.8	1.7	5.7	0.2	0.7	0.0	0.0
18	Menze Mama Mider	North Shewa	91.8	1.7	5.7	0.2	0.7	0.0	0.0
19	Menze Oeya Gebriel	North Shewa	89.8	0.7	7.5	0.4	0.9	0.6	0.0
20	Bugena	North Wello	96.2	0.8	1.1	0.0	1.8	0.1	0.0
21	Dawunt	North Wello	97.1	1.1	1.7	0.0	0.1	0.0	0.0
22	Delanta	North Wello	97.1	1.1	1.7	0.0	0.1	0.0	0.0
23	Gidan	North Wello	98.4	1.1	0.4	0.0	0.2	0.0	0.0
24	Guba Lafto	North Wello	97.7	0.3	0.4	0.6	1.0	0.0	0.0
25	Habru	North Wello	98.7	0.5	0.8	0.0	0.0	0.0	0.0
26	Kobo	North Wello	99.2	0.5	0.3	0.0	0.0	0.0	0.0
27	Lasta	North Wello	96.2	0.8	1.1	0.0	1.8	0.1	0.0
28	Mekete	North Wello	89.2	1.2	8.9	0.1	0.6	0.0	0.0
29	Wadela	North Wello	91.2	1.5	6.7	0.3	0.1	0.1	0.0
30	Artuma Fursi	Oromiya	93.4	2.4	3.2	0.5	0.5	0.0	0.0
31	Bati	Oromiya	95.8	1.7	1.6	0.2	0.7	0.0	0.0
32	Dewa Chefa	Oromiya	98.8	1.0	0.2	0.0	0.0	0.0	0.0
33	Dewa Harewa	Oromiya	98.8	1.0	0.2	0.0	0.0	0.0	0.0
34	Jilena Timuga	Oromiya	98.1	1.6	0.3	0.0	0.0	0.0	0.0
35	Ebinate	South Gondar	97.7	0.1	1.0	0.0	1.2	0.0	0.0
36	Laye Gayint	South Gondar	98.2	0.0	1.0	0.0	0.6	0.0	0.2
37	Libo Kemkem	South Gondar	98.4	0.4	0.1	0.7	0.0	0.1	0.1
38	Simada	South Gondar	98.0	0.9	0.7	0.0	0.4	0.0	0.0
39	Tach Gayint	South Gondar	98.0	1.3	0.3	0.0	0.3	0.0	0.0
40	Alebuko	South Wello	99.0	0.5	0.3	0.0	0.3	0.0	0.0
41	Ambassel	South Wello	97.8	0.5	0.2	1.2	0.3	0.0	0.0
42	Aregoba Special	South Wello	97.7	1.3	0.0	0.1	0.9	0.0	0.0
43	Debre Sina	South Wello	78.8	0.4	20.8	0.0	0.0	0.0	0.0
44	Dessie Zuria	South Wello	98.6	0.4	0.9	0.0	0.1	0.0	0.0
45	Jamma	South Wello	97.9	1.0	0.5	0.0	0.5	0.0	0.0
46	Kalu	South Wello	97.7	1.3	0.0	0.1	0.9	0.0	0.0
47	Kelela	South Wello	96.3	1.0	0.7	0.2	1.6	0.1	0.0
48	Kuta Ber	South Wello	98.6	1.0	0.2	0.2	0.0	0.0	0.0
49	Legambo	South Wello	96.5	0.6	1.6	0.3	1.0	0.0	0.0
50	Legehida	South Wello	90.7	0.2	8.8	0.0	0.2	0.2	0.0
51	Mehal Sayint	South Wello	94.7	0.5	1.6	0.0	3.3	0.0	0.0
52	Mekedela	South Wello	97.8	0.7	1.2	0.1	0.1	0.0	0.0
53	Sayint	South Wello	94.7	0.5	1.6	0.0	3.3	0.0	0.0
54	Tehulederie	South Wello	99.0	0.3	0.5	0.0	0.3	0.0	0.0
55	Tenta	South Wello	98.2	0.8	0.5	0.4	0.0	0.1	0.0
56	Wogedi	South Wello	98.2	0.5	1.2	0.2	0.0	0.0	0.0
57	Wore Illu	South Wello	90.7	0.2	8.8	0.0	0.2	0.2	0.0
58	Worebabu	South Wello	97.9	1.2	0.2	0.4	0.2	0.0	0.0
59	Abergelle	Wag Himera	98.6	0.5	0.3	0.0	0.6	0.0	0.0
60	Dahena	Wag Himera	88.9	0.8	9.7	0.0	0.6	0.0	0.0
61	Gazgibela	Wag Himera	98.6	0.5	0.3	0.0	0.6	0.0	0.0
62	Sehala	Wag Himera	81.9	0.4	16.7	0.0	0.8	0.2	0.0
63	Seqota	Wag Himera	98.6	0.5	0.3	0.0	0.6	0.0	0.0
64	Zequala	Wag Himera	81.9	0.4	16.7	0.0	0.8	0.2	0.0
Average			94.4	0.9	3.8	0.1	0.8	0.0	0.0

Source:

1. Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. XV Rural Household Energy (2003), ANRS Bureau of Rural Development
2. Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. XV Rural Household Energy (2004), ANRS Bureau of Finance and Economic Development

## 5. Useful Trees and Suitable Agro-climatic Zones

**Table 5.1 Useful Trees and Suitable Agro-climatic Zones 1/4**

No.	Scientific Name	Dry Bereha	Moist Bereha	Dry Kolla	Moist Kolla	Wet kolla	Dry Weyna Dega	Moist Weyna Dega	Wet Weyna Dega	Dry Dega	Moist Dega	Wet Dega	Dry Wurch	Moist Wurch	Wet Wurch	Dry Alpine Wurch	Moist Alpine Wurch	Wet Alpine Wurch
1	Acacia abyssinica						X	X	X		X	X						
2	Acacia albida				X		X	X	X									
3	Acacia asak			X	X													
4	Acacia brevispica				X		X	X										
5	Acacia bussei		X		X			X	X									
6	Acacia decurrens							X	X	X	X	X						
7	Acacia lahai							X	X	X	X	X						
8	Acacia mearnsii							X	X	X	X	X						
9	Acacia melanoxylon							X	X	X	X	X						
10	Acacia nilotica		X		X													
11	Acacia oerfota	X			X													
12	Acacia polyacantha				X													
13	Acacia saligna				X		X											
14	Acacia senegal	X		X	X													
15	Acacia seyal						X	X										
16	Acacia sieberiana				X		X	X	X									
17	Acacia tortilis	X	X		X		X	X										
18	Acokanthera schimperi						X	X										
19	Adansonia digitata	X	X	X														
20	Albizia grandibracteata				X	X		X	X									
21	Albizia gummifera						X	X	X									
22	Albizia lebbeck			X	X													
23	Albizia lophantha							X	X									
24	Albizia malacophylla		X	X	X	X	X	X										
25	Albizia schimperiana							X										
26	Allophylus abyssinicus						X		X	X	X	X						
27	Aloe vera		X	X	X													
28	Annona muricata		X		X	X												
29	Annona senegalensis		X			X												
30	Anogeissus leiocarpus		X		X													
31	Antiaris toxicaria		X		X	X												
32	Apodytes dimidiata				X	X		X	X								X	
33	Arundinaria alpina										X	X						
34	Arundo donax	X	X	X	X	X	X	X	X									
35	Azadirachta indica		X	X	X	X	X	X										
36	Balanites aegyptiaca	X		X	X													
37	Baphia abyssinica		X		X	X												
38	Berberis holstii						X	X			X							
39	Berchemia discolor	X		X	X													
40	Bersama abyssinica						X	X	X		X							
41	Blighia unijugata			X	X													
42	Borassus aethiopicum		X		X	X		X	X									
43	Boswellia papyrifera	X		X														
44	Boswellia rivae	X		X														
45	Breonadia salicina			X	X	X												
46	Bridelia micrantha			X	X		X	X	X									
47	Buddleja polystachya						X	X			X				X			
48	Caesalpinia decapetala						X	X	X									
49	Cajanus cajan		X	X	X		X	X			X							
50	Calotropis procera	X		X	X	X												
51	Capparis tomentosa			X	X		X	X										
52	Carissa edulis																	
53	Carissa spinarum			X	X		X	X		X	X							
54	Casimiroa edulis		X	X	X		X	X										
55	Casuarina cunninghamiana			X	X		X	X		X	X							
56	Casuarina equisetifolia		X	X	X	X	X	X	X		X							
57	Catha edulis						X	X	X									
58	Ceiba pentandra	X	X	X	X													
59	Celtis africana		X	X	X		X	X										
60	Celtis toka		X															

(Source: Useful Trees and Shrubs for Ethiopia (2007), Azene Bekele-Tesemma, ICRAF, Kenya)

**Table 5.2 Useful Trees and Suitable Agro-climatic Zones 2/4**

No.	Scientific Name	Dry Bereha	Moist Bereha	Dry Kolla	Moist Kolla	Wet kolla	Dry Weyna Dega	Moist Weyna Dega	Wet Weyna Dega	Dry Dega	Moist Dega	Wet Dega	Dry Wurch	Moist Wurch	Wet Wurch	Dry Alpine Wurch	Moist Alpine Wurch	Wet Alpine Wurch
61	Chamaecytisus proliferus						X	X		X	X							
62	Citrus aurantifolia		X	X	X		X	X										
63	Citrus medica				X		X	X	X									
64	Citrus reticulata		X				X	X	X									
65	Citrus sinensis		X	X	X		X	X										
66	Combretum aculeatum			X	X													
67	Combretum collinum		X	X	X													
68	Combretum molle			X	X		X	X										
69	Commiphora africana	X		X	X													
70	Commiphora erythraea	X	X	X														
71	Commiphora habessinica	X	X		X		X	X										
72	Cordeauxia edulis	X																
73	Cordia africana						X	X	X									
74	Croton macroslachyus			X			X	X	X			X						
75	Cupressus lusitanica						X	X	X	X	X	X		X				
76	Cyathea manniana					X			X		X							
77	Dalbergia melanoxylon	X	X	X	X	X	X	X	X									
78	Dalbergia sissoo		X		X	X												
79	Delonix regia		X	X	X													
80	Dichrostachys cinerea			X	X													
81	Diospyros abyssinica							X	X		X							
82	Diospyros mespiliformis		X	X	X	X	X	X	X		X							
83	Discopodium penninervum									X	X	X		X	X			
84	Dobera glabra	X	X	X	X													
85	Dodonaea angustifolia																	
86	Dodonaea viscosa		X	X	X		X											
87	Dombeya schimperiana										X			X				
88	Dombeya torrida						X	X	X		X	X		X				
89	Dovyalis abyssinica							X	X									
90	Dracaena steudneri							X	X									
91	Ehretia cymosa							X	X									
92	Ekebergia capensis						X	X	X		X	X						
93	Embelia schimperii							X	X		X	X						
94	Ensete ventricosum							X	X		X	X						
95	Entada abyssinica			X	X	X	X	X	X									
96	Erica arborea									X	X	X		X	X			
97	Eriobotrya japonica							X	X									
98	Erythrina abyssinica				X	X		X	X									
99	Erythrina brucei				X	X		X	X									
100	Erythroxylum fischeri	X	X	X	X													
101	Eucalyptus camaldulensis			X	X	X												
102	Eucalyptus citriodora			X	X	X		X	X									
103	Eucalyptus globulus						X	X	X	X	X	X						
104	Eucalyptus grandis							X	X									
105	Eucalyptus saligna				X	X		X	X									
106	Eucalyptus viminalis									X	X	X						
107	Euclia racemosa			X	X	X	X	X	X									
108	Euphorbia abyssinica						X	X	X									
109	Euphorbia candelabrum				X	X	X	X										
110	Euphorbia tirucalli			X	X		X	X		X	X							
111	Fagaropsis angolensis			X			X	X	X									
112	Ficus carica			X	X	X	X	X	X									
113	Ficus elastica				X	X		X	X		X	X						
114	Ficus sur							X	X									
115	Ficus sycomorus							X	X									
116	Flacourtia indica			X	X		X	X										
117	Flueggea virosa		X	X	X	X	X	X	X									
118	Galiniera saxifraga							X	X		X	X		X				
119	Gardenia ternifolia		X	X	X		X	X										
120	Gardenia volkensii		X	X	X	X	X	X										

(Source: Useful Trees and Shrubs for Ethiopia (2007), Azene Bekele-Tesemma, ICRAF, Kenya)

Table 5.3 Useful Trees and Suitable Agro-climatic Zones 3/4

No.	Scientific Name	Dry Bereha	Moist Bereha	Dry Kolla	Moist Kolla	Wet kolla	Dry Weyna Dega	Moist Weyna Dega	Wet Weyna Dega	Dry Dega	Moist Dega	Wet Dega	Dry Wurch	Moist Wurch	Wet Wurch	Dry Alpine Wurch	Moist Alpine Wurch	Wet Alpine Wurch
121	Gmelina arborea				X	X												
122	Grevillea robusta						X	X	X		X	X						
123	Grewia bicolor				X	X		X	X									
124	Grewia ferruginea			X	X		X	X										
125	Grewia villosa				X	X		X	X									
126	Hagenia abyssinica							X	X		X	X						
127	Hevea brasiliensis					X												
128	Hypericum quartianum												X	X	X	X	X	X
129	Hypericum revolutum										X	X	X	X				
130	Hypericum roeperianum												X	X	X	X	X	X
131	Hyphaene thebaica	X	X	X	X													
132	Ilex mitis							X	X		X	X						
133	Jacaranda mimosifolia				X	X		X	X									
134	Jatropha curcas																	
135	Juniperus procera							X	X	X	X	X						
136	Justicia schimperiana						X	X			X							
137	Kigelia africana		X		X	X												
138	Lannea welwitschii				X	X												
139	Lawsonia inermis		X	X		X			X									
140	Lepidotrichia volkensii				X	X		X	X									
141	Leucaena leucocephala		X	X	X	X												
142	Lonchocarpus laxiflorus		X		X													
143	Maesa lanceolata							X	X		X	X						
144	Malus domestica							X	X	X	X	X						
145	Mangifera indica		X	X	X	X												
146	Manilkara butugi						X	X	X		X	X						
147	Markhamia lutea				X	X		X	X									
148	Maytenus arbutifolia			X	X	X	X	X	X		X	X						
149	Maytenus senegalensis			X	X	X	X	X	X		X							
150	Maytenus undata			X	X		X	X			X	X						
151	Melia azedarach		X	X	X	X	X	X	X									
152	Milicia excelsa		X		X	X												
153	Millettia ferruginea				X	X	X	X	X									
154	Mimusops kummel							X	X									
155	Moringa oleifera	X	X	X	X	X												
156	Morus alba				X		X	X	X									
157	Morus mesozygia				X	X												
158	Myrica salicifolia						X	X			X	X						
159	Myrtus communis				X	X		X	X									
160	Nuxia congesta						X	X			X	X						
161	Ocotea kenyensis							X	X									
162	Olea capensis							X	X									
163	Olea europaea						X	X	X	X	X	X						
164	Olea welwitschii						X	X	X		X	X						
165	Olinia rochetiana							X	X									
166	Olyra latifolia		X		X	X												
167	Oncoba spinosa		X		X	X												
168	Otostegia fruticosa							X		X								
169	Otostegia integrifolia						X	X		X	X	X						
170	Oxytenanthera abyssinica	X	X	X	X	X												
171	Parkinsonia aculeata			X	X		X	X										
172	Pavetta oliveriana							X	X									
173	Persea americana							X	X									
174	Phoenix dactylifera				X	X												
175	Phoenix reclinata			X	X		X	X	X									
176	Phytolacca dodecandra						X	X	X									
177	Piliostigma thonningii							X	X									
178	Pinus patula						X	X										
179	Pinus radiata							X	X	X	X	X		X				
180	Pithecellobium dulce		X	X	X			X										

(Source: Useful Trees and Shrubs for Ethiopia (2007), Azene Bekele-Tesemma, ICRAF, Kenya)

**Table 5.4 Useful Trees and Suitable Agro-climatic Zones 4/4**

No.	Scientific Name	Dry Bereha	Moist Bereha	Dry Kolla	Moist Kolla	Wet kolla	Dry Weyna Dega	Moist Weyna Dega	Wet Weyna Dega	Dry Dega	Moist Dega	Wet Dega	Dry Wurch	Moist Wurch	Wet Wurch	Dry Alpine Wurch	Moist Alpine Wurch	Wet Alpine Wurch
181	<i>Pittosporum viridiflorum</i>							X	X		X							
182	<i>Podocarpus falcatus</i>							X	X	X	X	X						
183	<i>Polyscias fulva</i>							X	X		X	X						
184	<i>Pouteria adolfi-friedericii</i>							X	X		X	X						
185	<i>Pouteria altissima</i>				X	X		X	X									
186	<i>Premna schimperii</i>						X	X										
187	<i>Prosopis juliflora</i>	X	X	X	X													
188	<i>Prunus africana</i>							X	X									
189	<i>Prunus persica</i>							X	X									
190	<i>Psidium guajava</i>				X	X		X	X									
191	<i>Psudrax schimperiana</i>				X	X		X	X	X	X							
192	<i>Rhamnus prinoides</i>				X	X		X	X	X	X	X						
193	<i>Rhamnus staddo</i>							X	X		X	X						
194	<i>Rhoicissus revouillii</i>							X	X									
195	<i>Rhoicissus tridentata</i>							X	X									
196	<i>Rhus glutinosa</i>							X	X									
197	<i>Rhus natalensis</i>							X	X									
198	<i>Rhus retinorrhoea</i>							X										
199	<i>Rhus vulgaris</i>							X										
200	<i>Ricinus communis</i>		X		X	X		X	X		X	X						
201	<i>Rosa abyssinica</i>							X			X	X						
202	<i>Salix mucronata</i>				X	X		X	X		X	X						
203	<i>Salvadora persica</i>	X	X	X	X													
204	<i>Sapium ellipticum</i>							X	X									
205	<i>Sarcocephalus latifolius</i>		X	X	X													
206	<i>Schefflera abyssinica</i>							X	X		X	X						
207	<i>Schinus molle</i>		X	X	X	X	X	X	X	X	X	X						
208	<i>Sclerocarya birrea</i>		X	X	X													
209	<i>Securidaca longepedunculata</i>		X		X													
210	<i>Senna alexandrina</i>	X	X		X													
211	<i>Senna didymobotrya</i>			X	X		X	X										
212	<i>Senna siamea</i>			X	X													
213	<i>Sesbania sesban</i>				X	X	X	X	X									
214	<i>Spathodea campanulata</i>		X		X	X	X	X	X									
215	<i>Steganotaenia araliacea</i>			X	X													
216	<i>Sterculia africana</i>	X	X	X	X													
217	<i>Stereospermum kunthianum</i>				X	X	X	X	X									
218	<i>Strychnos henningsii</i>						X	X										
219	<i>Strychnos innocua</i>							X	X									
220	<i>Strychnos spinosa</i>			X	X	X												
221	<i>Syzygium guineense</i>				X	X	X	X	X									
222	<i>Tamarindus indica</i>	X	X	X	X													
223	<i>Tamarix aphylla</i>	X	X	X														
224	<i>Terminalia brownii</i>			X	X		X	X	X									
225	<i>Terminalia laxiflora</i>		X		X	X												
226	<i>Trichilia dregeana</i>							X	X									
227	<i>Trichilia emetica</i>			X	X													
228	<i>Trilepisium madagascariense</i>						X	X	X									
229	<i>Vernonia amygdalina</i>						X	X	X									
230	<i>Vepris dainellii</i>					X	X	X	X									
231	<i>Vepris nobilis</i>				X	X	X	X	X	X	X	X						
232	<i>Vitellaria paradoxa</i>		X		X													
233	<i>Vitex doniana</i>		X	X	X	X												
234	<i>Warburgia ugandensis</i>				X	X	X	X	X									
235	<i>Woodfordia uniflora</i>				X	X	X	X	X									
236	<i>Ximena americana</i>		X	X	X	X	X	X	X									
237	<i>Ziziphus mauritiana</i>	X	X	X	X													
238	<i>Ziziphus mucronata</i>	X	X	X	X	X	X	X	X									
239	<i>Ziziphus pubescens</i>		X															
240	<i>Ziziphus spina-christi</i>	X	X	X	X													

(Source: Useful Trees and Shrubs for Ethiopia (2007), Azene Bekele-Tesemma, ICRAF, Kenya)

## ***Appendix C: Supplemental Data on Agriculture***

***C-1: Present Conditions of Agriculture & Livestock and Proposed Approaches for Agriculture Promotion***

***C-2: Project Proposals***

***C-1: Present Conditions of Agriculture & Livestock and  
Proposed Approaches for Agriculture Promotion***

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## **CHAPTER 1 Present Conditions of Agriculture & Livestock**

The area extents of farmlands in ANRS is estimated to be about 34,000 km<sup>2</sup> and are operated by over 3 million small holders with an average holding size of about 1.1 ha of farmland. In the Study Area, the area extents of farmlands are estimated at 15,300 km<sup>2</sup> (45% of ANRS). Farming activities are carried out by over 1.5 million small holders and their average land holding size is less than 1 ha. Another essential farming activity is livestock and the Study Area holds about 50% of livestock units in ANRS.

*Descriptions on statistic figures in this Chapter are based on Ethiopian Agricultural Sample Enumeration 2001/02, Results for Amhara Region, CACC, if not mentioned otherwise.*

### **1.1 Land Tenure and Land Holding**

#### **1.1.1 Land Tenure System**

The current land tenure system in Ethiopia was established through the land reform followed by the Public Ownership of Rural Lands Proclamation of 29 April 1975, which abolished a feudalistic land tenure system under the old regime. Under the current system, all the rural lands are placed under the ownership of the state and the peoples in Ethiopia and farming communities are given land use right of farmlands for their farming activities.

Land use right is vested only to those who domiciled in a community (village) and the transaction on the right is prohibited, while the right can be taken over by inheritance or rented to others living in the same community under a tenancy arrangement. In case of commercial farming, the state provides land use right to an investor under a lease arrangement.

The land registration and certification program for the authorization of farmers' land use right have been carried out in all the Woredas in ANRS from 2003. Under the program, total of about 3.2 million farmers holdings (about 98% of total farmers holdings) were registered and 1.7 million holdings (about 52% of total) were provisionally certified under the traditional system based on the cultivated land size at the time of land distribution. Currently, the so called modern land certification project (ISLA, Information System of Land Administration) being supported by SIDA are on-going in 19 Woredas in ANRS and about 60,000 farmers' holdings were registered under the modern system by July, 2008. In the target woredas, the modern system was introduced in Ebinat in 2008 and in Kobo and Legambo in 2009.

#### **1.1.2 Land Holding**

The decrease of land holding size per farm household and the dispersion of farmland are reported in Ethiopia. According to CACC<sup>1</sup>, the average land holding size was estimated at 1.10ha/farm household and the average number of plots per farm household was at 4.6 in 2001/02 in ANRS.

The average land holding size in the Study Area is estimated from the number of households and the areas of farmlands (total of temporary crops land, perennial crops land, fallow land and grazing land)

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<sup>1</sup> Ethiopian Agricultural Sample Enumeration 2001/02, Results for Amhara Region, CACC

of the Area as shown in the following table.

**Table 1.1.1 Land Holding Size in the Study Area (2001/02)**

Largest	Smallest	Average
1.97 ha/farm household	0.49 ha/farm household	0.93 ha/farm household

Source: JICA Study Team

The average holding size of farmland in the Study Area is estimated to be 0.93 ha/farm household and is smaller than that of 1.10 ha in ANRS. However, there are some differences in the holding sizes among the woredas and they range from 0.49 ha to 1.97 ha/household. The land holding size per farm household in the 8 target woredas are similarly estimated as follows;

**Table 1.1.2 Average Land Holding Size per Farm Household in Target Woredas (2001/02)**

Bugena	Gidan	Kobo	Ebinate,	Simada	Aregoba	Legambo	Mekedela	ANRS
0.80ha	0.60ha	0.79ha	0.99ha	1.05ha	0.56ha	0.88ha	0.75ha	1.10ha

Note: Holding size for Aregoba is the same of Kalu Woreda

Source: JICA Study Team

The holding size per farm household in Gidan and Aregoba is limited compared with other Woredas.

The average number of plots per farm household and the distribution of farm households by land holding size in the 8 target woredas are presented in the following table.

**Table 1.1.3 Area of Farmland by Size of Holding, Rural & Urban**

Woreda	Average Holding Size (ha)	Percent Area by Holding Size (%)						Avg. Size per Parcel (ha)	No. of Parcel per Holder
		Under 0.1	0.1 ~ 0.5	0.51-1.00	1.01-2.00	2.01-5.00	5.01-		
Ebinate	0.99	0.3	7.5	18.8	46.6	26.9	0	0.23	4.3
Simada	1.05	0.2	6.3	18.1	49.9	25.5	0	0.20	5.1
Bugena	0.80	0.4	12.7	24.9	44.4	15.6	2.0	0.20	4.0
Gidan	0.60	0.6	21.9	35.5	32.3	9.7	0	0.15	4.0
Kobo	0.79	0.6	12.1	27.6	38.0	20.1	1.7	0.19	4.2
Mekedela	0.75	0.2	14.4	33.1	44.7	7.6	0	0.13	5.8
Legambo	0.88	0.2	9.1	33.8	43.5	13.5	0	0.13	6.6
Aregoba 1/	0.56	0.8	26.8	31.3	34.0	7.0	0	0.13	4.1
Amhara Region	1.10	0.3	6.1	17.4	39.3	33.9	3.1	0.24	4.6

1/: Represented by figure of Kalu

Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, Part I, CACC

The farmlands owned by the farm households of holding size of less than 1.0ha accounts for 38%, 58%, 40%, 27%, 25%, 59%, 43% and 48%, respectively for Bugena, Gidan, Kobo, Ebinate, Aregoba, Legambo and Mekedela. In ANRS, the figure is 24%, which means that the land holding size in the 8 target woredas are smaller than the average in ANRS as shown in the table. No data on landless farmers in the Study Area were available. However, according to EEA/ EEA/EEPRI<sup>2</sup>, the proportion of the landless farmers is estimated at around 10% in ANRS based on the sample survey.

## 1.2 Land Suitability

Based on the soil map prepared by the Woody Biomass Inventory and Strategic Planning Project (WBISPP), the present soil conditions in the Study Area are reviewed. In the map, the soils are

<sup>2</sup> Research Report on Land Tenure and Agricultural Development, EEA/EEPRI, 2002

classified by employing the FAO/UNESCO soil classification system. The map was originally prepared at a scale of 1:1,000,000 by UNDP/FAO by way of an interpretation of Land Sat Satellite images supported by past soil survey reports, field traverses and agro-climatic data.

### 1.2.1 Effective Soil Depth

The distribution of soils with shallow effective depth due to natural and accelerated erosion in the past is one of the most serious agronomic constraints in the Study Area. Any further soil losses in the lands with shallow soils will bring about detrimental effect on farming activities in the Area. The distribution of the soils by effective depth is presented in the following table.

**Table 1.2.1 Distribution of Soils by Effective Depth in the Study Area and 8 Target Woredas**

Effective Soil Depth	Study Area %	Ebinate %	Simada %	Bugena %	Gidan %	Kobo %	Mekedela %	Legambo %	Kalu 1/ %
<10 cm	5	0	0	0	0	0	0	0	0
10-25 cm	52	25	57	83	52	55	94	70	75
25-50 cm	37	72	41	17	48	21	3	30	25
50-100 cm	1	0	0	0	0	0	0	0	0
100-150 cm	4	3	2	0	0	0	3	0	0
>150 cm	1	0	0	0	0	24	0	0	0
Total	100	100	100	100	100	100	100	100	100

*1/: Including Argoba Special Woreda territory* *Source: Ethiopian Highland Reclamation Study (1986)*

About 60% of the soils in the Study Area have shallow soils with effective depth less than 25cm. The situation is worse in the target 8 woredas and over 70% of the soils in 4 woredas of Mekedela, Bugena, Aregoba (Kalu) and Legambo have shallow effective soil depth. Almost all the soils in the woredas have effective depth of less than 50 cm except the soils in Kobo. Further soil losses in farmlands with such shallow soil depth should be avoided by all possible measures to ensure the sustainability of farming activities in the woredas. **(However, these figures appear to be doubtful from field observations in the target watersheds. Effective soil depths in the watersheds are generally deeper than the ones expected from the said data.)**

### 1.2.2 Land Suitability Classification

#### (1) Classification System

The comprehensive reconnaissance level land suitability classifications of the land resources in Ethiopia were made in "Land Resources Inventory for Land Use Planning, Technical Report No.1 (the Report)", in which land suitability was assessed for land use types of rainfed crops production (20 crops combinations), irrigated agriculture, livestock and forestry. Land suitability evaluation system applied in the Report is the system proposed in "Framework for Land Evaluation (FAO, 1976)".

In the system, three categories or levels of classification are employed: land suitability order, land suitability class and land suitability subclass. Suitability orders separate land assessed as suitable (S) from that which is not suitable (N) for the use being considered. Suitable land is that on which sustained use of the kind under consideration is expected to yield benefits which justify inputs without unacceptable risk of damage to land resources and the suitability class is sub-classified into highly suitable and moderately to marginally suitable as shown in the following table.

**Table 1.2.2 Land Suitability Classes Adopted by UNDP/FAO Report**

S1	Highly Suitable	Subject land has no significant limitations to sustained application of a given use, or only minor limitations that will not significantly reduce productivity or benefits and will not raise inputs above an acceptable level.
S2	Moderately to Marginally Suitable	Subject land has limitations which, on aggregate, are moderately severe for sustained production of a given use. Specified kind of use can be practiced, although less suited than S1 and crop will grow satisfactorily and yield a positive economic return.
N	Not suitable	Land on which the specified kind of the use is not recommended, either because the crop would not grow satisfactorily, such that a economic loss would be expected, or because there would be unacceptable environmental damage.

In the Report, the land suitability for upland crops is assessed for both the low-medium production level under less intensive farming and high production level under intensive farming. The structure of land suitability classification adopted in the Report is as shown below.

Item	Production Level		Mapping Symbol
	Low-Medium	High	
Suitability Class	S1	S2	S1/S2
	S2	N	S2/N
	S2	S2	S2/S2

## (2) Land Suitability Classification

The areal extents of individual suitability classes for the production of major crops are as shown in Table 1.2.3. More than about 60% of the lands in the Study Area are assessed as not suitable for upland crops production (wheat, teff, barley) under both low-medium production level and high production level. Similarly, majority of lands in the target woredas are classified as not suitable for the crops production as shown in the table, which might indicate substantial extent of farmlands in the Area are developed in the lands not suitable for crop production. However, as substantial lands in the Area and target woredas are currently used for upland crop production under sustainable production level, detail study on soils and land suitability classification are considered essential for future agricultural development planning.

**Table 1.2.3 Land Suitability Classification of the Study Area and 8 Target Woredas by Crop**

Land Suitability for Wheat Production										Unit: %
Suitability Class 1/	Study Area	Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Aregoba	
S1/S1	0	2	0	0	0	0	0	0	0	0
S2/S1	12	2	14	0	30	21	10	10	0	0
S2/N	29	52	12	16	0	50	13	0	0	0
N/S2	0	0	0	0	0	0	0	0	0	0
N/N	59	44	73	84	70	29	76	90	100	100
Total	100	100	100	100	100	100	100	100	100	100
Land Suitability for Teff Production										Unit: %
Suitability Class 1/	Study Area	Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Aregoba	
S1/S1	2	0	9	0	0	0	0	0	0	0
S1/S2	1	4	0	0	0	0	0	0	0	0
S2/S1	11	0	0	0	27	23	6	4	0	0
S2/N	23	52	7	17	0	39	17	9	0	0
N/S1	0	0	0	0	0	0	0	0	0	0
N/N	63	44	84	83	73	39	77	87	100	100
Total	100	100	100	100	100	100	100	100	100	100
Land Suitability for Barley Production										Unit: %
Suitability Class 1/	Study Area	Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Aregoba	
S2/S2	9	2	12	0	18	3	3	9	0	0
S2/N	15	40	7	13	13	23	23	23	0	0
N/S2	1	0	0	0	0	0	0	0	0	0
N/N	75	58	82	87	69	74	73	68	100	100
Total	100	100	100	100	100	100	100	100	100	100

1/: Land suitability class for low-medium production level/high production level

Source: Woddy Biomass Inventory and Strategic Planning Project (WBISPP)

## 1.3 Crop Production and Farming System

### 1.3.1 Major Crops

In the Study Area, crops grown are mainly cereals, pulses and oil crops. Root crops are of much less importance and production of vegetables and permanent crops are very limited. However, being located in the wide range of agro-climatic zones, varieties of crops are grown as reported in the CSA statistics. Among such crops, common ones in the Study Area are enumerated in the following table.

**Table 1.3.1 Crops Cultivated Common in the Study Area**

Type	Major Crops	Type	Major Crops
Cereal	Wheat, barley, teff,	Vegetables	Onion, garlic, pepper,
Pulse	Horse beans, haricot	Fruits	Banana, orange,
Oilseed	Niger seed, linseed,	Stimulant	Hop, coffee, chat
Root Crops	Potato, sweat potato,		

Source: CSA statistics

Within the limitations set by the availability of water, the altitude determines the type of crops grown in the Study Area. The cooler altitudes above 1700 m have the bulk of the temperate zone crops. In the lower parts, sorghum and maize become more prevalent. So long as water is available, cropping is possible throughout a year as there is no cold season.

Descriptions on major temporary crops grown in the Study Area are shown in the following table.

**Table 1.3.2 Descriptions of Major Temporary Crops Grown in the Study Area**

Crops	Description
Wheat	Wheat grows between 1500 and 2500 m. The main cultivation centers are between 1800-2200 m. Wheat is found in many parts of the highlands. It is grown in dark grey, black and red soils in various parts of the country, though most of the wheat is cultivated where the dark soils predominate.
Teff	Teff ( <i>Eragrostis abyssinica</i> ) is cultivated at altitudes ranging from 1700 to 2800 m, but reaching even higher in some places. As a rule, only brown teff is cultivated above 2500 m. Teff prefers red and black clayey and loamy soils that do not dry out too quickly.
Barley	Barley in Ethiopia is a highland crop; it is rare below 1900 m. The richest cultivation is between 1900 and 2100 m. Above 2900 m, only barley is normally cultivated. The highest altitude where cultivation has been observed is 3400 m. The climatic conditions suggest it could be grown even at higher altitudes, but the terrain is usually not amenable.
Maize	The most important among the <i>zea mays</i> varieties cultivated in the country are flint corn ( <i>zea mays, var.indurata</i> ) and dent corn ( <i>zea mays, var. indentata</i> ). Late types are the most common. Maize is mostly grown in areas with high rainfall, especially in the southwest, eastern highlands and in the north. It is not normally grown above 2400 m because of its susceptibility to frost. In most areas of the country it is grown in competition with sorghum, and is sometimes sown in mixtures with other crops.
Sorghum	Sorghum <i>vulgare</i> is the most important grain sorghum; <i>s. saccharum</i> and <i>s. technicum</i> are also very common. Late and very late varieties are grown in the highlands, while early varieties are grown in the lowlands. It is popular with farmers because of its hardiness, and is extensively cultivated in the country. It is grown up to altitudes of 2500 m, though the best producing areas are around 1800 m. It is more drought-resistant than other grains grown in the country.
Faba Beans	Horse bean ( <i>Vicia faba</i> ) is grown widely in the central highlands as well as the eastern highlands. The major areas of production are north of Addis Ababa and along the escarpment to Dese in Welo, and the areas in southwestern Shewa around Mt Gurage. This is a field crop of the higher altitudes in Ethiopia, commonly found between 1800 and 3000m, but especially in the zone 2100-2400 m.
Haricot Beans	Haricot bean ( <i>Phaseolus vulgaris</i> ) is not as widespread. It is mainly grown in the Chercher highlands area in Harerge and in the Gurage highlands area in southwestern Shewa, in northern Arsi, northern Sidamo and in northern Gamo Gofa. It grows best at altitudes between 1700 and 2000 m.
Lentils	Cultivation of lentils ( <i>Lens esculenta</i> ) in Ethiopia is limited to the higher altitudes. The major areas are in northern Shewa, west central Welo along the escarpment, and in Arsi both east and west of the Chilalo massif. Scattered cultivation can be found in many other areas.

Source: Land Use Planning Project, UNDP/FAO, 1984



### 1.3.2 Cropping Season

The most important climatic limitation for crop production in the Study Area is the amount and distribution of rainfall. Rainfall varies from a high of above 1,200 mm in the southeast of the Area to less than 700 mm in the northeast. However, rainfall is not well distributed throughout a year.

There exist two cropping seasons of meher (main rainy season) and belg (short rainy season) in ANRS and the Study Area as well. In the Study Area, the meher season is a main cropping season from June to December when almost all the temporary crops land planted with annual crops. The belg season is a secondary cropping season from late January to end June/early July when crop production is carried out only a part of temporary crops land, about 7% of the annual cropped areas in ANRS and 8% of the same in the Study Area. Major crops in the both cropping seasons and general cropping calendar are as shown in the table below.

**Table 1.3.3 Cropping Seasons and General Cropping Calendar**

Meher Season	Planting	Beginning of June to July
	Harvesting	Beginning of November to end December
	Major crops	Wheat, barley, teff, oil seeds, pulse
		Maize (late crops: planting Apr./May ~ harvesting Oct.) Sorghum (late crops: planting Apr./May ~ harvesting Nov./Dec.)
Belg Season	Planting	Late Jan. to Middle March
	Harvesting	May to end June/early July
	Major crops	Teff, barley, wheat, haricot beans, mug beans, field peas

Source: JICA Study Team

The prevailing cropping calendars in the target woredas are reported as shown in the following table.

**Table 1.3.4 Prevailing Cropping Calendars in the Target Woredas**

Freda	Prevailing Cropping Calendar	
	Belg Crops	Meher Crops
Ebinate	No cropping	Early Apr./End July to Early Oct./End Dec.
Simada	No cropping	Early Apr./End July to Early Oct./End Dec.
Bequn	No cropping	Early June /Mid. Aug to Early Nov./End Dec.
Kobo	End Jan/Early Feb to May/June	End Apr. to End Nov.
Mekedela	Mid. /End Jan. to Mid. June/Early July	Early June/Mid Aug. to Early Nov. End Dec.
Legambo	Jan. to June	Mid June to December
Aregoba	Jan. 20/Mar.10 to June 10/July 15	June 25/July 25 to Oct. 20/Dec. 20

Source: Questionnaire survey by the Study Team

### 1.3.3 Cropping System

Cropping systems adopted by farmers involve a wide range of crops and differ from one locality to another. Mixture of crops grown is selected to meet needs of farmers and cropping calendars are designed to spread works of them. Farmers will plant crops so that they mature in adequate conditions or to fill a food gap. Cropping systems adopted in the Study Area appear to be much diversified with a number of crops involved. Further, cropping systems adopted by farmers are complex involving systems which cannot be equated only with edaphic land qualities.

Because of the peasant-based economy of the country, the differentiation of crops produced according to their environmental suitability becomes somewhat diffused. This is due to the fact that, in search of security, individual farmers produce or at least attempt to produce the total range of crops necessary for their survival. It will be necessary in the future, with increased development, communication and

therefore exchangeability of goods and products, to encourage farmers to concentrate on crops whose optimum environmental conditions are met by the lands on which they live. This would be a way to optimize the productivity of their lands.

### 1.3.4 Cropped Area and Cropping Intensity<sup>3</sup>

Annual cropped areas of temporary crops in the Study Area and target woredas estimated by CACC are summarized in the following table.

**Table 1.3.5 Annual Cropped Areas of Temporary Crops in the Study Area and Target Woredas**

Crops	Study Area	Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Kalu 2/	Unit: ha
Cereals	1,001,917	24,553	30,909	26,729	15,378	30,642	14,345	25,145	18,673	
Wheat	161,773	3,334	3,467	3,747	3,280	671	2,329	4,568	650	
Teff	316,888	10,874	17,270	11,787	1,415	10,351	6,133	1,576	5,032	
Barley	205,685	3,242	3,244	5,589	7,577	1,470	3,986	17,008	598	
Maize	59,231	2,705	2,609	988	715	3,589	145	-	1,480	
Sorghum	203,744	2,923	3,741	4,408	992	14,414	1,384	1,134	9,442	
Pulses 3/	320,463	13,088	14,015	8,083	6,771	3,096	7,197	9,456	1,856	
Oil Seeds	39,108	1,979	2,309	538	174	280	395	618	158	
Vegetables	7,038	0	20	0	45	278	16	13	99	
Root Crops	11,462	706	1,329	0	235	15	37	130	26	
Others	42,430	233	86	92	0	114	0	82	20	
Total	1,367,822	40,559	48,668	35,442	22,603	34,425	21,990	35,444	20,832	

1/: Cropped areas estimated by CACC      2/: Including territory of Aregoba Woreda      3/: Cropped area of horse beans in Ebinate 5,595ha  
Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, Part I, CACC

The primary crop (crops having the largest annual cropped area) in the 64 woredas of the Study Area are as follows;

**Table 1.3.6 Primary Crops in 64 Woredas of the Study Area**

	Teff	Wheat	Barley	Maize	Sorghum
No. of Woredas	29	5	17	-	13

Source: Ethiopian Agricultural Sample Enumeration, 2001/02, CACC

The primary and secondary crops (crops having the 2nd largest cropped area) in the woredas are:

**Table 1.3.7 Primary & Secondary Crops in the Target Woreda**

Item	Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Aregoba
Primary	teff	teff	teff	barley	teff	teff	barley	sorghum
Secondary	faba beans	wheat	barley	wheat	sorghum	barley	wheat	teff

Note: Aregoba represented by Kalu

Source: Ethiopian Agricultural Sample Enumeration, 2001/02, CACC

The annual cropped areas of temporary crops and the proportion of cropped areas in belg season to those of meher season in the Study Area are as shown in the following table.

**Table 1.3.8 Cropped Area & % of Belg Crops in the Area**

Annual Cropped Area (ha)	1,367,822
Cropped Areas in Meher Season (ha)	1,247,173
Cropped Areas in Belg Season (ha)	120,649
Proportion: Belg/Meher (%)	9.7

Source: Ethiopian Agricultural Sample Enumeration, 2001/02, CACC

Similarly, the same of the 8 target woredas are as summarized in the following table.

<sup>3</sup> Study based on CACC's Agricultural Sample Enumeration, 1001/02 as accessibility to other data limited.

**Table 1.3.9 Cropping Intensity & Proportion of Cropped Areas in Belg to Meher in Target Woredas 1/**

Crops	Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Kalu 2/	Unit: ha
Temporary Crops Land (ha)	39,790	46,832	35,641	17,257	33,496	20,594	20,894	18,829	
Annual Cropped Area (ha)	40,559	48,668	35,442	22,603	34,425	21,990	35,444	20,832	
Annual Cropping Intensity (%)	102	104	99	131	103	107	170	111	
Cropped Areas in Meher Season (ha)	39,731	46,644	35,442	17,006	31,974	20,449	20,612	18,473	
Cropped Areas in Belg Season (ha)	828	2,024	0	5,597	2,451	1,541	14,832	2,359	
Proportion: Belg/Meher (%)	2	4	0	33	8	8	72	13	
1/: Cropped areas estimated by CACC		2/: Including territory of Aregoba Woreda							
Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, Part I, CACC									

The annual cropping intensities in the target woredas are in the range of 99% in Bugena to 170% in Legambo and the proportions of belg season cropped areas to those in meher season are 0% in Bugena to 72% in Legambo as shown in the table. It could be said that temporary crop production in the belg season is commonly practiced in Legambo and Gidan. While, a single cropping in the meher season is prevailing in other woredas. Production of permanent crops is rather limited compared to the temporary crops in the 8 target woredas as shown in the following table.

**Table 1.3.10 Planted Area of Permanent Crops in the Target Woredas**

Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Kalu 2/	Unit: ha	
79	107	limited	62	131	limited	41	822		
1/: Cropped areas estimated by CACC		2/: Including territory of Aregoba Woreda							
Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, Part I, CACC									

Major permanent crops in the Study Area are coffee and chat, and the same in the 8 target woredas are hop in Kobo, Gidan, Ebinate & Simada and chat and coffee in Kalu.

### 1.3.5 Cropped Area of Temporary Crops per Farm Households

The annual cropped areas of temporary crops per farm household in the Study Area and the target woredas are calculated as shown below.

**Table 1.3.11 Annual Cropped Areas of Temporary Crops per Farm Households 1/**

Crops	Study Area	Ebinate	Simada	Bugena	Gidan	Kobo	Legambo	Mekedela	Kalu 2/	Amhara	Unit: ha
No. of Farm Households (No.) 3/	1,670,139	42,018	46,102	46,460	34,563	43,337	35,309	31,172	39,518	2,994,056	
Annual Cropped Area (ha/household)	0.82	0.97	1.06	0.76	0.65	0.79	1.00	0.71	0.53	0.97	
Cropped Areas in Meher Season (ha/household)	0.75	0.95	1.01	0.76	0.49	0.74	0.58	0.66	0.47	0.07	
Cropped Areas in Belg Season (ha/household)	0.07	0.02	0.04	0.00	0.16	0.06	0.42	0.05	0.06	1.05	
1/: Cropped areas estimated by CACC		2/: Including territory of Aregoba Woreda		3/: Total of crop producing holders & (crop + livestock) producing farmers							
Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, Part I, CACC											

Average annual cropped areas of temporary crops per farm household is 0.82 ha in the Study Area and, in the 8 target woredas, they are in the range of 0.53 in Kalu (representing Aregoba) and 1.05 ha in Simada and limited to 0.82 ha in average.

### 1.3.6 Crop Yield and Production

The yields of temporary crops in the Study Area and the 8 target woredas are presented in the table.

**Table 1.3.12 Yield of Temporary Crops in the Study Area and Target Woredas 1/**

											Unit: ton/ha
Crops	Season	Study Area	Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Kalu 2/	Amhara
Cereals	Meher	1.1	0.84	0.78	0.77	1.14	1.30	0.98	1.25	1.53	1.22
	Belg	0.4	-	-	-	-	0.06	0.07	0.39	0.33	0.48
Wheat	Meher	1.1	1.16	0.90	0.81	0.99	1.45	1.27	1.12	1.22	1.24
	Belg	0.3	-	-	-	0.12	-	-	-	1.34	0.71
Teff	Meher	1.1	0.72	0.65	0.63	0.89	0.87	0.84	0.61	1.11	0.90
	Belg	0.3	-	-	-	0.07	0.07	-	-	-	0.72
Barley	Meher	1.2	0.85	0.83	0.99	1.21	1.70	1.19	1.50	1.13	1.14
	Belg	0.3	-	-	-	-	0.20	0.07	0.34	0.26	0.31
Maize	Meher	1.2	1.10	1.30	0.66	1.21	-	1.01	-	1.49	2.15
Sorghum	Meher	1.1	0.65	0.84	0.86	1.46	1.62	0.64	1.10	1.78	1.28
All Pulses	Meher	1.0	0.94	0.75	0.73	1.09	1.11	0.95	0.92	1.04	1.01
	Belg	0.4	-	-	-	0.05	0.11	-	0.15	-	0.34
All Oil Seeds	Meher	0.5	0.30	0.34	0.59	0.45	0.28	0.51	0.44	1.01	0.48
1/: Yield estimated by CACC		2/: Including territory of Aregoba Woreda									
Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, Part I, CACC											

The yield levels of temporary crops in both the Study Area and the 8 target woredas appear to be still low compared with the potential yield levels due primarily to crop production under traditional farming practices and under rainfed conditions. The yield levels of belg crops are miserably low due possibly to drought or water shortage in the season, which indicates instability of crop production in the season. The estimated productions of temporary crops in the Study Area and target woredas are presented in the following table.

**Table 1.3.13 Productions of Temporary Crops in the Study Area and Target Woredas 1/**

											Unit: 1,000 ton
Crops	Study Area	Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Kalu 2/	Amhara	
Cereals	1,000.0	20.7	24.1	20.6	13.8	38.0	13.3	22.6	26.4	2,771.1	
Wheat	174.0	3.9	3.1	3.0	3.1	1.0	2.9	4.6	0.5	362.8	
Teff	352.4	7.9	11.3	7.4	1.0	8.6	5.1	1.0	5.0	706.8	
Barley	201.3	2.7	2.7	5.5	7.0	2.2	3.9	14.5	0.4	335.2	
Maize	65.3	3.0	3.4	0.7	0.1	0.0	0.1	0.0	2.2	650.2	
Sorghum	228.9	1.9	3.2	3.8	1.5	23.3	0.9	1.2	16.8	522.6	
Pulses	290.2	12.3	10.0	5.9	5.1	2.6	6.2	5.3	1.3	506.1	
Oil Seeds	19.3	0.6	0.8	0.3	0.1	0.1	0.2	0.3	0.2	84.9	
Root Crops	66.3	0.7	3.0	0.0	2.4	0.2	0.5	1.1	0.3	499.0	
Vegetables	8.3	0.0	0.1	0.0	0.1	0.9	0.1	0.1	0.4	33.9	
1/: Yield estimated by CACC		2/: Including territory of Aregoba Woreda									
Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, Part I, CACC											

From the production volumes of cereals, the 8 target woredas can be grouped into 5 groups by a combination of primary cereals as follows;

Primary Crop – Secondary Crop				
Teff - Barley	Barley - Wheat	Sorghum - Teff	Teff - Wheat	Teff - Maize
Bugena, Mekedela	Gidan, Legambo	Kobo, Kalu	Ebinate	Simada

The bulk of agriculture in the Study Area is still fairly primitive with concomitant low productivity. It is now necessary to study and evaluate farming systems and practices to enable improvement of such systems and practices within their own environments.

### 1.3.7 Crop Yield and Production

The prevailing farming systems in the Study Area could be defined as a complex system of crop

production and livestock farming based on the CSA Sample Survey as shown in the following table.

**Table 1.3.14 Farming Systems in the Study Area**

Proportion of Farm Households by Farming Systems Adopted (%)		
Crop Only	Crop + Livestock	Livestock Only
19	74	6

Source: Agricultural Sample Enumeration 2001/02, Amhara Region, CSA

### 1.3.8 Irrigated Farming in the 8 Target Woredas

Some information on the irrigated farming in the target woredas are presented in the following table.

**Table 1.3.15 Irrigated Areas in Target Woredas (2008)**

Woreda	Year	Irrigated Area (ha)	No. of Beneficiaries (No.)	Irrigated Area/Farmer (ha)	Irrigation Systems	Irrigation Season	Major Crops
Ebinata	2007	586	4,650	0.13	river diversion, pumping, dug well	mostly in belg season	
	2009 1/	692	-	-			vegetables
Simada	2008	350	-	-	river diversion, pumping, dug well	belg season	
	2009 1/	702	-	-			
Bugena	2008	36	-	-	river diversion, spring, water harvesting pond	both meher/belg	vegetables
	2009 1/	88	-	-			
Gidan	2007	1,344	9,860	0.14	-	belg season	-
Kobo	2006	2,363	4,907	0.48	-	belg season	-
Legambo	2008	1,887	-	-	modern river diversion (38 schemes), traditional river diversion (=150 schemes), spring, pond	belg season	wheat, barley, spice, vegetables
	2009 1/	2,664	-	-			
Mekedela	2008	4,943	21,690	0.23	modern river diversion (7 schemes), traditional river diversion (=150 schemes), spring, 2 reservoirs, pond	belg season	vegetables, lentil, spice
	2009 1/	5282	24,691	0.21			
Aregoba	2008	200	-	-	-	belg season	vegetables

1/: Plan Source: WAO & CDC report

As shown in the table, irrigation developments in the target woredas are rather limited except in Mekedela and the small-scale river diversion system is main stay. Irrigation farming is mainly practiced in belg season and major crops cultivated are various kinds of vegetables. In the target watershed in Mekedela, a reservoir is constructed and gravity irrigation areas of some 180ha are developed. Main irrigation methods appear to be a sort of flooding irrigation, the introduction of furrow irrigation is considered essential for the efficient utilization of valuable water resources and productivity improvement.

## 1.4 Livestock

### 1.4.1 General

The livestock sub-sector is another important economic activity of farm households in the Study Area and 8 target woredas. In addition, draft cattle are primary sources of labor for land preparation and transport of farm products. However, livestock husbandry in the areas is still in the stage of rather less intensive being placed priority on number of animals rather than productivity. Cattle are generally stocked as an asset and small ruminants are usually kept to cope with food insecurity. Accordingly, the sub-sector faces unstable and low productivity. Major constraints of the livestock sub-sector include problems in animal health, raising practices, genetic resources and feed supply. The present discussion on livestock is mostly based on the statistic estimation presented in Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, CACC.

### 1.4.2 Livestock Population and Holding sizes

The livestock population and the holding size per household in the Study Area are summarized in the following table.

**Table 1.4.1 Livestock Population by Type of Animal in the Study Area**

													Unit: 1,000 head		
Woreda	Type of Animal								Total	No. of Holders	Livestock Unit per Household	Animal Holding per Household			
	Cattle	Sheep	Goat	Horse	Ass	Mule	Camel	Poultry	Livestock Unit 1/ Beehives			2/ Household	Cattle (No.)	Sheep/Goat (No.)	
Study Area	4,995	3,545	2,658	135	808	61	16	6,617	6,418	434	1,670,139	3.8	3.0	3.7	
Amhara Region	10,513	5,320	3,816	306	1,465	106	28	3,435	12,932	917	3,255,768	4.0	3.2	2.8	

1/: Estimated by  $goat/sheep \times 0.1 + horse/ass/mule \times 0.7 + camel \times 2 + poultry \times 0.01 + cattle \times 1$  2/: Total of (crop + livestock + crop & livestock) holders  
Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, CACC

Livestock population and the holding size per household in the 8 target woredas are presented below.

**Table 1.4.2 Livestock Population by Type of Animal and Woreda**

Woreda	Type of Animal (1000 heads)								Total Livestock Unit 1/ (1000 LUs)	No. of Beehives (1000 hives)	No. of All Holders 2/ Household	Livestock Unit per Household	Animal Holding per Household	
	Cattle	Sheep	Goat	Horse	Ass	Mule	Camel	Poultry	Cattle (No.)				Sheep/Goat (No.)	
Ebinate	124	33	70	1	23	1	1	190	155	19	43,517	3.6	2.8	2.4
Simada	131	81	97	1	25	2	0	159	169	12	49,358	3.4	2.7	3.6
Bugena	137	64	80	0	27	2	0	198	174	15	49,375	3.5	2.8	2.9
Gidan	82	115	42	0	18	2	0	125	113	4	36,256	3.1	2.3	4.3
Kobo	155	9	62	0	20	1	3	212	185	5	46,745	4.0	3.3	1.5
Legambo	83	203	23	7	20	1	0	94	126	3	37,583	3.4	2.2	6.0
Mekedela	91	106	47	1	20	1	0	78	122	7	32,753	3.7	2.8	4.7
Aregoba 3/	115	13	68	0	13	1	2	205	139	6	40,766	3.4	2.8	2.0

1/: Estimated by  $goat/sheep \times 0.1 + horse/ass/mule \times 0.7 + camel \times 2 + poultry \times 0.01 + cattle \times 1$   
2/: Total of (crop + livestock + crop & livestock) holders 3/: Represented by figures of Kalu where Aregoba territory was involved.  
Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, CACC

The population of livestock in the 8 woredas expressed in live stock unit (LU) is in the range of 113,000 in Gidan to 185,000 in Kobo. The holding size per farm household is in the range of 3.1 LU in Gidan to 4.0 LU in Kobo. The holding size of small ruminants appears to be high in Legambo and Gidan, where majority of their territories are located in an Agro-climatic zone of Dega. Apiculture is common in Ebinate, Bugena and Simada.

### 1.4.3 Genetic Resources and Milk Production

Poor genetic resources of animals are reported as a reason for low productivity in the Study Area and 8 target woredas. Holding of indigenous cattle is almost exclusive in both the areas as shown below.

**Table 1.4.3 Number of Cattle by Sex and Breed in the Study Area & Target Woredas**

Woreda	Male			Female			Unit: head
	Indigenous	Hybrid	Exotic	Indigenous	Hybrid	Exotic	Total
Ebinate	64,821	0	0	59,049	0	*	123,872
Simada	68,734	*	*	61,901	*	54	130,707
Bugena	69,308	0	0	67,616	0	0	136,924
Gidan	39,668	0	0	42,673	0	0	82,341
Kobo	77,250	*	*	77,127	*	*	154,724
Mekedela	43,409	0	*	47,103	0	0	90,551
Legambo	37,802	*	*	44,052	*	*	82,532
Aregoba 1/	61,351	0	0	53,650	0	*	115,006
Study Area	2,808,075	5,847	0	2,910,283	8,608	0	5,732,813
Amhara Region	5,250,765	19,142	3,483	5,206,338	24,930	8,118	10,512,777

1/: Represented by figures of Kalu where Aregoba territory was involved.

Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, CACC

Population, holding size per farm household and annual milk production features of the Study Area and the 8 target woredas are as shown in the following table.

**Table 1.4.4 Number of Milking Cows and Milk Production**

Woreda	Population & Milk production			No. of	Milking Cows/Farm (No.)
	Milking Cows (No.)	Average Daily Milk Production (lt.)	Annual Milk Production (1,000lt.)	All Holders 1/	
Ebinate	16,291	0.8	2,620	43,517	0.4
Simada	20,360	1.0	3,303	49,358	0.4
Bugena	26,651	1.1	5,180	49,375	0.5
Gidan	18,886	1.5	5,120	36,256	0.5
Kobo	27,197	1.3	8,194	46,745	0.6
Mekedela	19,436	1.5	4,667	32,753	0.6
Legambo	21,273	1.7	6,629	37,583	0.6
Aregoba 2/	25,583	1.3	6,152	40,766	0.6
Study Area	848,026	1.3	219,563	1,670,130	0.5
Amhara Region	1,927,861	1.2	492,964	3,255,768	0.6

1/: Total of (crop + livestock + crop & livestock) holders

2/: Represented by figures of Kalu where Aregoba territory was involved.

Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, CACC

The annual milk production in the 8 target woredas is in the range of 2.6 m3 in Ebinate to 8.2 m3 in Kobo and the holding size of milking cows per farm household is estimated at 0.5 in the Study Area and in the range of 0.4 to 0.6 head in the 8 target woredas.

### 1.5 Categorization of the Study Area from Agriculture and Livestock Aspect

Categorization of the 64 woredas (the Study Area) based on the present agricultural conditions has been made by five main agricultural characteristics. The characteristics employed include: i) prevailing farming system, ii) annual cropped area of temporary crops per farm household, iii) primary and secondary temporary crops cultivated, iv) extent of temporary crops cultivation in belg season, and v) holding size of livestock per household. The classification has been made based on the statistic data presented in Ethiopian Agricultural Sample Enumeration, 2001/02, CACC. The results of the classification are presented in Figure 1.5.1 to 1.5.5 and discussed in the followings.

(1) Prevailing Farming System

The farming system in the Study Area can be categorized into: i) crop production system, ii) livestock production system and iii) crop + livestock production system as discussed earlier. The classifications by the categories are as shown in the following table.

**Table 1.5.1 Classification of 64 Woredas and the 8 Target Woredas by Prevailing Farming System**

Proportion of Crop + Crop & Livestock Farm Households to Total	Map Legend	Study Area (No.)	Proportion of Crop + Crop & Livestock Farm Households to Total (%)							
			Target Woreda							
			Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Aregoba
> 95 %	1	30 woredas								
90 - 94 %	2	27 woredas	97	93	94	96	93	95	94	98
85 - 89 %	3	7 woredas								

(2) Cropped Area of Temporary Crops per Farm Household

The 64 and 8 target woredas are classified into 4 groups based on the annual cropped area of temporary crops per farm household as shown below.

**Table 1.5.2 Classification by Cropped Area of Temporary Crops per Farm Household**

Annual Cropped Area of Temporary Crops per Farm Household (ha)	Map Legend	Study Area (No.)	Annual Cropped Area of Temporary Crops per Farm Household (ha)							
			Target Woredas							
			Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Aregoba
0.4 - <0.5	1	1 woredas								
0.5 - <1.0	2	43 woredas	0.96	1.06	0.76	0.65	0.79	0.70	1.00	0.52
1.0 - <1.5	3	18 woredas								
>1.5	4	2 woredas								

(3) Primary and Secondary Temporary Crops Cultivated

Major crops cultivated in the 64 woredas are cereals followed by pulse and oil seeds. The classification based on combination of primary and secondary crops cultivated is as follows;

**Table 1.5.3 Classification of the 64 Woredas and the 8 Target Woredas by Dominant Crops**

No. of Woredas Grouped by Combination of Most & 2nd Dominant Crop	Map Legend	Study Area (No.)	No. of Woredas Grouped by Combination of Most & 2nd Dominant Crop							
			Target Woredas							
			Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Aregoba
Teff - sorghum	1	11 woredas								
Barley - wheat	2	11 woredas	most	most	most	most	most	most	most	most
Sorghum - teff	3	10 woredas	teff	teff	teff	barley	sorghum	teff	barley	teff
Teff - wheat	4	9 woredas	2nd	2nd	2nd	2nd	2nd	2nd	2nd	2nd
Teff - barley	5	8 woredas	wheat	sorghum	barley	wheat	teff	barley	wheat	wheat
Other Combinations 1/	6	15 woredas								

1/: Barley - sorghum 4 woredas; wheat - teff 3 woredas; barley - teff/wheat - barley/sorghum - millet 2 woredas; sorghum - maize & teff - maize 1 woreda

(4) Extent of Temporary Crops Cultivation in Belg Season

The temporary crops lands in the 64 woredas can be differentiated into areas with a single cropping season of meher and two cropping seasons of meher and belg as discussed in the preceding section. The classification by the extent or proportion of the belg cropped area to the meher cropped area is shown in the following table.



**Table 1.5.4 Classification of the 64 Woredas and the 8 Target Woredas by Extent of Belg Crops**

Proportion of Belg Crop Cultivated Areas to Meher Crop Cultivated Areas (%)	Map Legend	Study Area (No.)	Proportion of Belg Crop Cultivated Areas to Meher Crop Cultivated Areas (%)							
			Target Woreda							
			Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Aregoba
> 30 %	1	30 woredas								
>20 - 30 %	2	27 woredas	2.1	4.3	0.0	32.9	7.7	7.5	72.0	12.8
>10 - 20 %	3	7 woredas								

(5) Holding Size of Livestock per Household

The livestock sub-sector is an essential economic activity in the 64 woredas and the economic importance of the sub-sector is especially high in the high altitude areas and for households with limited land holding. To examine the importance of the sub-sector in the 64 woredas, holding size of livestock per farm household expressed in total livestock units (LU) are applied for classification as indicated below.

**Table 1.5.5 Classification of 64 Woredas and the 8 Target Woredas by Livestock Holding Size**

Holding Size of Livestock Unit per Household (No.)	Map Legend	Study Area (No.)	Holding Size of Live Stock Units per Household (No.)							
			Target Woreda							
			Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Aregoba
2 - <3	1	4 woredas								
3 - <4	2	27 woredas								
4 - <5	3	27 woredas	3.6	3.4	3.5	3.1	3.8	3.7	3.3	3.4
>4	4	6 woredas								

The results of the classifications are summarized in the following table.

**Table 1.5.6 Categorization of the 64 Woredas by Agricultural Features**

Woreda	Agro-Climate Zone	Agricultural Holders by Farming System Proportion of (Crop + Crop & Livestock)	Annual Temporary Crops Cropped Area per Household (ha)	Classification by Dominant Crop Combination 2nd Dominant	Proportion (%) of Belg Cropped Areas to Cropped Areas in Meher	Holding Size of Livestock per Farm Household
1 Enebe Sar Mider	WD	2	2	4	1	2
2 Goncha Siso Enese	WD	2	3	4	1	2
3 Shebele Berenta	WD	1	3	1	1	2
4 Adarekaye	UK	2	2	6	1	3
5 Beyeda	D	1	2	2	1	2
6 Dabat	WD	3	3	3	1	2
7 Debark	UK	2	2	2	1	3
8 East Belesa	WD	3	4	1	1	3
9 Janamora	WD	2	2	2	1	2
10 Telemt	WD	2	2	6	1	3
11 West Belesa	WD	3	4	1	1	3
12 Wogera	WD	2	3	6	1	2
13 Angolelana Tera	WD	3	3	2	3	4
14 Asagirt	D	2	3	6	4	3
15 Giske Rabele	WD	1	3	2	2	3
16 Menze Gera Mider	D	2	3	2	4	3
17 Menze Lalo Mider	D	2	3	6	2	2
18 Menze Mama Mider	WD	2	2	6	1	2
19 Menze Qeya Gebriel	WD	2	3	2	4	3
20 Bugena	WD	2	2	5	1	2
21 Dawunt	WD	1	2	4	1	3
22 Delanla	D	1	2	4	1	3
23 Gidan	D	1	2	2	4	2
24 Guba Lafo	WD	1	2	1	4	2
25 Habru	UK	1	2	3	2	2
26 Kobo	WD	2	2	3	1	2
27 Lasta	WD	2	2	5	1	2
28 Mekete	WD	1	2	5	1	2
29 Wadela	D	1	2	6	3	2
30 Artuma Fursi	D	2	2	3	3	3
31 Bai	UK	1	2		1	4
32 Dewa Chefa	D	2	2	3	2	3
33 Dewa Harewa	D	2	2	3	2	3
34 Jilena Timuga	D	3	2	3	2	4
35 Ebinale	WD	1	2	4	1	2
36 Laye Gayint	WD	2	2	2	2	2
37 Libo Kemkem	WD	2	3	1	1	2
38 Simada	WD	2	3	1	1	2
39 Tach Gayint	WD	1	2	4	1	2
40 Alebuko	D	1	2	6	2	2
41 Ambassel	WD	1	2	6	3	2
42 Aregoba Special	UK	1	2	4	2	2
43 Debre Sina	WD	1	2	6	1	2
44 Dessie Zuria	D	1	2	5	4	2
45 Jamma	WD	1	3	4	1	3
46 Kalu	WD	1	2	2	2	2
47 Kelela	WD	1	3	4	1	3
48 Kula Ber	WD	1	2	6	3	3
49 Legambo	D	2	3	2	4	2
50 Legehida	WD	2	3	6	3	3
51 Mehal Sayint	WD	1	2	5	1	3
52 Mekedela	WD	1	2	5	1	2
53 Sayint	WD	1	2	5	1	3
54 Tehulederie	WD	2	2	3	3	2
55 Tenta	D	1	2	6	3	2
56 Wogedi	WD	1	2	1	1	2
57 Wore Illu	D	2	3	6	3	3
58 Worebabu	UK	1	1	3	2	2
59 Abergelle	UK	2	2	1	1	3
60 Dahena	WD	1	3	5	1	4
61 Gazgibela	WD	2	2	1	1	4
62 Sehala	UK	1	2	1	1	4
63 Seqota	WD	2	2	1	1	3
64 Zequala	UK	1	2	3	1	4

Source: Ethiopian Agricultural Sample Enumeration, 2001/02, Results for Amhara Region, Farm Management Practices, Part II.A, CACC

**Map Legend**

Proportion of Crop + Crop & Livestock Farm Households to Total		Annual Cropped Area of Temporary Crops per Farm Household (ha)		No. of Woredas Grouped by Combination of Most & 2nd		Proportion (%) of Belg Cropped Areas to Cropped Area in Meher		Holding Size of Live Stock Units per Household (No.)	
Proportion (%)	Mapping Symbol	Crooped Area (ha/farm)	Mapping Symbol	Most-2nd	Mapping Symbol	Proportion (%)	Mapping Symbol	Holding	Mapping Symbol
> 95 %	1	0.4 - <0.5	1	Teff - sorghum	1	0 - <10 %	1	2 - <3	1
90 - 94 %	2	0.5 - <1.0	2	Barley - wheat	2	10 - <20 %	2	3 - <4	2
85 - 89 %	3	1.0 - <1.5	3	Sorghum - teff	3	20 - <30 %	3	4 - <5	3
		>1.5	4	Teff - wheat	4	>30 %	4	>5	4
				Teff - barley	5				
				Others	6				

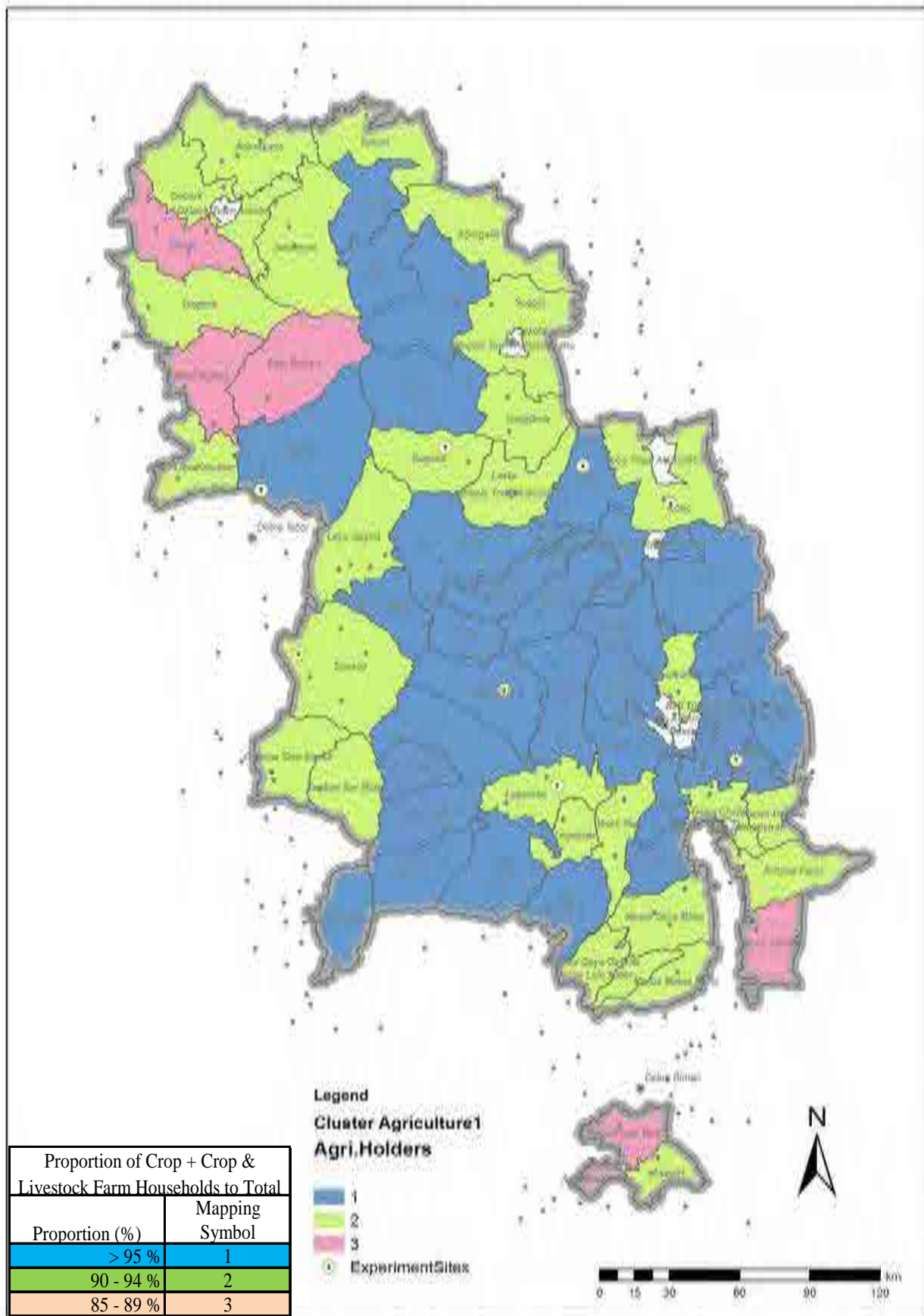


Figure 1.5.1 Classification of 64 Woredas by Prevailing Farming System

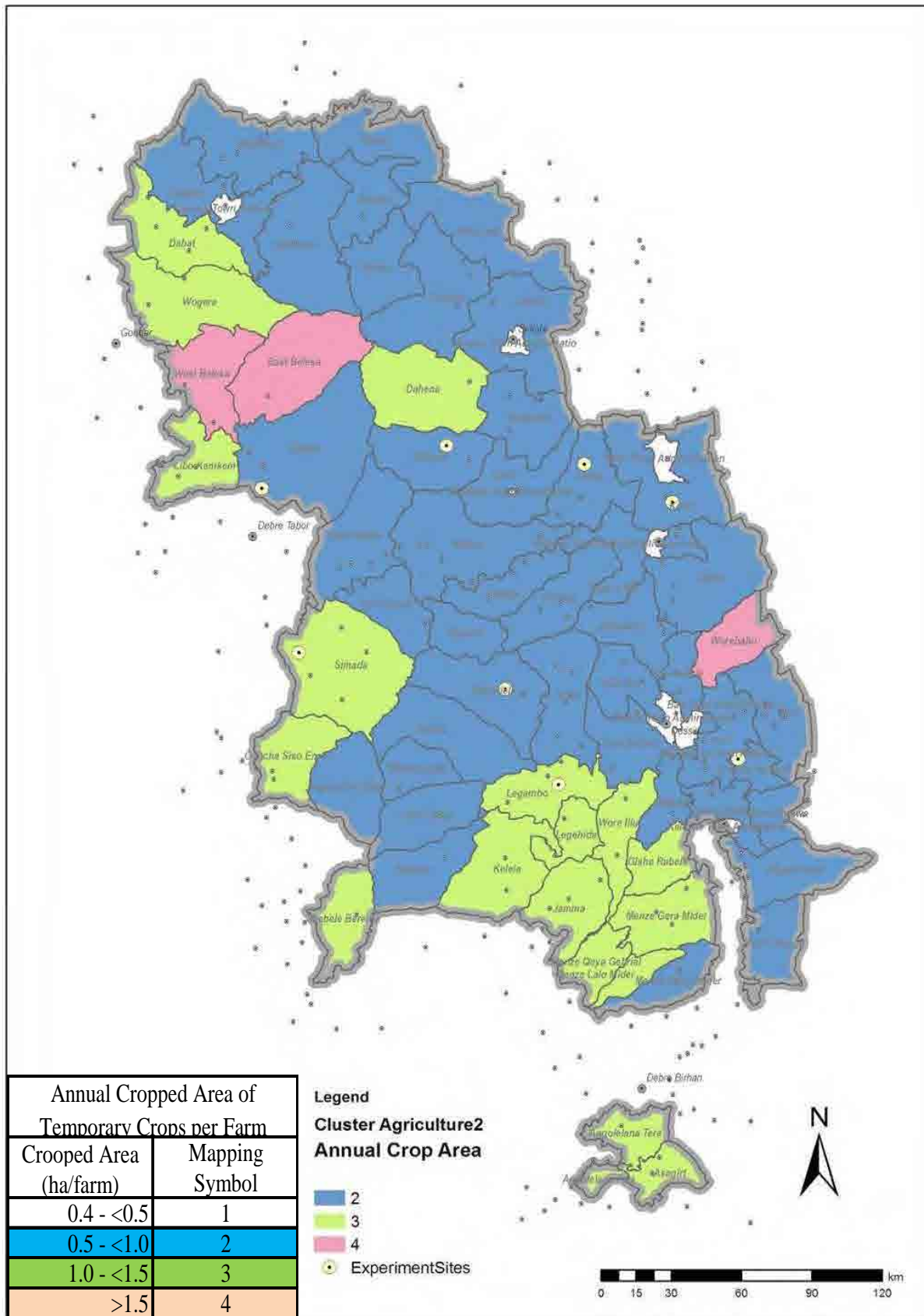


Figure 1.5.2 Classification of 64 Woredas by Cropped Area of Temporary Crops per Farm Household

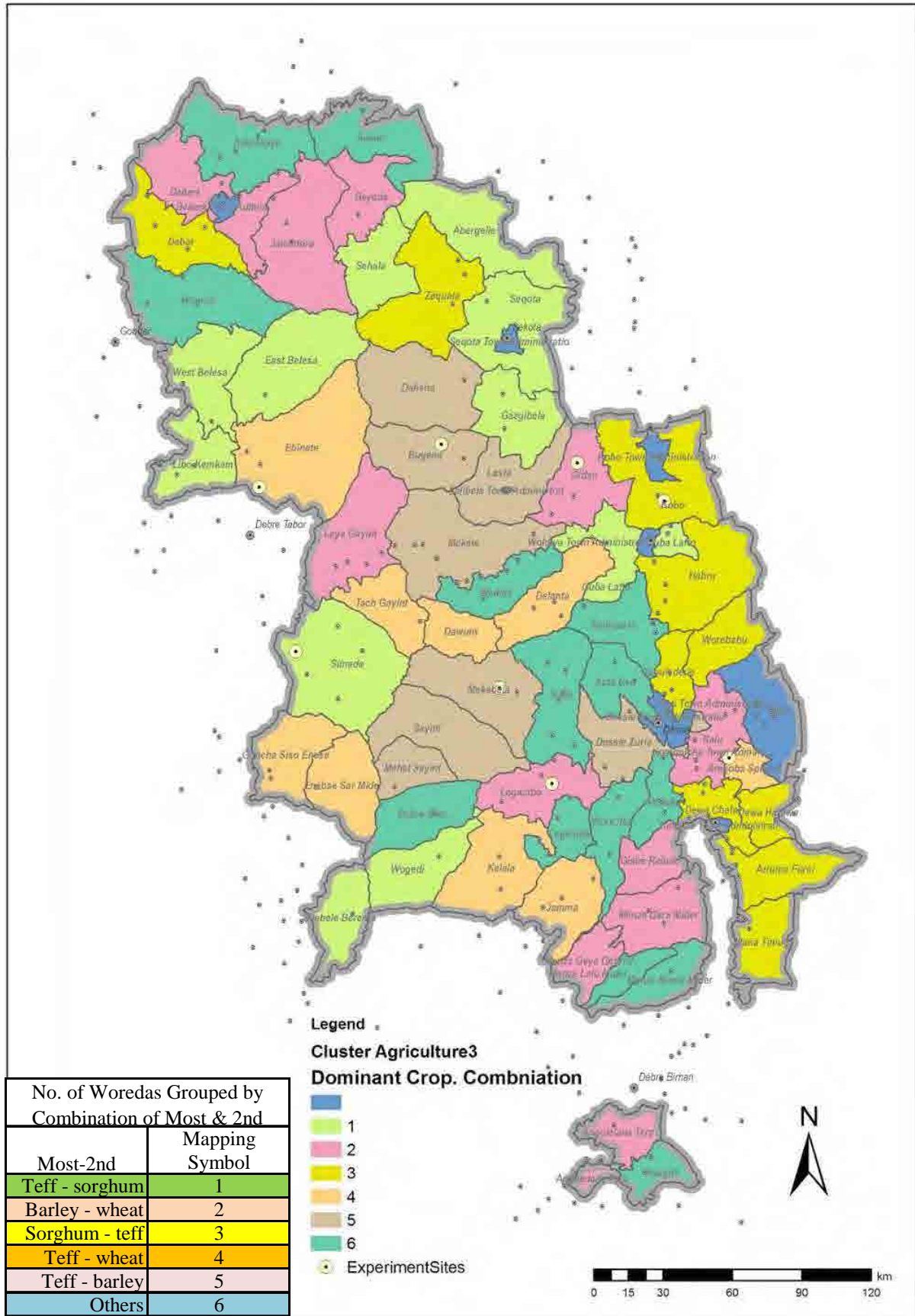


Figure 1.5.3 Classification of 64 Woredas by Dominant Crop Combination

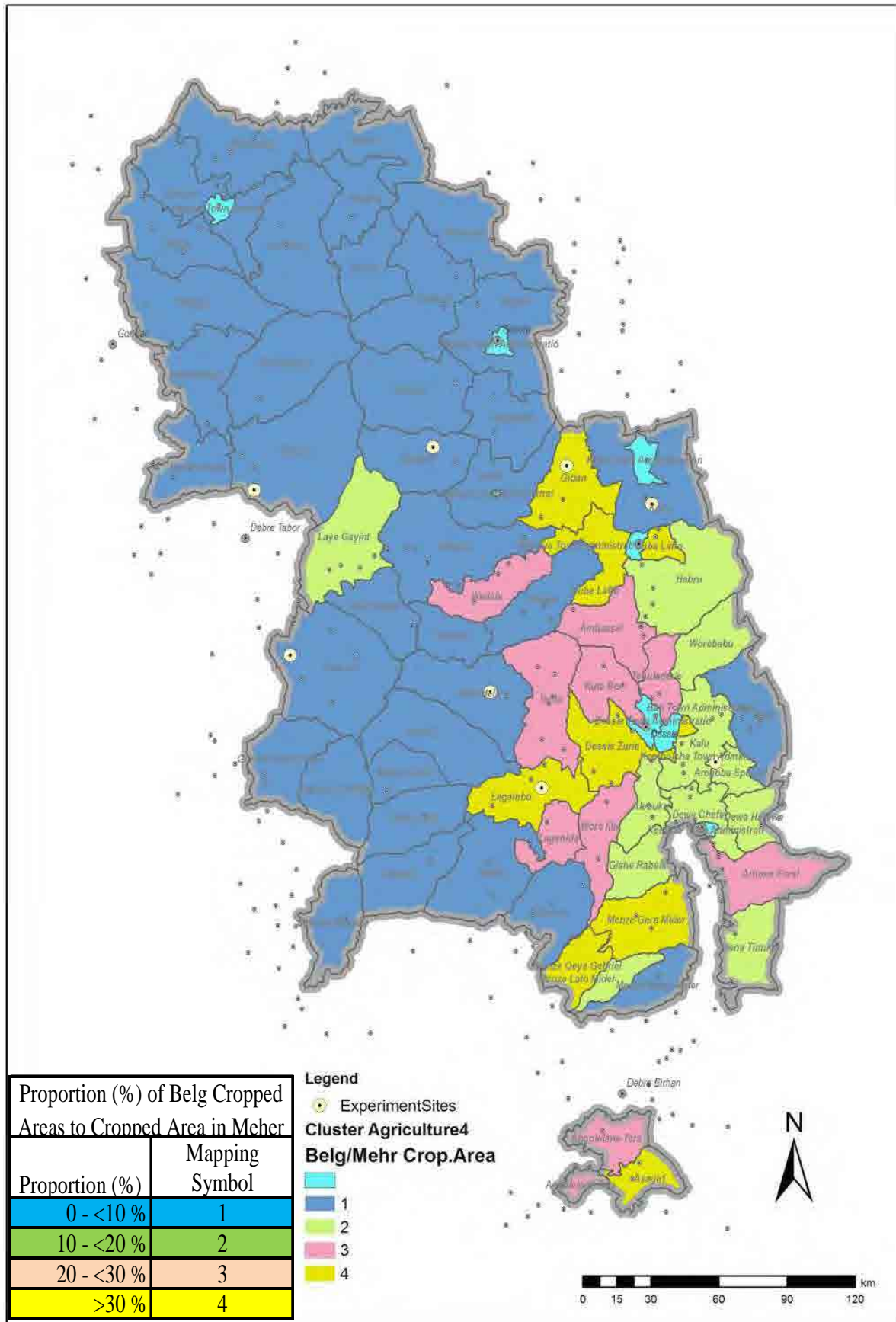


Figure 1.5.4 Classification of 64 Woredas by Extent of Belg Crops

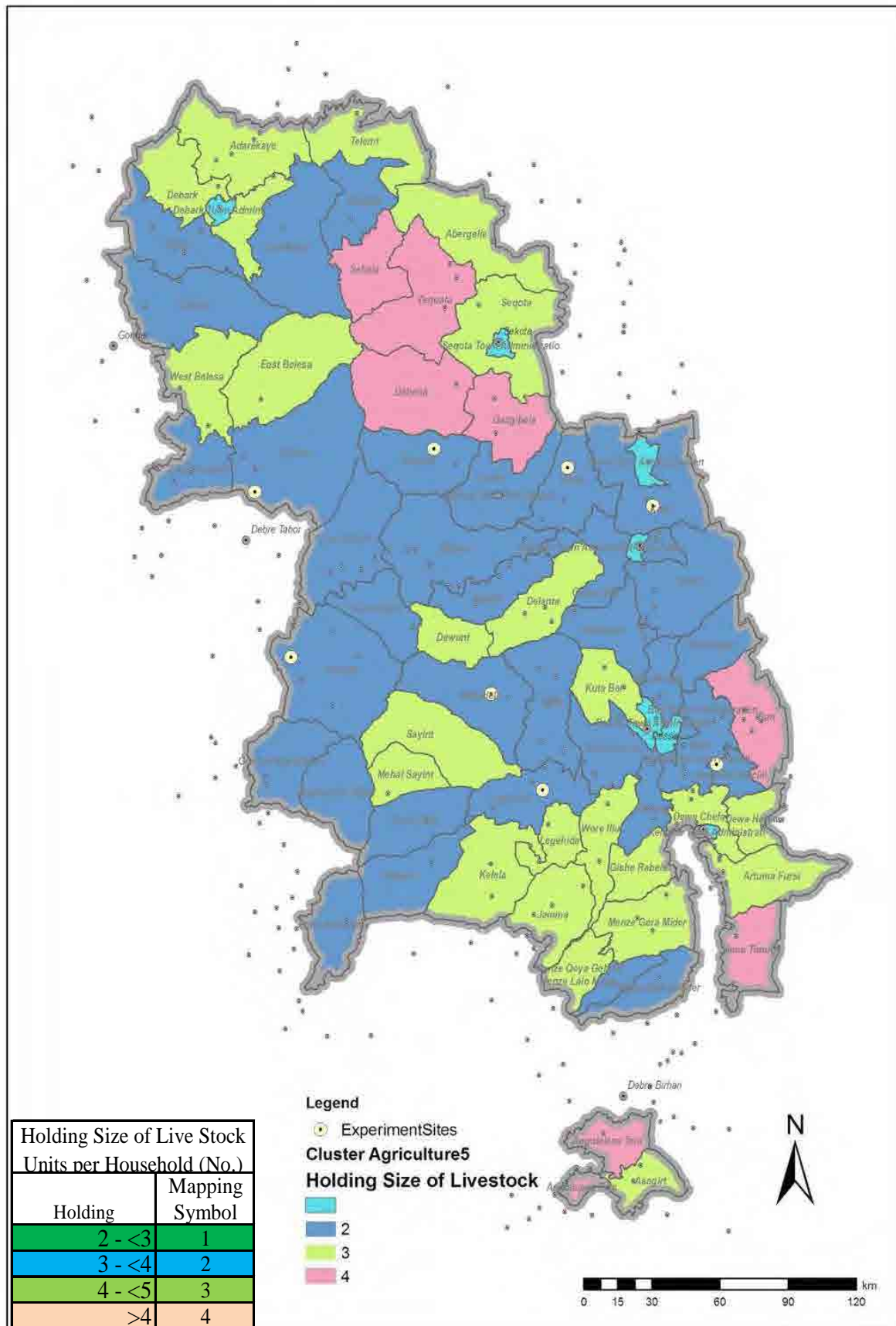


Figure 1.5.5 Classification of 64 Woredas by Livestock Holding Size

## 1.6 Agricultural Research

After the establishment of Amhara Regional Agricultural Research Institute (ARARI) in August 2000, the agricultural research centers in the region have been reorganized by incorporating the livestock multiplication centers under the research network of ARARI. Currently, there are 8 research centers operated in the region under the coordination of ARARI as follows;

**Table 1.6.1 Research Centers in Amhara Region (2008)**

Research Center	Target Zone/Area	Major Research Fields/Commodities
ARARI	Region	Coordination of Centers, tissue culture
Adet	East & West Gojam, South Gondar	Cereals, pulses, oilseeds, root crops, vegetables, natural resources
Gondar	North Gondar (new center)	Crop, livestock, natural resources
Sirinka	North Eastern part of ANRS	Sorghum, teff, lowland pulses, livestock & natural resources
Andassa	Regional (livestock center)	Poultry, cattle, forage
Debre Birhan	North Showa	National coordinator on sheep; crop, livestock & natural resources
Mechanization	Regional center	Agricultural implements & machinery
Sekota	Sekota area (North Wollo)	Livestock, crop, natural resources
Fishery	Regional center	Fishery

*Source: ARARI*

Among them, the centers covering and located in the eastern part of the region (the Study Area) are Adet, Shrink and Sekota Agricultural Research Center (ARC). The main mandate of Adet ARC and Sirinka ARC is the improvement of temporary crops production. Sekota ARC is rather specialized in livestock production improvement, especially in small ruminants.

In Ethiopia, the Research-Farmer-Extension Advisory Council is institutionalized at the federal, regional and zone levels to maintain the linkage among research, extension & farmers. The zone level Advisory Council meeting is held twice a year, one time for field evaluation of research & extension activities and one time for evaluation of research & extension plan for the next year. The head of Zone Agricultural & Rural Development Department is appointed as chairman and the director of Research Center is as secretary of the Council. The regional and federal Council is held annually.

The primary constraints faced by the research centers are reported to be financial problems and poorly equipped research instruments and facilities. However, the limited linkage of research, extension & farmer might be the most serious problem encountered by the regional research-extension systems.

## 1.7 Agricultural Extension Services

### 1.7.1 General

Agricultural extension services in Ethiopia were traditionally provided by public sector under a top-down approach. However, following the adoption of Training and Visit Strategy of Extension by the World Bank in 1984, the Participatory Demonstration & Extension Project (PADEP) was adopted as an extension system in the country. Further, since 1995, the country has been undertaking a home grown development strategy known as, Agricultural Development Led Industrialization (ADLI). One of the main facets of this strategy in the agricultural sector has been the generation, adoption and diffusion of new farm technologies in the form of new and improved inputs and practices. In the mobilization of small farmers and the dissemination of better farming practices, the agricultural development strategy has been promoted through the Participatory Demonstration & Extension



Training System (PADETS) by replacing the PADEP, in which a bottom-up approach is emphasized and institutionalized. The PADETS strategies are:

- Sizable demonstration plots in farmers fields instead of fenced government plots,
- Provision of input credit under local government credit guarantee arrangement,
- Market led inputs & output prices, and
- Institutional linkages with rural development committees.

Its stated objectives include: i) increased incomes and level of living, ii) fostering food security and improved health, iii) free organization by sex, age and lines of occupation, iv) provision of raw materials for industry, v) enhancement of foreign exchange, and vi) conservation of natural resources and environment all through the provision of appropriate technologies and the participation of women.

### **1.7.2 Extension System and Institutions**

Under the decentralization policy in the country, the provision of extension services has largely been devolved to the woreda level agricultural agency, Woreda Agriculture and Rural Development Office (WAO), and extension agents of the Office, Development Agents (DAs). The current extension system employed in Ethiopia is composed of three tiers of government administrative structures (federal, region, woreda) and involves MoARD, BoARD & Zonal Agriculture & Rural Development Office (ZAO) and WAO including DA and Farmer Training Center (FTC). Major functions of the extension agencies at the federal, regional and Woreda levels are as follows;

**Table 1.7.1 Extension System, Extension Staff & Facility in ANRS (2008)**

Institution/Staff/Facility	Function/Deployment
MoARD (federal)	Policy/strategy formulation
	Technical guidance to regional state agricultural offices
	Procurement & introduction of new technologies
BoARD (region)	Policy/strategy formulation & planning
	Formulation of extension & technical packages
	Development & dissemination of indigenous technologies from farmers
	Technical guidance to WAOs
ZAO (zone)	Linkage between BoARD & WAOs
	Technical guidance to Woreda agricultural offices
	Monitoring & supervision of Woreda activities
WAO (woreda)	Implementing agency of extension services
	Implementation, monitoring & supervision of extension activities
	Technical guidance to DAs
DA (woreda/kebele)	Kebele level extension agent
	Planning, implementation & monitoring of extension activities
	Technical guidance to farmers
	Deployment 3DAs per 1,000 ~ 2,000 household or per Kebele
	Deployment of DAs in ANRS: 10,870 (in 2008)
FTC (woreda/kebele)	Grass-root contact center having an important bearing on extension activities
	Farmer training facility & office of DAs established in each Kebele
	Facilities: DA office, class & exhibition room, demonstr. field 2.5 ~ 3.0ha
	No. of FTCs in ANR: 2,233 (in 2008)
Veterinary Center Other Field Staff (woreda/kebele)	1 center per 3 Kebeles (target)
	DA Super visor: 1 per 3 FTCs
	Cooperatives Officer: 1 per 3 FTCs
	Veterinary Technical: 1 per 3 FTCs

The recruitment and intensive deployment of the DAs at Kebele level was strongly promoted and the 2-year education of the DAs is carried out at college level schools established under the Agricultural Technical & Vocational Education Training (ATVET) Program including 1 year of field practical training. In ANRS, there established 5 ATVET schools (2008).

### 1.7.3 Institutions Involved in Extension Services

The institutions involved in the agricultural extension services include the government institutions as stated earlier, donor agencies and NGOs. BoARD is the agency responsible for the execution of extension services and technology development as a central institution in ANRS. The reorganization of the Bureau was carried and the new Bureau composed of ten Processes: namely Agricultural Extension; Natural Resources Management, Irrigation Development, Agricultural Input Supply & Distribution; Agricultural Products Marketing; Livestock & Plant Quarantine, Planning and Information & Technology Promotion, Protection and two administrative processes headed by process owners (as of December, 2010).

ZAO is rather weakly established as a linkage institution between BoARD and WAOs. WAO and its Kebele level field staff are actual players of the agricultural extension services to farming communities. The organization structures of the target 8 woredas are as shown in the following table.

**Table 1.7.2 Organization Set-up of Warred Agriculture & Rural Development Offices**

as of June 2010

Process	Woreda								
	Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Aregoba	
<b>Organization Set-up</b>									
Extension	0	0	0	0	0	0	0	0	
N.R. Management	0	0	0	0	0	0	0	0	
Irrigation	0	0	0	0	0	0	0	0	
Input Supply	0	0	0	0	0	0	0	0	
Cooperatives	0	0	0	0	0	0	0	0	
Food Security	0	0	0	0	0	0	0	0	
Early Warning	0	0	0	0	0	0	0	0	
Quarantine	0	0	0	0	0				
Rural Energy	0			0		0	0		
Mining	0			0	0	0	0	0	
Planning & Programming	0	0	0	0	0	0	0		
Civil Services	0		0	0	0	0			
Auditing	0	0	0	0	0	0	0	0	
Others	1	1		1		1		1	
<b>Total (No. of processes)</b>	<b>14</b>	<b>12</b>	<b>11</b>	<b>14</b>	<b>12</b>	<b>13</b>	<b>11</b>	<b>10</b>	
<b>Staffing</b>									
Staff No.	Technical	67	52	31	63	56	70	65	30
	Others	13	13	8	12	20	10	32	5
	<b>Total</b>	<b>80</b>	<b>65</b>	<b>39</b>	<b>75</b>	<b>76</b>	<b>80</b>	<b>97</b>	<b>35</b>
No. Kebeles	37	40	13	26	35	29	35	7	
No. FTC	28	39	13	25	30	28	31	3	
No. of DAs	60	105	31	95	119	95	83	19	
No. of Supervisors	9	9	4	8	11	6	10	1	

1/: 0 - process formed in WAO

International and bilateral cooperation organizations involved in watershed management in ANRS are providing agricultural extension services. Major such organizations include GTZ, SIDA, CIDA, WFP and FAO. The primary NGO providing the extension services is ORDA.

#### 1.7.4 Extension Activities

The PADETS approach has emphasized the development and dissemination of extension packages to farmers. As of 2008, 92 packages were developed in ANRS consisting of 53 packages for crop sub-sector, 26 for livestock sub-sector, 6 for host-harvest sub-sector and 7 for in natural resources sub-sector. In case of crop sub-sector packages, the packages generally cover supply of seed and fertilizer, provision of credit, training of participating farmers and demonstration plots. Through this approach, DAs encourage the use of packages tied to credit and they are deeply involved in the distribution of inputs and the collection of credit repayments. This package-driven extension approach has been implemented on a large scale in the country and in ANRS. The extension packages are accommodated in the 2008 BoARD annual plan as indicated below.

**Table 1.7.3 Extension Packages Planned in 2008 in ANRS**

Extension Packages	No. Farm Participating Households
Minimum Package	2,869,334 households
Household Package	330,666 households 1/
Total	2,902,400 households

1/: Households being in package

Source: BoARD

Since the launching of PADETS in 1995, the dissemination of Extension Package Programs (EPP) covering technology packages of crop, livestock and natural resources sub-sectors has become the main stay of agricultural extension activities by the WAOs and DAs. However, the EPP has currently been rearranged and categorized into Household Package and Minimum Package. The Household Package intends to attain income target of household of 10 Birr/day/family in a period of 3 years. The objective of Minimum Package is productivity improvement & production increase. Household Package is for 3 years and combinations of plural technology packages are adopted to attain the income target based on a baseline survey of individual households with the DAs' support. Minimum Package is for a period of 1 year and targeted for a group of 10 farmers (1 model farm & 9 member farmers). In both Packages, training and technical guidance by the DAs are to be provided to target groups. The features of the Packages are as follows;

**Table 1.7.4 Household & Minimum Packages**

Extension Packages	Objective	Period	Technology Packages	Credit
Household Package	Livelihood improvement	3 years	Plural packages	Institutionalized
Minimum Package	Production	1 year	1 package	Institutionalized

The extension packages implemented in the target woredas in 2007/08 are reported as follows;

**Table 1.7.5 Extension Packages Implemented in Target Woredas (2007/08)**

Cooperatives	Bugena	Gidan	Kobo	Ebinata	Simada	Aregoba	Legambo	Mekedela
Household Package								
- Annual Plan	1,170	3,268	4,650	5,782	10,360	1,000	1,913	n.a.
- Performance	119	1,615	3,600	n.a.	5,712	300	n.a.	n.a.
Minimum Package								
- Annual Plan	13,500	17,850	44,236	41,930	49,144	500	20,400	n.a.
- Performance	2,677	1,769	30,432	n.a.	37,658	420	n.a.	n.a.

Note: Annual performance for Ebinata & Aregoba at end of 3<sup>rd</sup> quarter; other woredas at end of 4<sup>th</sup> quarter

Source: 2007/8 Annual Performance Report of WAOs

### **1.7.5 Assessment of Extension Packages by Farmers**

In the Socio-economic Survey Report conducted by MoARD in 2003 and by BoFED in 2004, comprehensive assessments of the extension technology packages by farmers in the 8 target Woredas are reported. Major findings of the assessments are enumerated as follows;

- Main source of information on technology packages is DA followed by fellow farmers,
- Majority of farmers reported usefulness of technology packages, however, negative responses are reported in Mekedela Woreda,
- Reasons for discontinuing participation in extension packages differ among the 8 target Woredas, however, main ones include: i) higher cost of packages, ii) poor results of packages, and iii) natural hazards encountered,
- Main reason for not participating in extension packages is limited capacity for introducing extension packages,
- Main factor contributing to adoption of crop package is better extension advice,
- Main factor contributing to adoption of livestock package is better extension advice followed by easiness to apply,
- Main reason for not applying DA advice is that farmers could not understand the advice,
- Main training subject on crop sub-sector needed is cereal (teff & wheat),
- Farmers preference on crop packages is cereal (teff & wheat),
- Farmers preference on livestock packages differs among Woredas. Major ones include dairy, goat rearing and sheep rearing, and
- Government supports sought by farmers are credit for input, adequate training and assigning of qualified DA.

### **1.7.6 Weaknesses in Current Extension Services**

The current extension system in Ethiopia envisages intensive deployment of extension staff at kebele level and introduction of comprehensive extension packages under credit arrangement. However, the system appears to involve weaknesses inherent in it as commented by IFPRI<sup>4</sup> as follows;

- Seed-fertilizer technology packages of crop sub-sector are not very appropriate in heterogeneous rainfed areas, especially when they are tied to credit conditions. Rather, smallholders need access to flexible and divisible technologies combined with the capacity to select and adopt practices appropriate to their particular field and seasonal conditions,
- Because of standardized package approach and inflexible input distribution system, farmers have little opportunity to experiment, learn and adopt technologies to their own needs,
- Although many farmers seem to have adopted the extension packages backed by credit programs, a number of them had discontinued its use (EDRI<sup>5</sup>). Poor extension services were ranked as the top reason for non-adoption,

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<sup>4</sup> Policy to Promote Cereal Intensification in Ethiopia: A Review of Evidence and Experience, IFPRI, 2007

<sup>5</sup> Agricultural Extension, Adoption and Diffusion in Ethiopia, EDRI, 2004

- Broad range of demand-responsive extension & participatory research, innovation adaptation and demonstration activities envisaged in the extension system centered in FTC are seldom realized as DAs are preoccupied with the distribution of inputs and recovery of credit and most of them have rather limited experiences. This invites questions whether sufficient human resources and expertise exist to make FTCs functional,
- Capabilities and experiences of DAs are rather limited in many cases because of rapid deployment of newly recruited college graduates to fields,
- The extension system remains under pressure from above to meet certain targets. The hierarchical “culture” underlying the extension system does little to encourage and exploit the inherent resourcefulness of those who work closely with farming communities,
- Farming communities in many cases do not participate in extension planning and DAs remain largely conveyors of technical messages, rather than active facilitators of community capacity building and providers of relevant information, and
- Limited accessibility at a region level to physical and financial progress of the implementation of extension packages at field level indicates the poor performance of monitoring & evaluation system on the packages.

## **1.8 Seed Production and Distribution<sup>6</sup>**

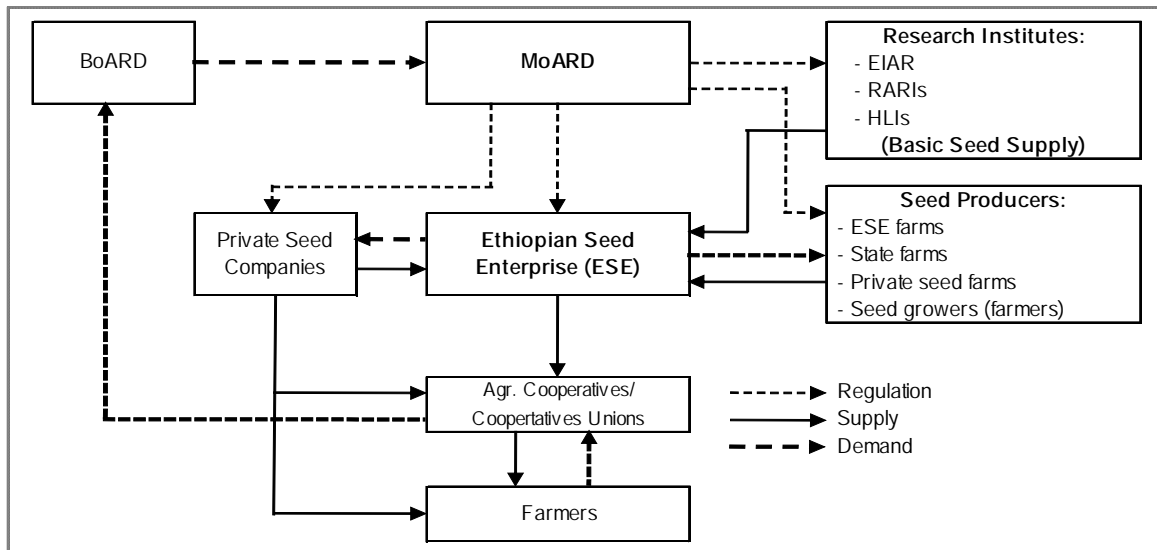
### **1.8.1 Seed Production and Distribution System**

The establishment of Ethiopia’s formal seed system started when the National Seed Council (NSC) was set up in 1976 to formulate recommendations for seed production and supply of released varieties from the national research programs and the establishment of Ethiopian Seed Corporation in 1979 to undertake seed production, processing, distribution and quality control in the country.

The current formal seed supply system in Ethiopia is as illustrated in the following figure, which works mainly for major cereal and pulse crops like maize, wheat, teff and beans.

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<sup>6</sup> This section was prepared based on “The Ethiopian Seed System”, Dawit Alemu et al, IFPRI, 2006



**Figure 1.8.1 Formal Seed Production & Supply System in Ethiopia**

### 1.8.2 Seed Producers

The main institutions involved in seed production include Ethiopian Seed Enterprise (ESE), State Farms, private farms, NGOs, cooperatives & cooperative unions, seed growers (small-scale farmers) and breeder & basic seed suppliers as follows;

#### (1) Ethiopian Seed Enterprise (ESE)

Currently, ESE, a public enterprise, dominates the formal seed market and manages the production, marketing and distribution of improved cultivars nationwide. ESE is the only public seed enterprise responsible for production of seed for all crops (cereals, pulses, fruits, vegetables and forage), although its seed production is dominated by cereals, especially maize and wheat.

#### (2) State farms

State farms are also involved in the production of seeds by taking contracts mainly with ESE. The Upper Awash Agro Industry Enterprise, located in the Rift Valley near the Awash River, has been producing maize seed (in addition to its horticultural crop production) since 1998. UAAIE's maize seed is produced primarily through annual contract agreements with private & public seed processors. Usually, after purchasing seeds from the farms, ESE cleans and grades the seeds before distribution.

Ziway Farm and Horticulture Development Enterprise are similarly involved in maize seed production through contractual arrangements with other seed companies, namely ESE and Pioneer Hybrid Seeds P.L.C. During the production process, supervision is undertaken by ESE and Pioneer Hybrid experts at different stage of crop growth. After harvest, seed is provided at a price set in the agreement. Seed processing is undertaken by the respective seed companies.

#### (3) Private firms

26 private companies are licensed to produce seeds, 3 to process, 19 to import, 33 to retail, and 4 companies to export in 2006). Private companies licensed to produce maize seed are Pioneer Hybrid Seeds P.L.C., Hawas Agro Business, Awassa Green Wood, Hadiya Trading Enterprise, Ethio Flora, and Ano Agro Industry. All these companies are involved in the production of hybrid maize varieties. The

firms hold a competence assurance certificate to produce, process, import, retail and/or export seed issued by Agricultural Inputs Quality Control Department of MOARD.

(4) NGOs

There are many different community-based organizations (CBOs), non-government organizations (NGOs) and faith-based organizations operating in Ethiopia, many with an interest in agriculture and rural development. World Vision, Sasakawa Global 2000, FARM Africa, CARE, CRS, Alem Tena and Meki Catholic are among the larger important organizations active in the seed sector.

(5) Agricultural Cooperatives and Cooperatives Unions

In recent years, agricultural cooperatives and their unions are playing important role in the seed system as producers and also as distributors. Most of the cooperatives unions are involved in input distribution to their members and also to non-members.

(6) Small-scale Seed Growers (Farmers)

Small-scale seed growers are the most critical stakeholder in Ethiopia's seed system, both as a consumer and producer of seed. For the most part, small-scale farmers depend on locally selected and saved seed alongside farmer-to-farmers seed exchanges. But their cultivation strategies and seed choices are by no means simple: many factors play a role in determining farmers' selection and planting behavior. First-hand experience with the performance of particular varieties, reputation of a variety or the source of its seed, accessibility of markets for both inputs and outputs and many other factors go into the small-scale farmer's decision-making process.

(7) Breeder and Basic Seed Supplier

The supply of breeder and basic seeds is the responsibility of those research centers, primarily EIAR and the regional agricultural research institutes (RARIs), who develop varieties and are registered as their maintainers.

### **1.8.3 Seed Inspection and Certification**

General procedures for seed certification begin with verification of the source of the basic seed to be used for production of certified seed, followed by verification of germination rates, grading, and other functions to assure quality. However, there are cases, particularly in times of seed shortages, where produced seeds were certified without following the stated procedures such as verification of source and type of the basic seed.

The seed inspection and certification of annual crops in ANRS is carried out by BoARD through the five Plant Seed Laboratories established in the strategic places in the region. Under the system, the field inspection by the experts of Laboratories is carried out twice in a cropping season (flowering & maturing stage). The seed certification is performed by the Laboratories through the laboratory test and the basic criteria for certification are germination rate (above 85%) and purity (98%).

### **1.8.4 National Demand and Supply of Seed**

For the 2005 production season, the supply of seed in aggregate was only 27% of the total seed

demanded without considering the quality of the supplied seed in terms of variety and other qualities. However, there is considerable variability in the level of supply among the different crops, where more than 50% of the demanded volume of seed was supplied for maize and chick pea.

**Table 1.8.1 National Seed Demand and Supply in 2005 (ton)**

Crop	Demand	Actual Supply	Sufficiency
Maize	15,522	8,246	53%
Barley	7,084	1,163	16%
Wheat	51,849	10,628	20%
Teff	7,839	420	5%
Faba Bean	7,773	476	6%
Chickpea	4819	2,641	55%
Haricot bean	3,374	703	21%
Sesame	2,177	605	28%
Grand Total 1/	111,759	30,404	27%

1/ Including other crops Original Source: Agricultural Inputs Marketing Department, MoARD

Production of quality seeds in the country is limited to major cereals, which indicates that there is large potential for the seed industries to expand their business to other potential crops. Even though the participation of the private sector is increasing in seed production, their role in the marketing and distribution directly to end-users is limited, which is believed to be the reason for the one time supply of seed and unavailability of seed shops in the country. Following the early 90s market reform, the participation of private sector has increased in both seed production and distribution even though still the role of the public sector is dominant.

### 1.8.5 Seed Demand and Distribution in ANRS

The formal seed production and distribution system in ANRS is similar to that of national and the seeds produced by the producers are usually distributed through agricultural cooperatives and cooperatives unions to farming communities. Major producers supplying seeds to the region include the public enterprises of ESE and Bale Agricultural Development Enterprise and a private Pioneer Hybrid P.L.C. The predominant supplier is the public enterprises and in formal seed supply for the 2008 cropping, nearly 90% of total supply are born by the public enterprises.

The gaps between the forecasted demand and actual supply in 2006/07 in the region are as follows;

**Table 1.8.2 Seed Demand and Supply in 2006/07 in ANRS (ton)**

Crop	Demand	Actual Supply	Distribution	Sufficiency 1/
Maize	8,055	3,435	3,198	43%
Barley	466	107	98	23%
Wheat	5,836	2,443	1,835	42%
Teff	506	142	136	28%
Haricot Beans	278	58	46	21%
Others	1,133	694	557	61%
Total	16,274	6,879	5,870	42%

1/: Actual supply/demand x 100

Source: BoARD

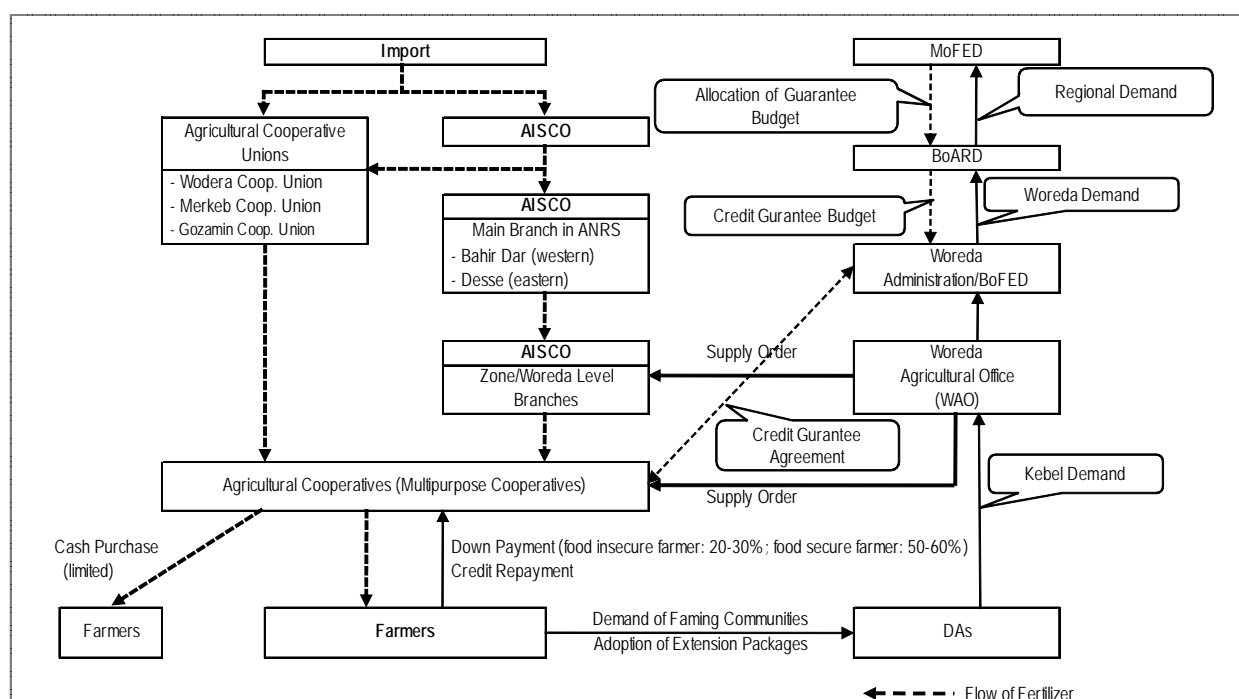
The primary constraints in the seed production and distribution in ANRS are reported to be: i) large gaps between seed requirements and demand for quality seeds and between demand and supply of them, ii) price differences among suppliers (public & private) and iii) quality seed prices beyond capability of most farmers.



## 1.9 Farm Input Supply

Farm inputs supply to farming communities is placed under the regulation of the government in Ethiopia. The government intervention in farm inputs supply includes: i) forecasting of demand for inputs from Kebele level up to region and federal level, ii) procurement of inputs from suppliers through tendering process and iii) distribution of inputs to Kebele level through the channel of suppliers.

Accordingly, farm inputs supply such as fertilizers, agro-chemicals and livestock inputs (such as animal feed) in the country is largely under the hand of public enterprises, while some agricultural cooperatives unions are also involved in such services. The public enterprises for farm inputs supply include Agricultural Input Supply Corporation (AISCO) for fertilizer and agro-chemical supply. The fertilizer demand forecasting and supply system in ANRS is illustrated as follows;



**Figure 1.9.1 Fertilizer Supply System in ANRS**

The fertilizer demand, supply and distribution status in 2007 in the region was as shown in the below.

**Table 1.9.1 Fertilizer Demand, Supply and Distribution in 2006/07 in ANRS (ton)**

Fertilizer	Demand	Supply	Distribution	Sufficiency
DAP	79,945	85,777	79,841	100%
Urea	70,056	55,642	51,126	73%

Source: Agricultural Input Supply & Administration Dept., ANRS BoARD

Fertilizer supply in the region and country is carried out under the credit arrangement accommodated in the extension services of provision of extension packages. The credit term for crop extension package is interest rate of 18% in case of AISCO and loan period of 6 months (1 cropping season). The down payment required is 20~30% of credit amount for food insecure households and 50~60% for food secured households. Major constraints in fertilizer supply in the region are reported to be: i)

higher price than affordable by farmers & current price increase, ii) supply not in time and iii) shortage of supply.

The demand forecasting and supply systems of chemicals (insecticide & herbicide) and animal feeds are more or less similar to the same of fertilizer and the main players in the supply channels are AISCO, Ambassel General Trading, Adami Tulu Manufacturer and General Chemical Trading.

## **1.10 Marketing**

### **1.10.1 General**

Agricultural production in ANRS is predominantly carried out by smallholders largely under rainfed condition and yield levels are low and highly variable from year to year. Due to the dominance of rain-fed agricultural production, the market depends primarily on the major harvest season that occurs from November through December (meher season harvests). In this period prices are at their lowest given the large supply that floods the market as farmers seek to sell in order to meet financial obligations related to various expenses of social as well as legal nature. Low grain prices immediately after harvest and in “in good years” and year-to-year price fluctuation are discouraging investments in inputs such as fertilizers and improved seeds. The volume of grain marketed falls sharply in years of poor harvest and price rises considerably. On the other hand, prices are seriously depressed in “in good years”. Marketing uncertainty, faced especially by small holders, dampens production incentives and contributes to stagnation in agricultural output and productivity. On the other hand, high food price variability makes poor consumers in urban and food deficit rural areas more prone to food insecurity.

Major agricultural commodities marketed in the region include cereals (teff, barely, wheat, maize, and sorghum), live animals and oil seeds. However, marketed products do not represent actual surplus products and products sold in the form of forced selling, forced to sell parts of his products to pay rents & bets, buy inputs & non-farm staples and cover other immediate expenses.

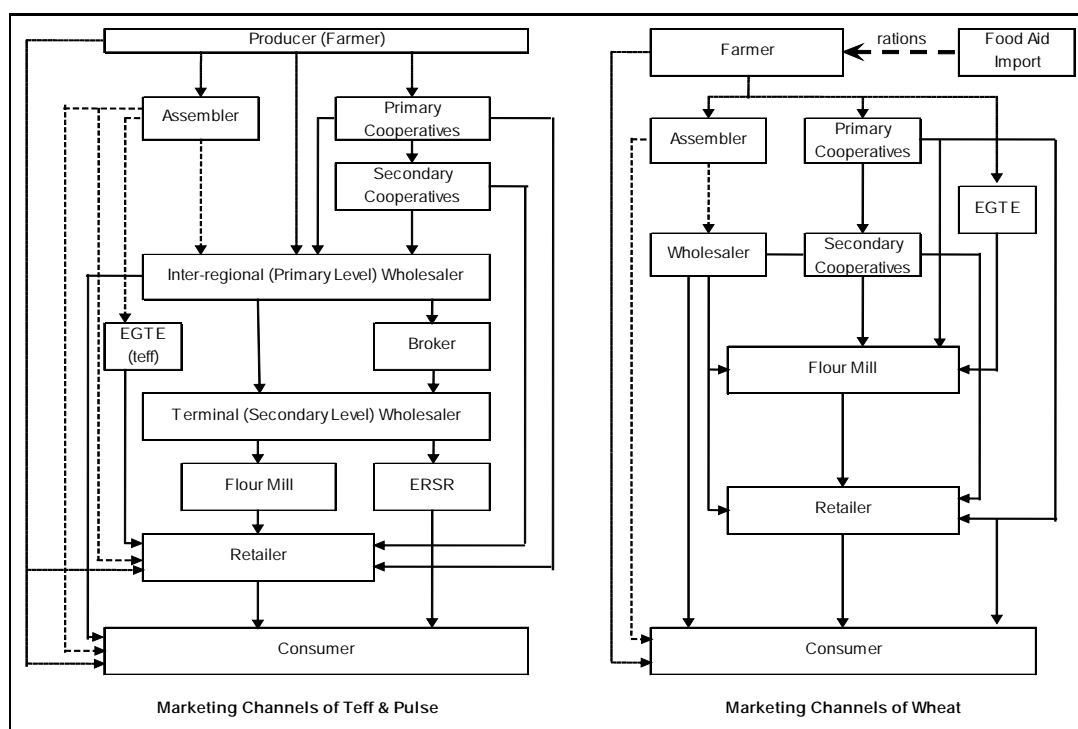
Further, the primary reason for selling livestock is to generate income to meet unforeseen expenses, although sales of live animals is taken as a last resort. This is apparent when crop failure due to drought is encountered. Farmers sell their livestock to buy food grains for domestic consumption. Usually, small ruminants are sold to cope with food insecurity during drought and large ruminants are generally sold when they are old.

### **1.10.2 Marketing Channel**

Marketing channels of agricultural commodities are diversified in the region. However, the predominant marketing channels of major crops are reported to be almost the same and major players in marketing include farmer (producer), assemblers, primary cooperatives, secondary cooperatives (union), EGTE, wholesaler, retailer and consumer as illustrated below<sup>7</sup>.

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<sup>7</sup> Source: Agricultural Commodity Marketing System Study Project, ANRS Head of Gov. Office, 2004



**Figure 1.10.1 Marketing Channels of Cereals in ANRS**

The prevailing marketing channel of sheep/goat and fattened animal are reported as shown below.

Sheep/Goat	Small Holder	➔ Assembler	➔ Wholesaler	➔ Retailer	➔ Consumer
	Small Holder	➔ Assembler	➔ Retailer	➔ Consumer	➔
	Small Holder	➔ Assembler	➔ Consumer	➔	
Fattened Animal	Small Holder	➔ Assembler	➔ Retailer	➔ Consumer	➔
	Small Holder	➔ Retailer	➔ Butcher	➔ Consumer	➔

Animal markets are usually opened on Saturday in the target woredas.

### 1.10.3 Prevailing Marketing Channel in the 8 Target Woredas

The prevailing marketing channels of farm products in the 8 target Woredas are basically similar in all the woredas as reported in the following table.

**Table 1.10.1 Prevailing Marketing Channels in Target Woredas**

Woreda	Cereals	Pulses	Vegetables	Animal
Ebinate	F - assembler	F - wholesaler - retailer	F - R	F - R
Simada	F - R	F - assembler - wholesaler - R	F - consumer	F - assembler - R
Bugena	F - assembler - R/F - R	F - assembler - retailer/farmer - R	F - R	F - assembler & F - F
Gidan	F - assembler - wholesaler - R	F - assembler - wholesaler - R	F - assembler - wholesaler - R	F - wholesaler - R/F - consumer
Kobo	F - assembler - R/F - R	F - assembler - retailer/farmer - R	F - R	F - R
Mekedela	F - local assembler - assembler - wholesaler	F - assembler - wholesaler - R	F - assembler - wholesaler - R	F - assembler - wholesaler - R
Legambo	F - wholesaler - R	F - wholesaler - retailer	F - R	F - R
Aregoba	F - assembler	F - assembler	F - assembler	F - assembler - wholesaler - R

F: farmer, R: retailer

Source: Interview Survey with WAO by JICA Study Team

### 1.10.4 Problems and Constraints for Marketing

Major problems/constraints for marketing of farm products in the 8 target woredas are as follows;

- Limited physical accessibility to markets is a common marketing constraint of the 8 target woredas. Bugena and Aregoba are poorly located and Kobo is rather favorably located in terms of traffic condition. Road accessibility of each woreda is summarized below.

**Table 1.10.2 Traffic Accessibility of the Target Woredas (2008)**

Inquiry	Response	Ebinale	Simada	Bugena	Kobo	Mekedela	Aregoba
No. or % of kebeles connected with all weather road (passable by a truck)	Connected	10/37 kebeles	6/39 kebeles	0/13 kebeles	23/35 kebeles	14/28 kebeles	0/7 kebeles
	Not connected	27/37 kebeles	33/39 kebeles	13/13 kebeles	12/35 kebeles	14/28 kebeles	7/7 kebeles
No. or % of kebeles connected with dry weather road (passable by a truck)	Connected	31/37 kebeles	33/39 kebeles	11/13 kebeles	29/35 kebeles	18/28 kebeles	2/7 kebeles
	Not connected	6/37 kebeles	6/39 kebeles	2/13 kebeles	6/35 kebeles	10/28 kebeles	5/7 kebeles
No. or % of kebeles reached by bus services	Reached	6/37 kebeles	3/39 kebeles	1/13 kebeles	8/35 kebeles	1/28 kebeles	0/7 kebeles
	Not reached	31/37 kebeles	36/39 kebeles	12/13 kebeles	27/35 kebeles	27/28 kebeles	7/7 kebeles

Source: Interview Survey with WAO by JICA Study Team

- Farming activities in the 8 target woredas are mostly practiced under subsistence level and production surplus for marketing is limited, resulting in lack of bargaining power. Market oriented agriculture production is yet to be envisaged,
- Due to the dominance of rain-fed agricultural production, market depends primarily on the major harvest season from November to December. In this period when farmers seek to sell products in order to meet financial obligations, prices are at their lowest,
- Rural traders are undercapitalized and have very limited capacity to absorb production surplus, leading to depression of farm gate prices, especially in harvesting season, and
- Small-scale producers have been shouldering the burden of seasonal price variability. The establishment of marketing cooperatives could serve as multipurpose vehicles for rural development. However, agricultural cooperatives established in the woredas are still weak.

## 1.11 Agricultural Cooperatives

### 1.11.1 Agricultural Cooperatives in ANRS

In ANRS, 3,861 primary and 33 secondary cooperatives are organized as of 2007 as follows;

**Table 1.11.1 Inventory on Primary Cooperatives in ANRS (2007)**

Cooperatives	No.	Membership		Capital (1,000 Birr)	
		Total	Per Coop.	Total	Per Coop.
Agricultural Cooperatives	2,032	1,804,518	888	138,788	68
- Multipurpose	1,707	1,778,960	1,042	122,498	72
- Dairy	82	2,698	33	954	12
- Irrigation	166	13,497	81	9,498	57
- Apiculture	24	5,398	225	802	33
- Fattening	32	1,402	44	687	21
- Others	21	2,563	122	4,349	207
Saving & Credit	476	37,086	78	3,179	7
Other Cooperatives	1,353	39,452	29	20,104	15
Total	3,861	1,881,056	487	162,071	42

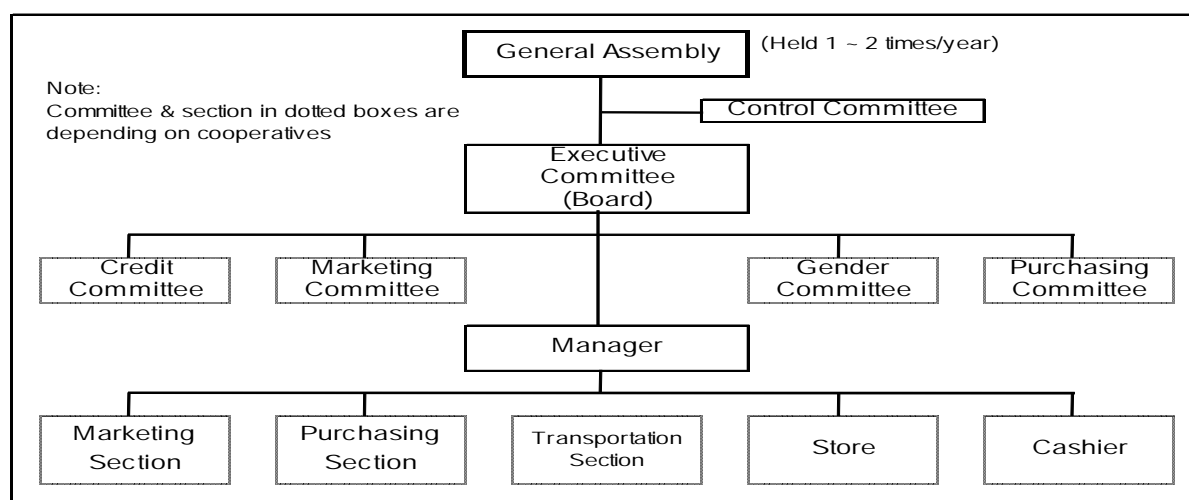
Source: ANRS Cooperatives Promotion Agency

The total membership of the primary cooperatives is 1,881 thousand and the average membership per cooperative stands at 487. The participation rate of farmers in agricultural cooperatives is roughly estimated at around 50%. The financial status of cooperatives is still at infant level and the volume of capital per cooperatives is limited to 42,000 Birr.

The most important cooperatives in the region are agricultural cooperatives and in total of 2,032 primary cooperatives are formed, about 53% of all cooperatives. The total membership of the agricultural cooperatives is 1,805 thousand and the average membership per cooperative stands at 888.

However, the financial status of the cooperatives is still at infant level and the capital per cooperatives is limited to 68,000 Birr. The most important agricultural cooperative is multipurpose cooperatives accounting for 84% in number and 98% in membership of all the agricultural cooperatives. The total membership of the cooperatives is 1,778 thousand (99% of all membership of agricultural cooperatives) and the average membership per cooperative is 1,042. The capital per the multipurpose cooperatives is limited to 72,000 Birr and their financial status is still at preliminary level.

Major service activities of the multipurpose cooperatives include: i) farm input supply, ii) provision of credit for the extension packages, iii) marketing of farm products and iv) supply of consumer goods. The typical organization structure of multiple cooperatives is as shown in the following figure.



**Figure 1.11.1 Typical Organization Structure of Multiple Cooperatives**

There formed 33 unions (secondary cooperatives) in ANRS; 24 multipurpose unions, 6 saving & credit unions, 2 dairy unions and 1 apiculture union as follows;

**Table 1.11.2 Inventory on Unions (Secondary Cooperatives) in ANRS (2009)**

Union	No.	Membership (cooperatives)		Capital (1,000 Birr)	
		Total	Per Coop.	Total	Per Coop.
Agricultural Coop. Union	27	550	20	35,602	1,319
- Multipurpose	24	532	22	35,269	1,470
- Dairy	2	10	5	193	97
- Apiculture	1	8	8	140	140
Saving & Credit Coop. Union	6	141	24	1,873	312
Total	33	691	21	37,475	1,136

Source: ANRS Cooperatives Promotion Agency

The total number of multipurpose cooperatives participated in the unions is 532 or 31% of all the multipurpose cooperatives in ANRS. The average number of member cooperatives per union is 22. The financial statuses of the unions are still weak similar to the primary cooperative and the average of capital of the multipurpose union is limited at 1.5 million Birr. All the agricultural cooperatives Unions are established at Bahir Dar.

The major activities of the multipurpose union are: i) supply of farm inputs to member cooperatives and members/non-members, ii) collection & marketing of farm products, iii) provision of credit to member cooperatives, iv) transport & storage services, procurement & supply of consumer goods to

primary cooperatives, and v) provision of market & technical information.

It is said that farming communities have unfavorable impression toward cooperative activities because of the bitter experiences of Peasant Association under the socialist regime. The constraints or weaknesses in the agricultural cooperatives sector are enumerated as follows;

- Low participation rate of farming communities,
- Poor financial status,
- Insufficient managerial capability of members, and
- Limited marketing surplus of farm products in service areas.

### 1.11.2 Agricultural Cooperatives in Target Woredas

The inventory on primary cooperatives in the 8 target woredas are as follows;

**Table 1.11.3 Inventory on Primary Cooperatives in Target Woredas (2009)**

Cooperatives	Ebinate	Simada	Bugena	Gidan	Kobo	Mekedela	Legambo	Areqoba
Agr. Cooperatives								
- Multipurpose	29	15	11	17	12	17	14	3
- Irrigation	7				7	4	9	
- Apiculture						1	1	
- Fattening						1	1	
Saving & Credit	5			5		4	3	
Other Cooperatives	3	1				1	1	
Total	44	16	11	22	19	28	29	3

Source: ANRS Cooperatives Promotion Agency

The cooperatives having good performance in the woredas are reported by the Agency as follows;

Multipurpose Cooperatives	Bugena, Gidan, Kobo, Ebinate, Simada, Legambo, Mekedela
Irrigation Cooperatives	Kobo, Ebinate, Legambo, Mekedela

## **CHAPTER 2 Proposed Approaches for Agricultural Promotion**

### **2.1 Problems/Constraints for Agricultural Promotion**

Major problems and constraints for agricultural promotion in the food insecure woredas were identified under the JICA Study through: i) the series of workshops held in the target woredas, ii) discussion and interviews with WAOs/DAs/target watershed communities, iii) information provided by BoARD/WAOs, iv) field visits to the watersheds, and iv) statistic data and related research papers and also through the implementation of verification activities for agricultural promotion under the Verification Project of the Study in the 8 food insecure woredas (Ebinate, Simada, Bugena, Gidan, Kobo, Mekedela, Legambo and Aregoba). For the agricultural promotion, such problems and constraints should better be addressed in an integrated manner. In the Study, these problems & constraints have been analyzed by categorizing them into: i) agronomic & agro-economic issues, ii) livestock issues, iii) extension services and iv) marketing issues as discussed in the followings.

#### **2.1.1 Problems/Constraints Common in the 8 Target Woredas**

##### **(1) Agronomic and Agro-economic Issues**

The captioned issues are of the primary importance for agricultural promotion in the 8 target Woredas and the primary agronomic constraint is the unstable and low productivity of temporary crops adversely affected by various factors. Major problems or constraints and proposed development directions to be taken are discussed as follows;

- One of the primary constraints attributed to the unstable and low crop productivity is cultivation of crops by employing traditional and subsistence farming practices under rainfed conditions of unstable rainfall distribution.

These constraints should be addressed through the improvement of current farming practices to the extent of possible supported by the strengthening of extension services.

- Another primary constrain, which is endangering the sustainability of crop production, is the distribution of degraded soils attributed to the past and on-going accelerated erosion and improper soil management under traditional farming activities. Most of the soils distributed in the highland areas of Amhara Region have shallow effective depth of less than 50cm and most of the lands in the areas are classified into erosion hazard classes of “high to very high” in the erosion hazard classification of the Study.

These constraints should be addressed through the introduction of improved farming practices integrated with soil & water management & conservation measures of both physical and agronomical (biological/vegetative) supported by the strengthening of extension services as stated earlier.

- Another problem attributed to the unstable and low productivity of secondary crops might be cultivation of too many crops by individual farmers. This is because farmers grow or at least attempts to produce a wide range of crops for their survival and in search of food security.

It will be necessary, by paying due consideration to subsistence requirement of crops, to

encourage farmers to concentrate on crops whose optimum environmental conditions are met by their lands. Activities toward this direction might include the introduction of new crops with sufficient potential to a subject area. The introduction of new or less common crops including fruits has been requested by WAOs/DAs/farmers in the series of discussion with them under the Study. The adaptability and potential of such crops should be tested.

- Element agronomic factors attributed to the unstable and low productivity of crops are crucial and they include physiographic conditions less suitable for temporary crops, limited and unstable rainfall, low temperature, frost & hail in high altitude areas, poor soil conditions, cultivation of crops/varieties less adapted to subject areas, cultivation of self-multiplied seeds of poor quality, lack of soil fertility management and pest & disease. Some of such constraints are to be addressed within the context of the improvement of farming practices to an extent possible.
- Another important agronomic problem is the scarcity of water resources. However, development of water resources for agriculture to an extent possible and efficient use of limited water resources should better be envisaged.
- Other important issues are limited land holding size and poor financial status of farm households. Parts of such constraints should be addressed in a manner currently employed by BoARD (provision of household packages) and income generation activities.

## (2) Livestock Issues

The livestock sub-sector is another important economic activity of farm households in the highland areas. In addition, draft cattle are primary sources of labor for land preparation and transport of farm inputs/products. However, livestock husbandry in the areas is still less intensive and the sub-sector faces unstable and low productivity. Cattle are generally stocked as an asset and small ruminants are usually to cope with food insecurity. Major constraints for the promotion of the livestock sub-sector production include problems in feed supply, animal health, husbandry practices, and genetic resources as follows;

- Livestock husbandry practices depending on crop residues and poor grazing ground and shortage of livestock feed resources are reported to be a primary constraint common in the areas.

Approaches to increase production of forage in an integrated manner with soil & water conservation activities are essential to mitigate the constraint in land available for the purpose, such as communal land, hillside, farm boundary, home yard and other land resources less utilized or unutilized.

- Another primary constraint reported is animal/poultry losses caused by diseases due to insufficient veterinary services coverage.

This is to be addressed through strengthening of animal health services through the activation of existing veterinary service centers or other measure to improve veterinary services at a



kebele level.

- Another important constraint attributable to low productivity is poor genetic resources of animals, especially cattle, which is to be addressed through the strengthening of genetic resources improvement activities.
- Traditional livestock husbandry puts emphasis on number of stocks rather than productivity, which is main stay in the highland areas. This should be addressed through the introduction of improved husbandry practices as currently envisioned in the livestock extension packages.

### (3) Extension Services

Major constraints/problems on the current extension services discussed are enumerated as follows;

- Seed-fertilizer technology packages of crop sub-sector are not very appropriate in heterogeneous highland areas. Farmers need access to flexible technologies appropriate to their particular fields, seasonal conditions and financial statuses. Because of standardized packages, farmers have little opportunity to experiment, learn and adopt technologies to their own needs.
- Poor extension services might be ranked as an important reason for non-adoption or discontinuation of extension packages.
- Extension system centered in FTC is seldom realized as DAs are preoccupied with the burden of extension package promotion and other non-extension mandate.
- Capabilities and practical experiences of DAs are rather limited in many cases because of rapid deployment of newly recruited college graduates to fields.
- The same of woreda experts are also insufficient in many cases and their capabilities to provide technical guidance to DAs appear to be limited. The empowerment of woreda experts should seriously be envisaged to train them as commodity-wise specialists and to improve their capabilities as providers of practical training to DAs.
- The accessibility of woreda experts or DAs to technical development performances of research centers appears to be very limited. Practically, farming communities have no access to the research performances. The research-extension-farmers linkage has not or poorly been established or institutionalized.
- Farming communities in many cases do not participate in extension planning and DAs remain largely conveyors of technical messages, rather than active facilitators of community capacity building and providers of relevant information.
- Farmers' adoption of new technologies is still limited due to lack of awareness and other various reasons to be tackled.
- In many cases, DAs domicile away from their service areas because of poor living conditions in the areas. Their extension activities in the areas are very limited because of lack of transportation means to the areas.

- The most important human resources in extension services at kebele level are DAs. While, their statuses appear to be low and they are made light of by regional and zonal staffs. The attitude of regional and zonal staffs to woreda staffs and DAs should be changed.

The approaches to seek solutions for the said constraints/problems related to the extension services will be: i) introduction of flexible extension packages tailored to needs, capabilities and intensions of farming communities, ii) making use of demonstration, verification and trial fields as central field centers of extension activities, iii) OJT of DAs and WAO staff through the implementation of agricultural promotion activities as carried out under the JICA Study, iv) training of woreda experts as commodity-wise specialists as cereal, fruit, forage, dairy, seed production etc. and v) strengthening of research- extension-farmers dialogue through institutionalization of technical support & guidance activities of research centers in agricultural promotion activities as envisioned under the Verification Project of the JICA Study. The approaches for the formulation and implementation of agricultural promotion activities introduced under the Study will be actions to be taken extensively under the woreda agricultural development & promotion plan.

#### (4) Marketing Issues

Major common constraints/problems on marketing identified include: i) poor accessibility to market, in terms of both physical access and destination, ii) limited production surplus for marketing, and iii) weakly established cooperatives. A conceivable direction toward the marketing issues will be marketing through cooperatives, provision of marketing information and production promotion of area specific products having marketing potential and advantage. Area specific approaches appear to be essential.

#### **2.1.2 Area Specific Constraints/Problems in the 8 Target Woredas**

The area specific constraints/problems for agricultural promotion in the 8 target woredas identified through the workshops and interview surveys are presented in Table 2.2.1 and 2.2.2. Major area specific constraints reported are mostly climatic, soil and marketing related issues.

### **2.2 Proposed Directions and Approaches for Agricultural Promotion**

The proposed development directions and approaches for the integrated agricultural promotion in the Study Area are illustrated by sub-sector wisely (farm land conservation, crop production, livestock production, extension services, marketing & income generation) in Figure 2.2.1. The key directions and approaches proposed are as follows;

#### (1) Integrated Farm Land Conservation

The integration of agronomic, vegetative and physical measures for farm land conservation and the productivity improvement of farm lands are to be envisaged through soil conservation/management oriented farming practices integrated with physical measures. For the sustainability of crop production and the conservation of national land resources, this direction and approach should be accommodated in the woreda agricultural development & promotion plan.

**Table 2.2.1 Area Specific Constraints/Problems Identified for Agricultural Promotion in the Target Woredas - 1/2**

Sub-sector	Woreda			
	Ebinate	Simada	Begena	Gidan
Agronomic/ Agro-economic	<ul style="list-style-type: none"> <li>- Availability of farm inputs limited in local market</li> <li>- High population growth</li> <li>- Dense weed infestation (esp. striga)</li> <li>- Poor soil fertility &amp; inappropriate crop management practices</li> <li>- Pest &amp; disease (pea weevil, degeza etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- Water logging in Vertisols</li> <li>- Input supply limited</li> <li>- Insect &amp; pest occurrence high</li> <li>- Limited access to technologies for market oriented crops</li> <li>- Dependency &amp; begging attitude of farmers</li> <li>- Degradation of soil fertility due to erosion, no dressing of crop residue &amp; no adoption of multiple cropping</li> <li>- Over population of livestock &amp; over grazing</li> <li>- Traditional livestock husbandry</li> </ul>	<ul style="list-style-type: none"> <li>- Suffered from crop damage due to hail (Weyna Dega, July - Aug)</li> <li>- Flood occurs frequently</li> <li>- Farmers less serious in farming</li> <li>- Existence of farmers without oxen</li> <li>- Labor shortage at sowing season</li> <li>- Dependency syndrome of farmers high</li> <li>- Farmers are not organized</li> </ul>	<ul style="list-style-type: none"> <li>- Existence of farmers without oxen</li> <li>- Labor shortage at sowing season</li> <li>- Limited access to credit</li> <li>- Reluctant to use credit &amp; saving institutions</li> </ul>
Livestock	<ul style="list-style-type: none"> <li>- Poor sanitary condition</li> </ul>	<ul style="list-style-type: none"> <li>- Over population of livestock &amp; over grazing</li> <li>- Traditional livestock husbandry</li> </ul>	<ul style="list-style-type: none"> <li>- Farmers awareness toward livestock production (emphasis on number than productivity)</li> <li>- Lack of adequate animal health technologies</li> </ul>	<ul style="list-style-type: none"> <li>- Poor breed (exotic breed not introduced)</li> <li>- Rugged terrain</li> <li>- Uneven distribution of livestock (dense &amp; sparse populated area)</li> </ul>
Extension Services	<ul style="list-style-type: none"> <li>- Reluctant to adopt new technologies</li> </ul>	<ul style="list-style-type: none"> <li>- Reluctant to adopt new technologies</li> <li>- Accessibility to agricultural technologies limited</li> </ul>	<ul style="list-style-type: none"> <li>- Farmers reluctance to adopt improved practices due to insufficient training</li> </ul>	<ul style="list-style-type: none"> <li>- Limited farmers awareness to new technologies</li> <li>- Farmers improperly advised</li> </ul>
Marketing	<ul style="list-style-type: none"> <li>- Limited market of products</li> </ul>	<ul style="list-style-type: none"> <li>- Marketing price less favorable (sell at low price)</li> <li>- Limited market of products &amp; poor accessibility to market</li> <li>- Products of poor quality</li> <li>- Production of market oriented crops limited</li> </ul>	<ul style="list-style-type: none"> <li>- Production surplus limited</li> <li>- Marketing price less favorable (low price)</li> <li>- Lack of market access</li> <li>- Production of market oriented crops limited</li> <li>- Limited bargaining power</li> <li>- Variety of commodities produced for marketing limited</li> </ul>	<ul style="list-style-type: none"> <li>- Marketing price less favorable (sell at low price)</li> <li>- Lack of market information</li> <li>- Production of market oriented crops limited</li> <li>- Limited bargaining power</li> <li>- Products of poor quality</li> <li>- Transportation problem</li> </ul>
Natural Resources Conservation	<ul style="list-style-type: none"> <li>- Lack of knowledge &amp; awareness on alternative energy sources</li> <li>- Uncontrolled grazing</li> <li>- Structure failure</li> <li>- Problem related with handing over of structures to local community (lack of awareness)</li> </ul>	<ul style="list-style-type: none"> <li>- Deforestation</li> <li>- Poor management of conservation structure</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of tools &amp; materials to implement conservation works (survey equipment etc.)</li> <li>- Degradation of land (undulating terrain)</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of grazing land</li> <li>- Land degradation, deforestation, soil erosion, depletion of soil nutrient</li> </ul>
Findings of Workshop at Selected Watershed	<ul style="list-style-type: none"> <li>- Drought occur frequently</li> <li>- Crop damages due to hail frequently occur</li> <li>- Cannot grow fruits &amp; vegetables</li> <li>- Crop damages due to frost occur frequently</li> </ul>	<ul style="list-style-type: none"> <li>- Unstable rainfall in belg</li> <li>- Cannot grow fruits &amp; vegetables</li> <li>- Insufficient oxen for land preparation</li> </ul>	<ul style="list-style-type: none"> <li>- Insufficient training on agricultural technologies</li> </ul>	<ul style="list-style-type: none"> <li>- Farmers not adopting new technologies</li> <li>- Hail attack during harvest</li> <li>- Sowing delays</li> </ul>

Source: Block letters -- workshops held at woreda level & italic letters --- WAO/DA interview survey by JICA Study Team

**Table 2.2.2 Area Specific Constraints/Problems Identified for Agricultural Promotion in the Target Woredas - 2/2**

Sub-sector	Woreda			
	Kobo	Mekedela	Legambo	Aregoba
Agromic/ Agro-economic	<ul style="list-style-type: none"> <li>- Water logging in Vertisols</li> <li>- High population pressure</li> <li>- Salinity (in irrigated area)</li> <li>- Weed &amp; pests</li> <li>- Lack of farmer training</li> </ul>	<ul style="list-style-type: none"> <li>- Water logging in Vertisols</li> <li>- Insect &amp; pest occurrence high</li> <li>- High population pressure</li> </ul>	<ul style="list-style-type: none"> <li>- High population pressure</li> <li>- Drought occurs frequently</li> <li>- Improper soil management &amp; rotation</li> <li>- Moisture stress (water shortage), acidity, poor soil fertility</li> <li>- Traditional farming practices (variety, fertilizer, limited knowledge on horticulture)</li> </ul>	<ul style="list-style-type: none"> <li>- Insect &amp; pest occurrence high</li> <li>- Traditional pest control measures</li> <li>- Shortage of rainfall &amp; desertification</li> <li>- Poor infrastructure</li> <li>- Poor accessibility to farm inputs (seeds etc.)</li> </ul>
Livestock	<ul style="list-style-type: none"> <li>- Lack of improved breed</li> <li>- Lack of quality feed</li> <li>- High animal population density</li> </ul>	<ul style="list-style-type: none"> <li>- Priority given to No. &amp; not to productivity</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of improved technologies (forage, breed, livestock management)</li> <li>- Poor veterinary service</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of improved breed</li> <li>- Inadequate veterinary technique &amp; shortage of experts</li> </ul>
Extension Services	<ul style="list-style-type: none"> <li>- Reluctant to adopt new technologies</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of skill training for WAO experts &amp; DAs</li> </ul>	<ul style="list-style-type: none"> <li>- Limited farmers awareness to new technologies</li> <li>- Limited access to extension services</li> </ul>	<ul style="list-style-type: none"> <li>- Reluctant to adopt new technologies</li> </ul>
Marketing	<ul style="list-style-type: none"> <li>- Marketing price less favorable (sell at low price)</li> <li>- Variety of commodities produced for marketing limited</li> <li>- Lack of market information</li> <li>- Vegetable prices fluctuant</li> <li>- Limited market of products</li> </ul>	<ul style="list-style-type: none"> <li>- Production of market oriented crops limited</li> <li>- Marketing price less favorable (sell at low price)</li> <li>- Lack of market information</li> </ul>	<ul style="list-style-type: none"> <li>- Marketing price less favorable (sell at low price)</li> <li>- Products of poor quality</li> <li>- Limited market of products</li> </ul>	<ul style="list-style-type: none"> <li>- Production of market oriented crops limited</li> <li>- Limited market of products</li> </ul>
Natural Resources Conservation	<ul style="list-style-type: none"> <li>- Mountainous &amp; steep terrain</li> <li>- Deforestation</li> </ul>	<ul style="list-style-type: none"> <li>- Deforestation, lack of awareness about natural</li> <li>- Shortage of nursery site</li> </ul>	<ul style="list-style-type: none"> <li>- Gully expansion, fuel wood shortage</li> </ul>	<ul style="list-style-type: none"> <li>- Serious erosion, deforestation &amp; degradation</li> </ul>
Findings of Workshop at Selected Watershed	<ul style="list-style-type: none"> <li>- Crop damages due to hail frequently occur</li> </ul>	<ul style="list-style-type: none"> <li>- Frost damage from Sep. to May</li> </ul>	<ul style="list-style-type: none"> <li>- Crop damages due to hail in August</li> <li>- Insufficient oxen for land preparation</li> </ul>	<ul style="list-style-type: none"> <li>- Drought occur frequently</li> <li>- Limited access to technical information</li> <li>- Livestock population limited</li> <li>- No experiences in irrigation farming</li> </ul>

Source: Block letters --- workshops & italic letters --- WAO/DA interview survey

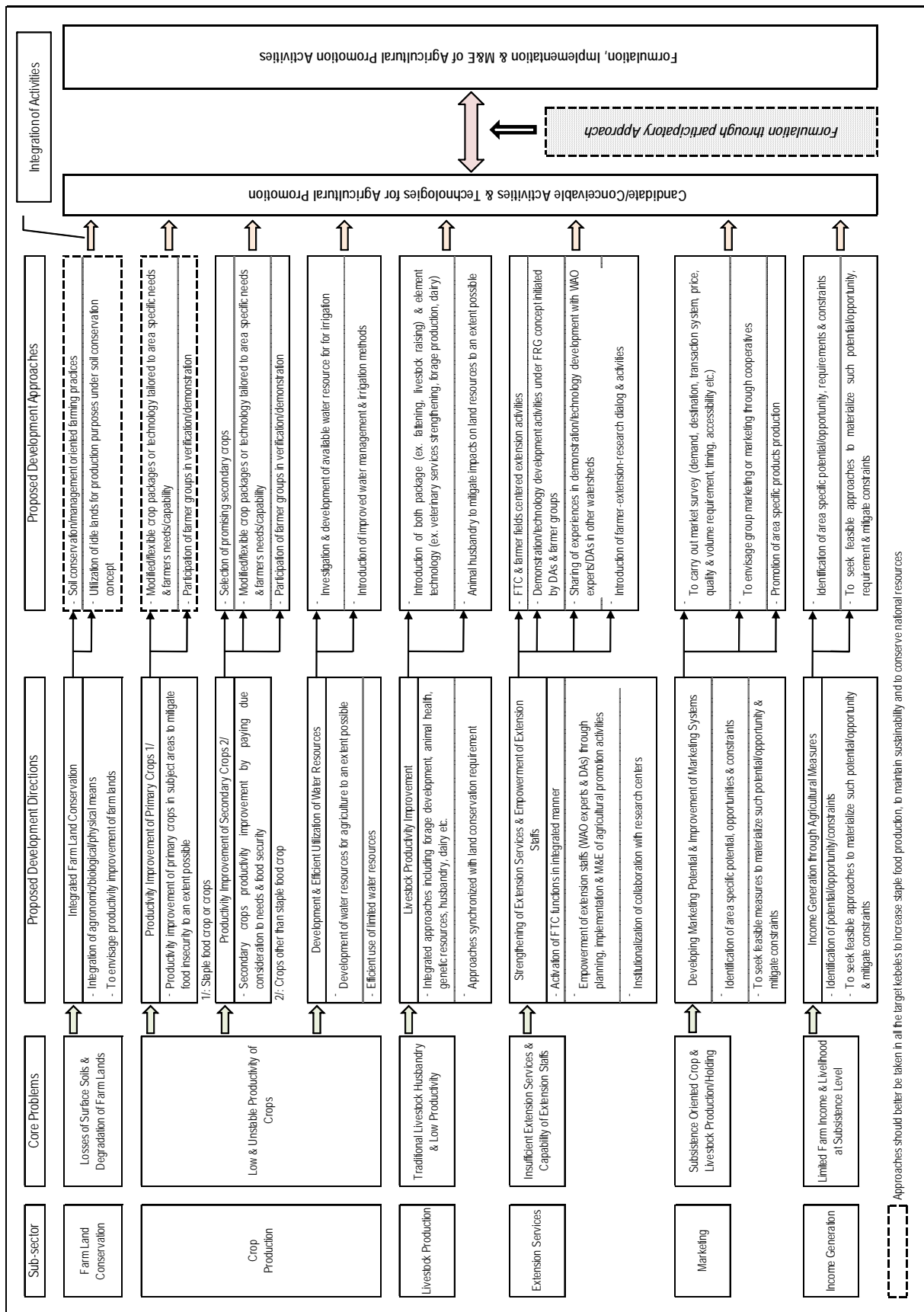


Figure 2.2.1 Proposed Directions/Approaches for Agricultural Promotion in Study Area

(2) Productivity Improvement of Primary Crops

The productivity improvement of primary crops (staple food crops) to mitigate food insecure status is considered to be the most essential agricultural development target of food insecure woredas and should be accommodated in woreda agricultural development plans. The proposed approach will be the introduction and extension of modified/flexible crop packages and of improved & appropriate farming technologies/practices integrated with farm land conservation measures. The positive participation of farming communities/groups in the promotion and extension of such technologies/practices should be accommodated in the approach.

(3) Productivity Improvement of Secondary Crops

The productivity improvement of secondary crops is another essential issue to improve livelihood of farming communities as crop production is almost exclusively their primary economic activity. It will be necessary, by paying due consideration to subsistence requirement of crops, to encourage farmers to concentrate on crops whose optimum environmental conditions are met by their lands and to optimize the natural productivity of the land. In this approach, the productivity improvement of crops currently grown in target watersheds and the introduction of promising new crops including fruits is to be envisaged. The proposed approach will be the introduction and extension of modified/flexible crop packages and of improved & appropriate farming technologies/practices integrated with farm land conservation measures as is the case for the productivity improvement of primary crops.

(4) Development & Efficient Utilization of Water Resources

The availability of water resources for development appears to be limited in the target areas. However, development of water resources for agriculture to an extent possible and efficient use of limited water resources should be envisaged as stated earlier. The proposed approaches will be investigation on development potential of water resources, development of available water resources for irrigation and introduction of improved water management and irrigation methods.

(5) Livestock Productivity Improvement

For the improvement of livelihoods of people in the areas, the enhancement of livestock production is considered prerequisite as livestock husbandry is generally the 2nd important (or primary for some farmers) economic activity of them. The direction/approach to be taken will be an integrated approach covering forage development and improvement of animal health, genetic resources, husbandry and dairy production reflecting area specific requirements and an integrated approach optimizing use of area specific resources & potential. Further, the same should be the one well synchronized with land conservation requirements in the subject areas.

(6) Strengthening of Extension Services and Empowerment of Extension Staff

The strengthening of extension services & empowerment of extension staff and the strengthening of research-extension-farmer dialog appear to be essential institutional issues for agricultural promotion. For the purpose, the activation of FTC functions, empowerment of woreda experts & DAs are to be aimed at through their participation in planning, implementation and monitoring & evaluation of

agricultural promotion activities and the institutionalization of collaboration with research institutes for establishing farmer- extension-research linkage.

The proposed approaches for the direction include: i) FTC & farmer fields centered extension activities, ii) demonstration/technology development activities initiated by DAs and farmer groups (under FRG concept), iii) introduction of farmer-extension-research dialog & activities in the planning & implementation of promotion activities and iv) training woreda experts as specialists on cereals, pulses, fruit, irrigation agronomy, forage, seed production, cattle, ruminant, poultry, marketing and other subjects.

(7) Developing Marketing Potential & Improvement of Marketing Systems

The area specific approach will be essential for tackling marketing issues. The identification of area specific potentials/opportunities & constraints and the study on feasible approaches to materialize such potentials/opportunities and to mitigate constraints should be envisioned. The proposed approaches will be the identification of area specific potentials/opportunities through market survey and promotion of production of area specific products. For the improvement of marketing systems, the approaches will be introduction of group marketing or marketing through cooperatives.

(8) Income Generation through Agricultural Measures

The primary economic activity in the target areas is agriculture and, in most cases, the livelihood improvement in the areas will have to be attained through agricultural measures. However, land holding sizes of farming communities in the areas are generally limited and rooms for the improvement of livelihood through land based agricultural activities will not be so large. Currently, in the areas, a number of extension packages for income generation have been introduced by BoARD and WAOs in the areas. Efforts should be made to introduce agricultural based income generating activities tailored to needs & potential of target kebeles and farming communities. For the purpose, the identification of area specific needs & potentials will be an initial step.

## ***C-2: Project Proposals***



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## CHAPTER 1 Integrated Agricultural Promotion Project in the Food Insecure Woredas in Amhara Region (Draft)

### 1.1 Project Background

The existence of a number of food insecure woredas is one of the key development issues in Amhara Region. Since the agriculture is the primary economic activity and the livelihoods of the people in the woredas rely on agricultural activities, the only conceivable development direction to mitigate food insecure status in most of the woredas will be agricultural promotion/development.

Under “the Development Study on the Improvement of Livelihood through Integrated Watershed Management in Amhara Region (the Study)” by JICA, the approaches for the formulation of integrated agricultural promotion plan in the food insecure woredas were proposed. The approaches were employed in the Study and a number of agricultural promotion activities were satisfactory implemented under the Verification Project of the Study from 2009 to 2010. The verification activities for agricultural promotion (APVAs) under the Project were carried out in the target 8 watersheds (micro-watershed) of 8 food insecure woredas, Ebinata & Simada in South Gonder Zone and Bugena, Gidan & Kobo in North Wollo Zone and Mekedela, Legambo & Aregoba in South Wollo Zone.

The APVAs were planned and implemented: i) to verify the adoptability of the approaches for agricultural promotion in the food insecure woredas proposed in the Study, ii) to assess the capabilities of WAOs and DAs for implementing APVAs and iii) to evaluate performances of individual APVAs in the target watersheds. The results, findings and lessons learned from the Project indicate the adaptability of the proposed approaches shown in Figure 1.1.1 for the agricultural promotion in the food insecure woredas. The APVAs implemented under the Project are as follows;

**Table 1.1.1 APVAs Implemented by Season & Overall Features**

Activity	No. of APVAs Implemented			
	Season			Total
	2009 Meher	2009/10 Belg	2010 Meher	
1. Demonstration/Verification Plot Primary Crops	6 (15 plots)	3 (12 plots)	6 (21 plots)	15 (48 plots)
2. Demonstration/Verification Plot Secondary Crops			1 (1 plot)	1 (1 plot)
3. Simple Trial on Promising Crops & Farming Practices	8	1	7	16
4. Fruit Production Campaign	2		4	6
5. Preliminary Trial on Agro-forestry	2		1	3
6. Sunflower Production	1			1
7. Forage Development (surround of farmland)	6		2	8
8. Hillside Forage Development	3		3	6
9. Sheep Breed Improvement	3	1	2	6
10. Small-scale Fish Farming			1	1
11. Introduction of AI Service		1	1	2
12. Veterinary Services Strengthening		1		1
13. Kebele Veterinary Agent Training		1		1
14. Inset Processing Training		1		1
15. IPM Training			1	1
16. WS Community Vegetable Nursery Development		1		1
17. Women Association Strengthening		1		1
18. Sheep Fattening	2			2
19. Modern Bee Hive Package	5			5
20. Small-scale Poultry Farming Promotion	2	2		4
21. FTC Farm Improvement	8	3	3	14
No. of Activities Implemented	48	16	32	96

As shown in the table, 21 different activities and cumulatively 96 activities for agricultural promotion (APVAs) were implemented in the 8 target watersheds under the Verification Project.

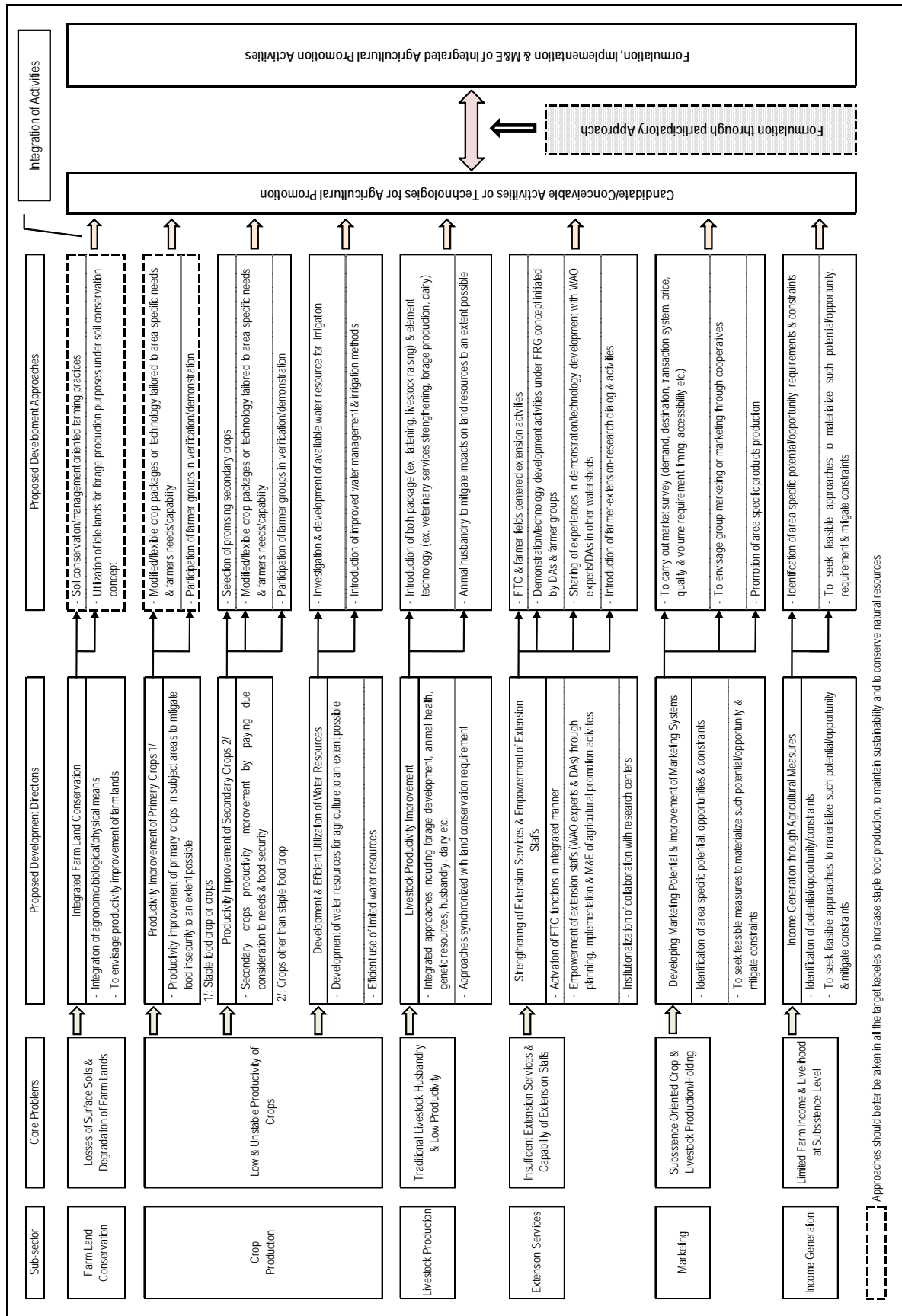


Figure 1.1.1 Proposed Approaches for Agricultural Promotion in Food Insecure Woredas

## **1.2 Objective of Project**

The objective of the Project is to introduce an intensified agricultural extension activities for the promotion of agricultural development in the Project Areas (food insecure woredas) through the implementation of the integrated agricultural promotion activities (APAs) aimed at the introduction and dissemination of improved/appropriate farming practices and formulated in accordance with the Technical Guideline “**Approaches for Formulation & Implementation of Integrated Agricultural Promotion Activities (APAs) in the Food Insecure Woredas in Amhara Region**”.

## **1.3 The Project**

### **1.3.1 Project Area & Target Groups**

The target areas of the Project are the 3 selected food insecure woredas in the Amhara Region. The target sites are selected kebeles of the target woredas. The target kebeles shall be 2 to 4 kebeles in each the woreda. The primary target groups of the Project are project beneficiary farmers & farming communities of the target kebeles and DAs & WAO staff of the target woredas.

### **1.3.2 Project Components**

The Project shall be is implemented in 5 years as a technical cooperation project. As discussed in the PDM, the project major components include: i) establishment of the Project Implementation Units at regional and woreda level, ii) establishment of approaches for the formulation of agricultural promotion activities, iii) formulation of overall and annual plan for integrated agricultural promotion activities (APAs), iv) implementation of integrated APAs and v) scale-up & dissemination of integrated APAs to other kebeles and woredas.

#### **(1) Establishment of the Project Implementation Units**

The Standing Steering Committee and Task Force Team for the Project at the regional level shall be established prior to the commencement of the Project. At the initial stage of the Project, the Project Implementation Units at regional and woreda levels are to be established. The proposed organization set-ups for such institutions are discussed in the section 5.

#### **(2) Establishment of Approaches for Formulation of Integrated Agricultural Promotion Activities (APAs)**

The major activities for the establishment of the approaches for formulation of integrated agricultural promotion activities (APAs) include;

##### 1) Selection of Target Woredas of the Project

Tree (3) target woredas shall be selected from the food insecure woredas in the Amhara Region. In the selection, the agro-climatic conditions and accessibility of individual woredas should be taken into consideration. Tentatively selected criteria for the candidate woredas are as follows;

**Table 1.3.1 Tentative Selection Criteria**

Criteria for Selection (elevation)	Target Woreda
Below 2,000m	Woreda located in lower highland
2,000 – 2,500m	Woreda located in intermediate highland
Above 2,500m	Woreda located in higher highland

2) Capacity Building of Regional & Woreda Project Staffs

The capacity building of regional and target woreda project staffs shall be carried out at the initial stage of the Project through the kick-off seminar held by the Regional Project Implementation Unit and the JICA Advisory Team. The Technical Guideline “**Approaches for Formulation & Implementation of Integrated Agricultural Promotion Activities (APAs) in the Food Insecure Woredas in Amhara Region**” shall be used as a material for the seminar.

3) Establishment of Approaches for Formulation of Integrated APAs

The approaches for the formulation of agricultural promotion activities in the target woredas shall be established in the kick-off seminar. The approaches will be finalized on the basis of the Technical Guideline by reviewing and updating the Guideline if deemed necessary and relevant.

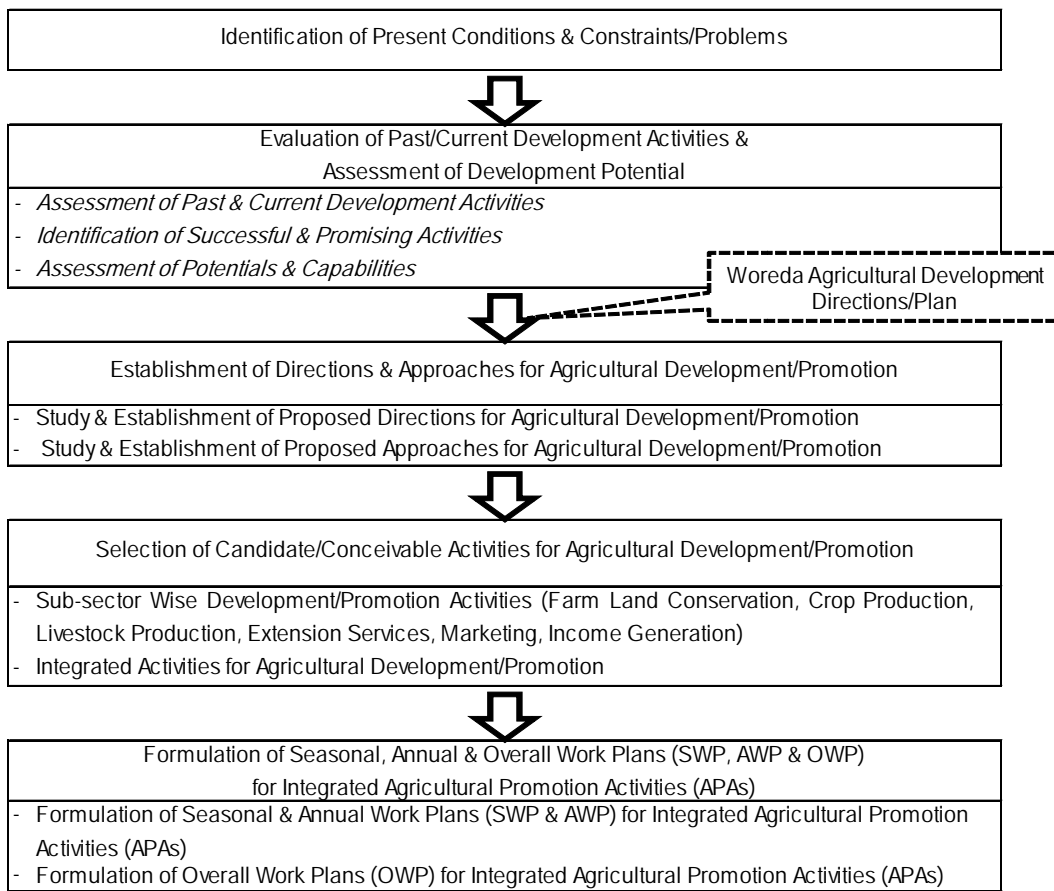
**(3) Formulation of Overall and Annual Work Plan for Integrated APAs**

1) Baseline Survey and Selection of Target Kebeles for Project

In each the target woreda, 2 to 4 representative kebeles shall be selected as the target kebeles of the Project through the baseline survey on all the kebeles in the woredas. On the target kebeles, more detail baseline survey shall be carried out.

2) Formulation of Overall and Annual Work Plan for Integrated APAs in Target Kebeles

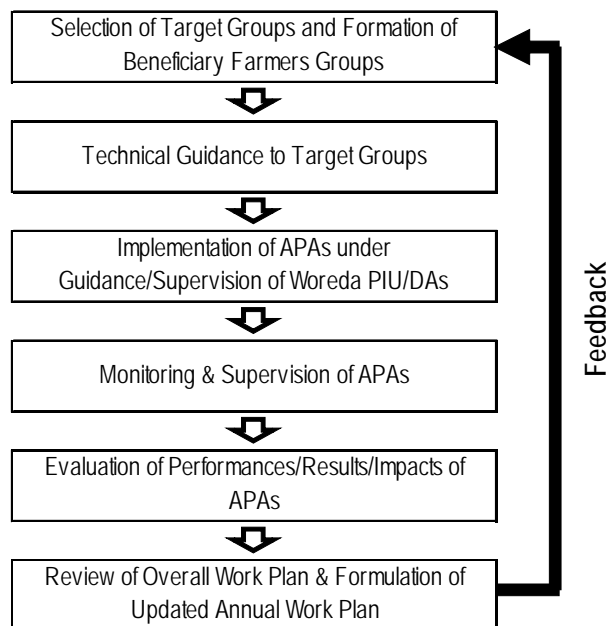
The overall and annual work plan for the integrated APAs in the target kebeles shall be formulated through the participatory approaches as shown in the following figure.



**Figure 1.3.1 Approaches for Formulation of Integrated APAs**

**(4) Implementation of Integrated APAs**

The processes for the implementation of the integrated APAs are as follows;



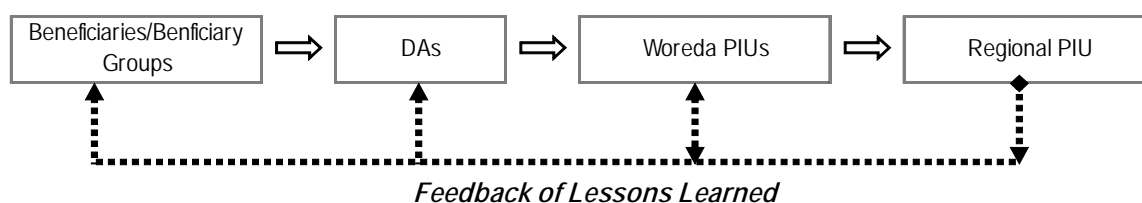
**Figure 1.3.2 Process for Implementation of APAs**

### (5) Scale-up & Dissemination of Integrated APAs to Other Kebeles and Woreda

The expansion of APAs and extension of the same to other kebeles and woredas will be envisaged through; i) preparation of technical manuals & guidelines for integrated agricultural promotion activities (APAs), ii) implementation of scale-upped selected promotion activities, iii) training of WAO staff and DAs in other woredas and iv) field guidance in other woredas,

### (6) Monitoring & Evaluation

The periodical monitoring & evaluation of all the project activities shall be carried out and reported by the Project. The tentatively proposed monitoring & evaluation flows are as follows;



**Figure 1.3.3 Proposed Monitoring & Evaluation System (tentative)**

The monitoring & evaluation system should be institutionalized in the project operation from the initial stage of the Project.

#### 1.3.3 Implementation Arrangements (tentative)

The Project shall be carried out under the support of Technical Cooperation Scheme of JICA, in which the executing agency of the Project is the Amhara National Regional State Government/Bureau of Agriculture & Rural Development (BoARD) and the technical cooperation shall be provided by the JICA Advisory Team. The conceivable inputs born by the Ethiopian Government and JICA will be as follows;

**Table 1.3.2 Inputs Born by JICA and Ethiopian Side (tentative)**

Input	JICA	Ethiopian Side
1. Experts 1/	Long/short term experts	Counterparts
2. Establishment of Office for Project Implementation Units	Vehicle, training & office equipment & facilities	Office spaces, training/extension facilities
3. Project Operation Costs	To be born	To be born

1/: Details shown in PDM

#### 1.4 PDM of the Project

The PDM (Project Design Matrix) or project logical frame is presented in Table 1.4.1 and 1.4.2.



**Table 1.4.1 PDM for Integrated Agricultural Promotion Project in Amhara Region - 1/2**

Name of Project: Integrated Agricultural Promotion Project in the Food Insecure Woredas in Amhara Region  
 Target Area: Three (3) Selected Food Insecure Woredas in Amhara Region  
 Target Group: Farming Communities of Selected Kebeles, Woreda Agricultural Office Staff & DAs in the Target Woredas  
 Executing Agency: BoARD  
 Project Period: 5 years

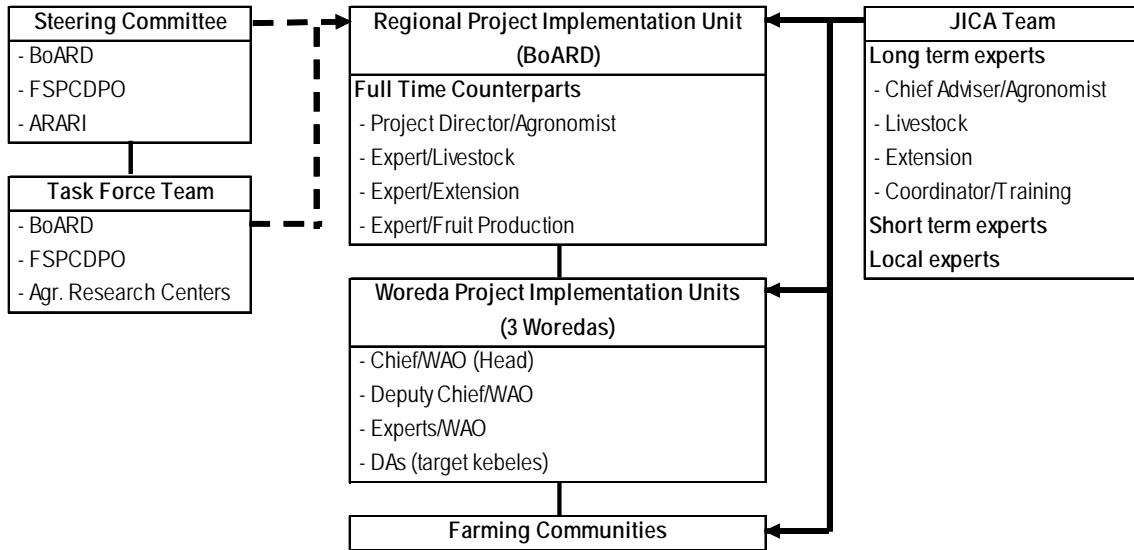
Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Important Assumption
<p><b>Overall Goal</b> The integrated agricultural promotion activities (APAs) are adopted in the food insecure woredas in Amhara Region.</p>	<ul style="list-style-type: none"> <li>- Number of woredas adopting the proposed integrated agricultural promotion activities (APAs) in the region.</li> </ul>	<ul style="list-style-type: none"> <li>- Project monitoring report</li> </ul>	
<p><b>Project Purpose</b> The integrated agricultural promotion activities (APAs) are successfully adopted in the target woredas.</p>	<ul style="list-style-type: none"> <li>- Number of kebeles adopting the proposed integrated agricultural promotion activities (APAs) in the target woredas.</li> </ul>	<ul style="list-style-type: none"> <li>- Project monitoring report</li> </ul>	<ul style="list-style-type: none"> <li>- Agricultural extension policies of the region/woredas do not conflict with the Project</li> </ul>
<p><b>Outputs</b></p> <ol style="list-style-type: none"> <li>1. <b>Establishment of institutions for project implementation through:</b> <ol style="list-style-type: none"> <li>1-1. Standing Steering Committee &amp; Task Force Team are established in a sustainable way</li> <li>1-2. Regional Project Implementation Units are established</li> </ol> </li> <li>2. <b>Establishment of approaches for formulation of integrated agricultural promotion activities (APAs) under the Project</b> <ol style="list-style-type: none"> <li>2-1. Target woredas of the Project are selected</li> <li>2-2. Woreda Project Implementation Units are established</li> <li>2-3. Capacity of regional &amp; woreda project staffs are strengthened</li> <li>2-4. Approaches for formulation of APAs are established</li> </ol> </li> <li>3. <b>Formulation of plans for integrated agricultural promotion activities (APAs) through:</b> <ol style="list-style-type: none"> <li>3-1. Target kebeles of the Project are selected through the baseline survey</li> <li>3-2. Overall &amp; annual work plan for integrated APAs in the target kebeles are formulated through participatory approaches</li> </ol> </li> <li>4. <b>Implementation of integrated agricultural promotion activities (APAs) in target kebeles</b> <ol style="list-style-type: none"> <li>4-1. Target groups &amp; farmers groups for individual activities are selected &amp; formed</li> <li>4-2. Technical guidance to target groups are provided</li> <li>4-3. Planned integrated APAs are implemented</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>- No. of Committee Meetings held</li> <li>- Activities of Task Force Team</li> <li>- Performance of Project Implementation Units</li> <li>- List of target woredas</li> <li>- Organization &amp; date of establishment</li> <li>- No. of staffs received training</li> <li>- Approaches for integrated agricultural promotion established</li> <li>- Target kebeles selected &amp; results of baseline survey</li> <li>- Overall &amp; annual work plan for integrated APAs in the target kebeles formulated</li> <li>- Target groups &amp; farmers groups for individual activities selected/formed</li> <li>- Frequency of technical guidance provided</li> <li>- APAS implemented</li> </ul>	<ul style="list-style-type: none"> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> </ul>	<ul style="list-style-type: none"> <li>- Necessary budget or support funds are allocated to the Project</li> </ul>

**Table 1.4.2 PDM for Integrated Agricultural Promotion Project in Amhara Region - 2/2**

Narrative Summary	Objectively Verifiable Indicator	Objectively Verifiable Indicator	Important Assumption
<p><b>Outputs - continued</b></p> <p>4-4. Monitoring/supervision of the project activities are carried out</p> <p>4-5. Performances/results/impacts of the project activities are evaluated</p> <p>4-6. Overall work plans are reviewed &amp; updated annual work plans are formulated</p> <p><b>5. Scale-up &amp; dissemination of integrated agricultural promotion activities (APAs) to other kebeles &amp; woredas</b></p> <p>5-1. Technical manuals &amp; guidelines for integrated APAs are prepared</p> <p>5-2. Implementation of selected scale-upped APAs</p> <p>5-3. WAO staff &amp; DAs in other woredas are trained</p> <p>5-4. Field guidance in other woredas are carried out</p> <p><b>Activities</b></p> <p><b>1. Establishment of institutions for the project implementation</b></p> <p>1-1. To establish Standing Steering Committee &amp; Task Force Team</p> <p>1-2. To establish of Regional Project Implementation Unit</p> <p><b>2. Establishment of approaches for formulation of agricultural promotion activities under the Project</b></p> <p>2-1. To select target woredas</p> <p>2-2. To establish Woreda Project Implementation Units</p> <p>2-3. To implement capacity building of regional &amp; woreda project staff</p> <p>2-4. To establish approaches for integrated agricultural promotion</p> <p><b>3. Formulation of plan for integrated agricultural promotion activities (APAs)</b></p> <p>3-1. To select target kebeles through the baseline survey</p> <p>3-2. To formulate overall &amp; annual work plan for integrated APAs in the target kebeles through participatory approaches</p> <p><b>4. Implementation of integrated agricultural promotion activities (APAs) in target kebeles</b></p> <p>4-1. To select target groups &amp; formulate farmers groups for individual activities</p> <p>4-2. Provision of technical guidance to target groups</p> <p>4-3. To implement planned agricultural promotion activities</p> <p>4-4. To monitor &amp; supervise the project activities</p> <p>4-5. To evaluate performance/results/impacts of the project activities</p> <p>4-6. To review overall work plan &amp; formulate updated annual work plan</p> <p><b>5. Scale-up &amp; dissemination of integrated agricultural promotion activities (APAs) to other kebeles &amp; woredas</b></p> <p>5-1. To prepare technical manuals &amp; guidelines for integrated APAs</p> <p>5-2. Implementation of scale-upped selected APAs</p> <p>5-3. To train WAO staff &amp; DAs in other woredas</p> <p>5-4. To provide field guidance in other woredas</p>	<p>- Monitoring/supervision activities done</p> <p>- Evaluation results of the project activities</p> <p>- No., kinds &amp; usefulness of technical manuals/guidelines prepared</p> <p>- Scale-upped APAs implemented</p> <p>- No. of staffs/DAs trained</p> <p>- Frequency of Technical guidance provided</p> <p><b>Input</b></p> <p>JICA</p> <p>a. Experts</p> <p>Long-term Experts</p> <p>- Chief Adviser/Agronomist</p> <p>- Livestock</p> <p>- Extension</p> <p>- Coordinator/Training Short-term Experts</p> <p>- As required</p> <p>Local experts</p> <p>b. Establishment of Offices for Project Implementation Units</p> <p>Vehicle, training equipment &amp; office equipment &amp; facilities</p> <p>c. Project Operation Cost</p>	<p>- Project monitoring report</p> <p>- Project monitoring report</p> <p>- Project monitoring report</p> <p>- Project monitoring report</p> <p>- Project monitoring report</p> <p>- Project monitoring report</p> <p><b>Input</b></p> <p>Ethiopian Side</p> <p>a. Counterparts</p> <p>Full time counterparts corresponding to long term experts in number &amp; specialty</p> <p>b. Establishment of Offices for Project Implementation Units</p> <p>Provision of office spaces for the Units</p> <p>c. Project Operation Cost</p>	<p>- Counterparts &amp; WAO staffs trained are continuously stationed at the Project or continuously support the Project</p>

## 1.5 Project Organization

The proposed organization set-up for the Project is illustrated as follows;



**Figure 1.5.1 Proposed Project Organization**

## 1.6 Implementation Schedule

The tentative implementation schedules (action plans) of the Project are presented in Figure 1.6.1

Activities	Expected Results	Year						Responsible Institutions
		0	1st	2nd	3rd	4th	5th	
<b>1. Establishment of institutions for project implementation</b>	<b>Establishment of institutional set-up for the Project</b>							
(1) Establishment of Standing Steering Committee & Task Force Team	Standing Steering Committee & Task Force Team support the project operation							BOARD
(2) Establishment of Regional Project Implementation Unit	Successful operation of the Project by the Project Implementation Unit							BOARD
<b>2. Establishment of approaches for formulation of integrated agricultural promotion activities (APAs)</b>	<b>Establishment of approaches for formulation of integrated agricultural promotion activities (APAs)</b>							
(1) Selection of target woredas of the Project	Selection of project target woredas							RPIU/WPIUS/JICA
(2) Establishment of Woreda Project Implementation Units	Successful operation of the Project by the Project Implementation Units							BOARD/RPIU/JICA
(3) Capacity building of regional & woreda project staffs	Capacity of regional & woreda project staffs are strengthened							BOARD/RPIU/JICA
(3) Establishment of approaches for formulation of integrated APAs under the Project	Approaches for formulation of integrated APAs under the Project are established							BOARD/RPIU/JICA
<b>3. Formulation of plans for integrated agricultural promotion activities (APAs)</b>	<b>Plans for Integrated Agricultural Promotion Activities (APAs)</b>							
(1) Selection of target kebeles through the baseline survey	Selection of target kebeles of the Project							APAC/WPIUS/JICA
(2) Formulation of overall & annual work plan for integrated APAS in the target kebeles through participatory approaches	Overall & annual work plan for integrated agricultural promotion activities in the target kebeles							APAC/WPIUS/JICA
<b>4. Implementation of integrated agricultural promotion activities (APAs) in target kebeles</b>	<b>Implementation of Integrated Agricultural Promotion Activities (APAs) in Target Kebeles</b>							
(1) Selection/formulation of target groups & farmers groups for individual activities	Target groups & farmers groups for individual activities are selected/formulated							WPIUS/JICA
(2) Implementation of planned integrated APAs	Planned integrated APAs are implemented							WPIUS/JICA
(3) Monitoring/supervision of the project activities	Project activities are monitored & supervised							APAC/WPIUS/JICA
(4) Evaluation of performance/results/impacts of the project activities	Performance results/impacts of the project activities are evaluated							APAC/RPIUS/WPIUS/JICA
(5) Review of overall plans & updating of annual plans	Updated annual plans are formulated							APAC/WPIUS/JICA
<b>5. Scale-up &amp; dissemination of integrated agricultural promotion activities (APAs) to other kebeles &amp; woredas</b>	<b>Scale-up &amp; Dissemination of Integrated Agricultural Promotion Activities (APAs) to Other Kebeles &amp; Woredas</b>							
(1) Preparation of technical manuals & guidelines for integrated APAS	Technical manuals & guidelines for integrated APAs are prepared							RPIU/JICA/BOARD
(2) Implementation of selected scale-up APAS	Selected scale-up APAs are implemented							APAC/WPIUS/JICA
(3) Training of WAO staff & DAs in other woredas	WAO staff & DAs in other woredas are trained							RPIU/WPIUS/JICA
(4) Provision of field guidance in other woredas	Field guidance in other woredas are carried out							RPIU/WPIUS/JICA

BoARD: Bureau of Agriculture & Rural Development, RPIU: Regional Project Implementation Unit, WPIUS: Woreda Project Implementation Units, APAC: Kebele APA Committee

Figure 1.6.1 Tentative Implementation Schedule

## 1.7 Project Justification

The need and effect of the Project is evaluated from the following five issues:

(1) Relevance

The mitigation of food secure status in the region is a primary development issue in the Amhara Region as stated in the regional economic development plan, “The 3rd Five Year Plan of Amhara Region for Development & Establishment of Democratic System (2006 - 2010), Bureau of Finance & Economic Development, Aug., 2006” and in the BoARD strategic plan, “(Draft) Strategic Plan (2011 – 2015)”. The overall goal of the Project is surely consistent with the regional development plans.

Under the Verification Project of the JICA Study, the proposed approaches for formulation & implementation of agricultural promotion activities were introduced satisfactory and the adoptability of the approaches were verified although further refinement of the approaches are assessed essential. The present Project is the extensive introduction of the verified approaches under the technical cooperation project of JICA.

(2) Effectiveness

The project purpose will be attained when the project implementation units assigned with full time experts are established as planned and the positive participation of regional and woreda agricultural offices is ensured.

(3) Efficiency

The assignment of qualified full time counterparts & experts of regional & woreda agricultural staff will be a key factor for the successful operation of the project activities. Further, to ensure technical support for the Project, the establishment of Standing Steering Committee and Task Force Team is planned by the inception stage of the Project.

(4) Impact

The introduction of the intensified agricultural extension activities for the promotion of agricultural development under the Project will directly contribute to the agricultural promotion in the target areas.

(5) Sustainability

The project sustainability is largely depending on the successful establishment and operation of the Project Implementation Units at regional and woreda level, capacity building of woreda agricultural office staff and DAs. Further, the provision of funds for the project implementation in the regional and woreda agricultural development plans is essential for the sustainability of the Project.

## **CHAPTER 2 Temperate Fruit Development Project in Ethiopian Highlands (Draft)**

### **2.1 Project Background**

Ethiopia is rich in biodiversity and agricultural production systems. The wide range of agro-ecological zones enables the country to host wide range of plant species and the country had domesticated several plant species which are now an economic base of its people. However, in the Ethiopian highlands, the target areas of the Project, population growth and environmental degradation in the past is endangering traditional farming systems and vast natural resources bases are becoming devoid of vegetation. The population pressure in the areas will continue to present negative impact on the natural resources bases and further degradation of the bases is predicted. In addition, most of the woredas situated in the areas, especially those in Amhara Region, are defined as food insecure woredas and the livelihood of a number of people in the woredas is at levels worse than subsistence level.

However, the highland areas are endowed with enormous potential and opportunities for the temperate fruit development. The temperate fruits (and perennial crops) development will provide promising opportunities for mitigating such situations and opportunities for attainment of sustainable management of land resources, sustainable development of agriculture and sustainable improvement of livelihood of the people in the areas.

The temperate fruit development in the highland areas is still at an initial stage in spite of its development potential. Common temperate fruit produced in the country is apple, however, there is no organized statistical data available on the total areas covered and annual production volume of temperate fruits in the country. Temperate fruit production is mostly restricted to the homestead in areas such as Chenchu and neighboring districts in Gamo and Gofa zones and Agena, Mahor and Aklil woredas in Gurage Zone of SNNPRS; Degem, Hedabu, Abote and Alidoro in North Shewa of Oromia region; Debre Birhan, Kutaber, Debre Tabor, Dabat and Debark woredas of the Amhara region. Fruit production and planting material propagation are becoming important businesses at Chenchu, Degem and Agena areas. In these places temperate fruit development is expanding at faster rate<sup>1</sup> /.

One of the reasons for the limited production of temperate fruits is attributed to unavailability of quality seedlings. In the country, temperate fruits seedlings are produced by both the public and private sectors. While current production levels of seedlings are far lower than the demand. The import of temperate fruits seedlings, especially apple for commercial production purpose is also carried out by private suppliers of the seedlings.

In Amhara Region, the temperate fruits development has being promoted by ORDA (Organization for Rehabilitation and Development in Amhara). Currently, ORDA has 9 scion production farms and 4 multiplication farms for apple in Gayent Woreda and produces about 10,000 grafted seedlings of apple in 2010. However, the number of seedlings raised by ORDA appears to be far lower than the seedling

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<sup>1</sup>/Overview of Temperate Fruits Research and Production in Ethiopia, Bayeh Mulatu, Abayneh Malke & Tesfaye Bekele, Holetta Research Center, 2010

requirements in the region.

To materialize the enormous potential for temperate fruits development in the highland areas, however, existing crucial constraints for the development should be addressed in an integrated manner. Temperate fruits research started at Holetta Research Center four decade ago and the center has been engaged in introducing of promising planting materials and testing their adaptability. Several apple, peach, nectarine and plum cultivars have been found to be adapted to different agro-climatic conditions in the country. From their experiences, the followings are identified to be crucial major problems of the sector.

- Lack of nurseries which could serve as a primary source of quality true to type planting materials,
- Poor fruit cultivation/production technologies & poor management practices of orchards,
- Limited knowledge on planting materials, seedling production & nursery management,
- Pests & diseases and expansion of areas infested by woolly apple aphid (WAA),
- Limited availability of rootstocks & scions suitable for different agro-ecological conditions,
- Compatibility of rootstock and scions,
- Incidences of imported plant materials with diseases,
- Inadequate planting materials which are affecting the quality of fruit, and
- Weak research capacity & lack of technology development in the sector.

The Project aims at promotion of temperate fruits development in the highland areas by addressing the said constraints in an integrated manner.

## **2.2 Objective of Project**

The Project aims at promoting temperate fruits development in the highland areas by addressing the development constraints in an integrated manner and through: i) establishment of model temperate fruits nurseries for the production & distribution of quality fruit seedlings (grafted seedlings, scions & root stocks) to the target regions and woredas and to farming communities in the target woredas and ii) promotion of temperate fruit production supported by development and extension of improved and sustainable fruit production technologies. The Project is formulated as a technical cooperation project implemented in two phases.

## **2.3 The Project**

### **2.3.1 Project Area**

The target areas for temperate fruit development under the Project are the highland areas (high altitude areas over + 2,400m m.a.s.l.) in Amhara, Oromiya and Southern Nation, Nationality & Peoples (SNNP) Regions. The candidate sites for the model fruit nursery development in the 1st phase are: a central nursery at Goleta Agricultural Research Center (HARC), 2 regional model nurseries in Amhara and Oromiya Region and each 3 woreda model nurseries in the regions. In the 2nd phase, additional model nurseries will be established in SNN Region.

### 2.3.2 Project Components

The Project shall be implemented in two phases. The 1st phase is for the period of 5 years and will be focused on the establishment of model fruit nurseries, technology development and capacity building. The 2nd phase is also for the period of 5 years and the expansion of the envisaged activities on the capacity building and promotion of temperate fruits production in the target areas of the Project as well as the establishment of additional model nurseries are aimed at.

The project major activities in the 1st phase include: i) base line & inventory survey to assess fruit production & development in the country, ii) establishment of project central & model nurseries, iii) production & distribution of quality seedlings, scions and root stocks by the central & model nurseries and iv) technology development, iv) capacity building of WAO experts, DAs and farming communities.

The same in the 2nd phase mainly directed to: i) capacity building of WAO experts, DAs and farming communities and ii) establishment of project model nurseries in SNNP Region, iii) production & distribution of quality seedlings by the central & model nurseries, iv) establishment of FFG (Fruit Growers Groups) Nurseries and production & distribution of quality seedlings by the nurseries and iv) promotion of temperate fruit production in the target areas.

#### (1) Base Line & Inventory Survey

At the inception stage of the Project, the base line and inventory survey will be carried out to establish of data base on temperate fruit production in the country.

- Base line survey on temperate fruit nurseries and orchards in the country to establish data base on temperate fruits. In addition to ordinal statistic data, data & information on rootstock compatibility, pollination compatibility, adaptability of varieties of rootstocks and scions, diseases and pests, grafting practices and nursery management practices are to be collected.
- Inventory on distribution and seriousness of the infestation of woolly apple aphid (WAA) in the country.

#### (2) Establishment of Project Central Nursery & Model Nurseries

The establishment of model nurseries in Amhara and Oromiya Regions (1 central nursery, 2 regional and 6 woreda model nurseries) is planned in the 1st phase of the Project. The functions, locations, sizes of nursery sites and proposed facilities & equipment of the nurseries are as follows;

**Table 2.3.1 Project Model Nurseries to Be Established in 1st Phase**

Nursery	Major Functions	Target Location	Size of Nursery Site	Major Facilities & Equipment
Central Nursery	Production & supply of quality seedlings, scions & root stocks to regional model nursery	Holeta ARC	3 ha	mist house, screen house, irrigation facilities, water pump, drip irrigation system, office equipment
Regional Model Nursery	Production & supply of quality seedlings, scions & root stocks to woreda model nursery	Amhara Region Oromiya Region	2.5 ha	screen house, irrigation facilities, water pump, field office, office equipment
Woreda Model Nursery	Production & supply of quality seedlings, scions & root stocks to FFGs	3 woredas in Amhara Region 3 woredas in Oromiya Region	2.5 ha	screen house, irrigation facilities, water pump, field office, office equipment



Additional model nurseries will be established in SNNP Region in the 2nd phase of the Project on the basis of the evaluation of the phase I performances and lessons learned. Further, FGG Nurseries will also be established by selected FFGs in the 2nd phase.

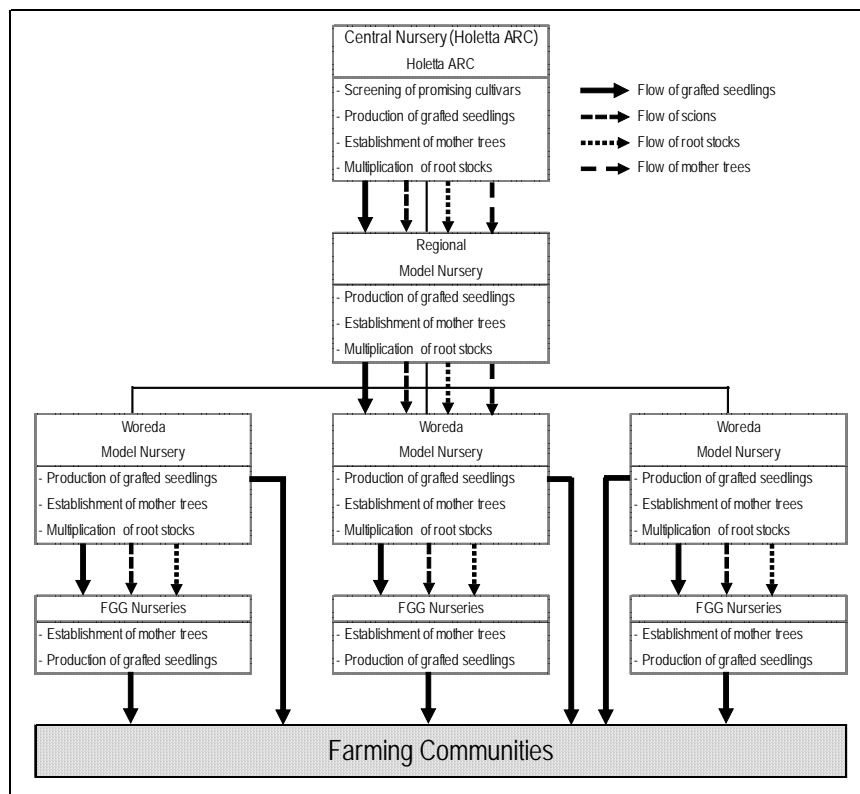
### (3) Production & Distribution of Quality Seedlings, Scions & Root Stocks

#### 1) Major Activities

For the production quality seedlings, scions & root stocks in the Central Nursery and their distribution to model nurseries and to farming communities, the major activities conducted under the Project will include:

- Introduction of promising temperate fruit cultivars/varieties from abroad and screening of their adaptabilities by the Central Nursery,
- Establishment of mother trees and root stocks by all the model nurseries,
- Multiplication and distribution of promising & quality temperate fruit seedlings, scions & root stocks by all the nurseries, and
- Multiplication and distribution of promising & quality temperate fruit seedlings by FGGs.

The overall framework for the production and distribution of quality seedlings, scions & root stocks under the Project is illustrated in Figure 2.3.1.



**Figure 2.3.1 Flows of Quality Seedlings, Scions & Root Stocks**

#### 2) Candidate Fruit Seedlings

The conceived candidate fruit seedlings include; apple, plum, peach, pear, chestnut, persimmon and

drought resistant fruit trees and perennial cash crops which could be planted under rainfed conditions in the highland areas.

### 3) Project Beneficiaries

The basic project beneficiaries will be WAO experts, DAs and farmers groups formed as FGGs (Fruit Growers Groups) in the target woredas. The FGGs will be formed from 10 to 20 interested farmers. The FGGs are placed as the target groups of the extension activities envisaged under the Project. In the 2nd phase, selected advanced FFGs will be recruited as the producers of quality seedlings.

### 4) Tentative Production & Distribution Plans of Fruit Seedlings

The tentative plans for the production and distribution of the quality fruit seedlings produced in the model nurseries in the 1st phase are as follow;

**Table 2.3.2 Production & Distribution Plans of Quality Seedlings**

Nursery	Seedlings	Year					Total
		1st	2nd	3rd	4th	5th	
Central Nursery	Grafted seedling	10,000	15,000	22,500	33,750	49,880	131,130
Amhara Region							
Regional Nursery	Grafted seedling		5,000	7,500	11,250	16,875	40,625
Woreda Model Nurseries	Grafted seedling			5,000	7,500	11,250	23,750
Oromiya Region							
Regional Nursery	Grafted seedling		5,000	7,500	11,250	16,875	40,625
Woreda Model Nurseries	Grafted seedling			5,000	7,500	11,250	23,750
<b>Total</b>	<b>Grafted seedling</b>	<b>10,000</b>	<b>25,000</b>	<b>47,500</b>	<b>71,250</b>	<b>106,130</b>	<b>259,880</b>

Unit No.

### 5) Target Areas for Distribution of Fruit Seedlings, Scions & Root Stocks

The target areas for the distribution of the fruit seedlings, scions & root stocks produced under the Project will be the woredas located close to the woreda model nurseries.

## (4) Promotion of Temperate Fruit Production

The promotion of temperate fruit production in the target highland areas, the project overall goal, shall be envisioned through: i) distribution of quality seedlings to FFGs and farming communities, ii) development of sustainable fruit production technologies, iii) capacity building of woreda experts, DAs and farming communities and iv) field extension activities.

### 1) Appropriate Technology Development

The development of appropriate technologies or improved farming practices on fruit nursery management and planting to harvesting of temperate fruits shall be envisaged throughout the project period by the Project. Some candidate appropriate technologies include: grafting methods, nursery management practices, planting methods, planting distance, fertilization & soil management, pruning & training of fruit trees, plucking of fruit flowers, harvesting, packing, transportation of products, etc.

Findings of such activities shall be accommodated in the preparation of technical manuals & guidelines prepared under the Project.

## 2) Capacity Building of WAO Experts, DAs and Farming Communities

The capacity building of WAO experts and DAs will be carried out as follows;

- Preparation of technical manuals and guidelines for WAO experts & DAs and updating of the same, if deemed necessary,
- Periodical trainings of WAO experts & DAs on nursery management and fruit production, and
- Periodical field technical guidance provided by the project office and the agricultural research centers involved in the project implementation.

The capacity building of farming communities in the target areas will be carried out as follows;

- Formation of project beneficiary farmers in the target areas into Fruit Growers Groups (FGGs). The membership of FGG will be 10 to 20 fruit growers,
- Periodical trainings of FGGs on temperate fruit production from planting to harvest/marketing by the Project, and
- Provision of field technical guidance by woreda experts & DAs trained in the above capacity building activities.

## 3) Capacity Building of Private Sector

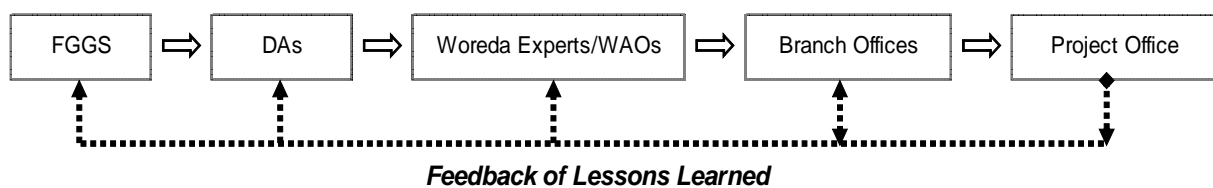
For ensuring future supply of quality temperate fruit seedlings, the capacity building of private investors interested in the establishment of quality fruit nursery is also envisaged under the Project through the establishment and management of the model nurseries.

## 4) Field Extension Activities

Field extension activities to FGGs by the project office and WAO experts & DAs are to be intensively carried out in parallel with field monitoring activities under the Project.

## (5) Monitoring & Evaluation

The periodical monitoring & evaluation of all the project activities shall be carried out and reported by the Project. The tentatively proposed monitoring & evaluation flows are as follows;



**Figure 2.3.2 Proposed Monitoring & Evaluation System (tentative)**

The monitoring & evaluation system as proposed should be institutionalized in the project operation from the initial stage of the Project.

### 2.3.3 Implementation Arrangements (tentative)

The Project shall be carried out under the support of Technical Cooperation Scheme of JICA, in which the executing agency of the Project is the Ethiopian Government/Goleta Agricultural Research Center (HARC) and the technical cooperation shall be provided by the JICA Advisory Team. The conceivable

inputs born by the Ethiopian Government and JICA will be as follows;

**Table 2.3.3 Inputs Born by JICA and Ethiopian Side (tentative)**

Input	JICA	Ethiopian Side
1 Experts 1/	Long/short term experts	Counterparts
2 Establishment of Model Nurseries	Construction, machinery, equipment	Lands for nurseries
3 Provision of Equipment & Facilities	Vehicle, training & office equipment & facilities	Office spaces, training/extension facilities
4 Project Operation Costs	To be born	To be born

1/: Details shown in PDM

## **2.4 PDM of the Project**

The PDM (Project Design Matrix) or project logical frame is presented in Table 2.4.1 and 2.4.2.

**Table 2.4.1 PDM for Temperate Fruits Development Project in Ethiopian Highlands - 1/2**

Name of Project: Temperate Fruits Development Project in Ethiopian Highlands  
 Project Area: Project target areas selected on the highland areas (elevation > ±2,400m) in Amhara, Oromiya & SNNP Region  
 Target Group: FGGs (Fruit Growers Groups), Woreda Agricultural Office Staff, DAs in the target areas  
 Executing Agency: Holeyta Agricultural Research Center  
 Project Period: 10 years (1st phase 5 years & 2nd phase 5 years)

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Important Assumption
<b>Overall Goal</b> Temperate fruits production is promoted widely in the project target areas	<ul style="list-style-type: none"> <li>- Temperate fruit planted areas and production in the target areas</li> </ul>	<ul style="list-style-type: none"> <li>- Agricultural statistics of WAO</li> <li>- Monitoring data on temperate fruit planted area &amp; production</li> </ul>	<ul style="list-style-type: none"> <li>- Agricultural development policy of the government do not conflict with the Project</li> <li>- No serious natural disaster does not occur in the target areas</li> <li>- No outbreak of serious pest and diseases for temperate fruits</li> </ul>
<b>Project Purpose</b> Quality temperate fruit seedlings are produced and planted in the project target areas	<ul style="list-style-type: none"> <li>- No. of quality seedlings produced &amp; distributed</li> <li>- No. of quality seedlings planted</li> </ul>	<ul style="list-style-type: none"> <li>- Project monitoring report</li> </ul>	<ul style="list-style-type: none"> <li>- Necessary budget or support funds are allocated to the Project</li> </ul>
<b>Outputs</b> <ol style="list-style-type: none"> <li>1. <b>Institutional strengthening for the project implementation performed through:</b> <ol style="list-style-type: none"> <li>1-1. Coordination Committee &amp; Working Group are established in a sustainable way</li> <li>1-2. Project Office is established</li> <li>1-3. Capacities of local authorities &amp; other stakeholders for the project implementation are strengthened</li> </ol> </li> <li>2. <b>Establishment of data base on temperate fruit production in the country through:</b> <ol style="list-style-type: none"> <li>2-1. Assessment of the current status of temperate fruit sector in Ethiopia is carried out through the base line survey</li> <li>2-2. Nation wide inventory results on the distribution of WAA infestation on apple</li> </ol> </li> <li>3. <b>Production &amp; distribution of quality temperate fruit seedlings through:</b> <ol style="list-style-type: none"> <li>3-1. Central Nursery is established &amp; managed satisfactory</li> <li>3-2. Regional Model Nurseries are established &amp; managed satisfactory</li> <li>3-3. Woreda Model Nurseries are established &amp; managed satisfactory</li> <li>3-4. FFG Nurseries are established &amp; managed satisfactory</li> <li>3-5. Promising temperate fruit varieties are introduced from abroad &amp; screened for their adaptabilities</li> <li>3-6. Promising temperate fruit seedlings are multiplied</li> <li>3-7. Promising temperate fruit seedlings are distributed to farming communities (FGGs) in the target areas</li> </ol> </li> <li>4. <b>Promotion of temperate fruit production through:</b> <ol style="list-style-type: none"> <li>4-1. Technical manuals &amp; guidelines for nursery management &amp; production of temperate fruits are prepared</li> <li>4-2. Technical manuals &amp; guidelines for nursery management &amp; production of temperate fruits are updated</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>- No. of Committee Meetings held</li> <li>- Activities of Working Group</li> <li>- Performance of Project Office</li> <li>- No. of local authorities staffs &amp; other stakeholders received capacity building</li> <li>- Data base on temperate fruit production in Ethiopia</li> <li>- Inventory data on the distribution of WAA infestation</li> <li>- Performances of Central Nursery</li> <li>- No. of nurseries established/performances</li> <li>- No. of nurseries established/performances</li> <li>- No. of nurseries established/performances</li> <li>- No. of varieties introduced &amp; results of screening</li> <li>- Kinds, varieties &amp; No. of fruit seedlings produced &amp; distributed</li> <li>- No., kinds &amp; usefulness of technical manuals/guidelines prepared</li> <li>- No., kinds &amp; usefulness of technical manuals/guidelines updated</li> </ul>	<ul style="list-style-type: none"> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Baseline survey</li> <li>- Inventory survey</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> </ul>	

Table 2.4.2 PDM for Temperate Fruits Development Project in Ethiopian Highlands - 2/2

Narrative Summary	Objectively Verifiable Indicator	Objectively Verifiable Indicator	Important Assumption
<p>4. <b>Promotion of temperate fruit production through; (continued)</b>                      4-3. WAO staff &amp; DAs in the target areas are trained on seedling production, nursery management &amp; production of temperate fruits                      4-4. Farming communities (FGGs) in the target areas are trained on temperate fruit production through:                      - FGGs for the Project are formed in the target areas &amp; trained                      - Promising temperate fruit seedlings are planted by FGGs                      4-6. Growth performances of planted fruits are monitored                      4-7. Field guidance on temperate fruit production is continuously provided by WAOs &amp; DAs</p> <p>5. <b>Coordination &amp; partnership with BOARD and NGOs operated in &amp; around the target area are maintained</b></p>	<ul style="list-style-type: none"> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> <li>- Field monitoring reports by WAOs/DAs</li> <li>- Field monitoring reports by WAOs/DAs</li> <li>- Field monitoring reports by WAOs/DAs</li> <li>- Project monitoring report</li> <li>- Project monitoring report</li> </ul>	<ul style="list-style-type: none"> <li>- No. of WAO staff &amp; DAs trained</li> <li>- Training evaluation by participants</li> <li>- No. of FGGs formulated &amp; trained</li> <li>- No. of seedlings planted, planted areas &amp; No. of beneficiaries</li> <li>- Growth performances of fruits</li> <li>- Frequency of field guidance</li> <li>- No. of coordination meetings held</li> <li>- No. of partnership arrangements made</li> </ul>	<ul style="list-style-type: none"> <li>- Counterparts &amp; local authorities staffs trained are continuously posted at the Project or continuously support the Project</li> </ul>
<p><b>Activities</b></p> <p>1. <b>Institutional Strengthening</b>                      1-1. To establish Coordination Committee &amp; Working Group                      1-2. To establishment of Project Office                      1-3. To implement capacity building of local authorities, NGOs and other stakeholders</p> <p>2. <b>Establishment of data base on temperate fruit production</b>                      2-1. To carry out base line survey for the assessment of the current status of temperate fruit sector in Ethiopia                      2-2. To carry out nation wide inventory survey on the distribution of WAA infestation on apple</p> <p>3. <b>Production/distribution of quality temperate fruit seedlings</b>                      3-1. To establish &amp; manage Central Nursery                      3-2. To establish &amp; manage Regional Model Nurseries                      3-3. To establish &amp; manage Woreda Model Nurseries                      3-4. To establish &amp; manage FGG Nurseries                      3-5. To introduce promising temperate fruit varieties from abroad and screen their adaptability                      3-6. To multiply promising temperate fruit seedlings                      3-7. To distribute promising temperate fruit seedlings to farming communities (FGGs) in the target areas</p> <p>4. <b>Promotion of temperate fruit production</b>                      4-1. To prepare technical manuals &amp; guidelines for nursery management &amp; production of temperate fruits                      4-2. To update technical manuals &amp; guidelines for nursery management &amp; production of temperate fruits                      4-3. To train WAO staff &amp; DAs in the target areas on nursery management &amp; production of temperate fruits                      4-4. Training of farming communities (FGGs) in the target areas on temperate fruit production through:                      - To formulate FGGs for the Project in the target areas &amp; train FGGs                      4-5. Planting of promising temperate fruit seedlings by FGGs                      4-6. To monitor growth of planted seedlings periodically                      4-7. Provision of field guidance on temperate fruit production by WAOs &amp; DAs</p> <p>5. <b>To establish coordination committee with BOARD and NGOs operated in &amp; around the target areas</b></p>	<p><b>Input</b></p> <p>Ethiopian Side</p> <p>a. Counterparts</p> <p>Full time counterparts corresponding to long term experts in number &amp; specialty</p> <p>b. Establishment of Model Nursery</p> <p>Provision of lands for model nurseries</p> <p>c. Provision of Equipment/Facilities</p> <p>Provision of office spaces, extension &amp; training facilities</p> <p>c. Project Operation Cost</p>	<p>JICA</p> <p>a. Experts</p> <p>Long-term Experts</p> <ul style="list-style-type: none"> <li>- Chief Adviser/Fruit Production</li> <li>- Nursery Management</li> <li>- Extension/Fruit Cultivation</li> <li>- Coordinator/Training</li> <li>- Local experts</li> <li>- Short-term Experts</li> <li>- As required</li> </ul> <p>b. Establishment of Model Nursery</p> <ul style="list-style-type: none"> <li>- Construction of model nurseries</li> <li>- Provision of machinery &amp; equipment</li> </ul> <p>c. Provision of Equipment/Facilities</p> <p>Vehicle, training equipment &amp; office equipment &amp; facilities</p> <p>d. Project Operation Cost</p>	<p>Establishment of Model Nursery</p> <p>Construction of model nurseries</p> <p>Provision of machinery &amp; equipment</p> <p>Provision of Equipment/Facilities</p> <p>Vehicle, training equipment &amp; office equipment &amp; facilities</p> <p>Project Operation Cost</p>

## 2.5 Project Organization

The proposed organization set-up (functions flows) for the Project is illustrated as follows;

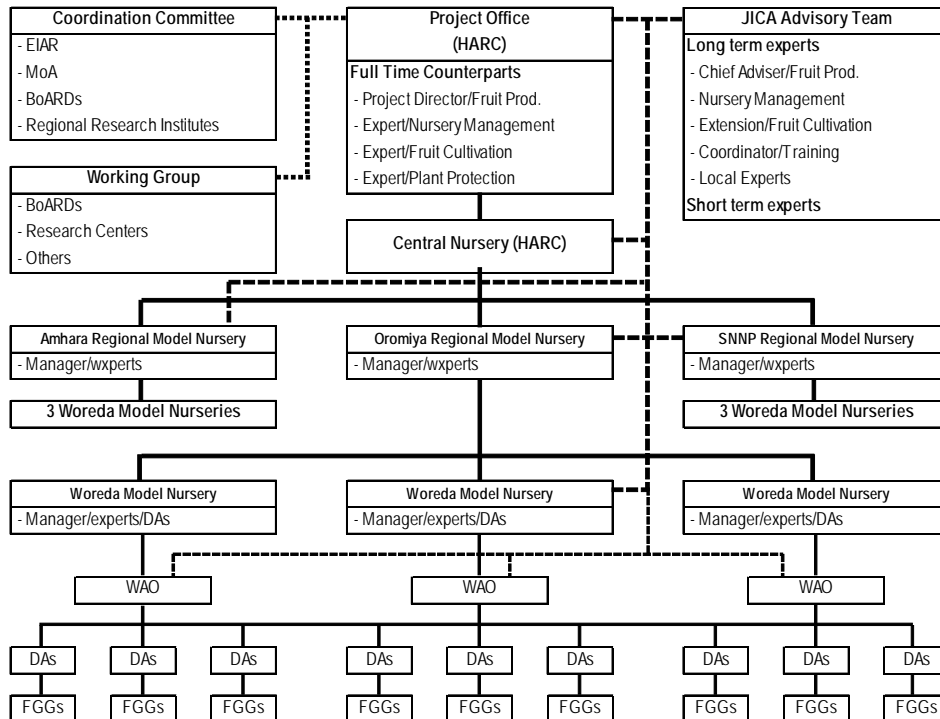


Figure 2.5.1 Proposed Project Organization

## 2.6 Implementation Schedule

The tentative implementation schedules (action plans) of the Project are planned in 2 phases, 1st phase & 2nd phase, as presented in Figure 2.6.1.

Activities	Expected Results	Year										Responsible Institutions 1/						
		1st Phase					2nd Phase											
		0	1st	2nd	3rd	4th	5th	6th	7th	8th	9th		10th					
<b>1. Institutional Strengthening</b>	<b>Empowerment of institutional set-up for the Project</b>		■															HRAC/EIAR
(1) Establishment of Coordination Committee & Working Group	Standing Steering Committee & Task Force Team support the project operation		■															
(2) Establishment of Project Office	Successful operation of the Project by the Project Office		■															HRAC
(3) Capacity building of local authorities for project implementation	Trained local authorities positively involved in the project operation		■															HRAC/JICA
<b>2. Establishment of data base on temperate fruit production</b>	<b>Establishment of data base on temperate fruit production</b>		■															Project/JICA
(1) Base line survey for the assessment of the current status of temperate fruit sector in Ethiopia	Assessment of the current status of temperate fruit sector in Ethiopia		■															
(2) Nation wide inventory survey on the distribution of WAA infestation on apple	Nation wide inventory data on the distribution of WAA infestation on apple		■															Project/JICA
<b>3. Production &amp; distribution of quality temperate fruit seedlings</b>	<b>Production &amp; distribution of quality temperate fruit seedlings</b>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/WAO/JICA
(1) Establishment & management of Central Nursery	Central Nursery established & operated successfully		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/JICA
(2) Establishment & management of Regional Model Nurseries	Regional Model Nurseries established & operated successfully		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/WAO
(3) Establishment & management of Woreda Model Nurseries	Woreda Model Nurseries established & operated successfully		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	WAO/FFG
(4) Establishment & management of FFG Nurseries	FFG Nurseries established & operated successfully		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/JICA
(5) Introduction & screening of promising temperate fruit varieties from abroad	Promising temperate fruit varieties from abroad are screened for their adaptability		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/WAO/JICA
(6) Multiplication promising temperate fruit seedlings	Promising temperate fruit seedlings are multiplied in the model nurseries		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/WAO/JICA
(7) Distribution promising temperate fruit seedlings	Promising temperate fruit seedlings are distributed to farming communities (FGGs) in the target areas		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/WAO/JICA
<b>4. Promotion of temperate fruit production</b>	<b>Promotion of temperate fruit production in the target areas</b>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/JICA
(1) Preparation of technical manuals & guidelines for nursery management & production of temperate fruits	Technical manuals & guidelines for temperate fruit nursery management & production are prepared & distributed		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/JICA
(2) Updating of technical manuals & guidelines for nursery management & production of temperate fruits	Updated technical manuals & guidelines for temperate fruit nursery management & production are prepared & distributed		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/JICA
(3) Training of WAO staff & DAs in the target areas on nursery management & production of temperate fruits	WAO staff & DAs in the target areas are trained on nursery management & production of temperate fruits		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/JICA
(4) Training of farming communities (FGGs) in the target areas on temperate fruit production through: - Formulation FGGs for the Project in the target areas	Farming communities (FGGs) in the target areas are trained on temperate fruit production FGGs for the Project are formed in the target areas		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/WAO
- Training of FGGs under the Project	FGGs are trained under the Project		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/WAO
(5) Planting of promising temperate fruit seedlings by FGGs	Promising temperate fruit seedlings are planted		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	FGGs/WAO
(6) Monitoring of growth performances of planted fruits	Growth performances of planted fruits are monitored continuously		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project/WAO
(7) Field guidance on temperate fruit production by WAOs & DAs	Field guidance on temperate fruit production is continuously provided		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	WAO/Project
<b>5. Establishing coordination committee with BoARD and NGOs operated in &amp; around the Target Area</b>	<b>Coordination &amp; partnership with BoARD and NGOs operated in &amp; around the Target Area are maintained</b>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Project

1/; HARC - Holoita Agricultural Research Center, JICA - JICA Advisory Team for the Project; EIAR - Ethiopian Institute for Agricultural Research; WAO - woreda agricultural office

Figure 2.6.1 Tentative Implementation Schedule



## 2.7 Project Justification

The Project will contribute largely to the agricultural development and livelihood improvement in the target highland areas and is justified as follows;

- The promotion of temperate fruit production in the highland areas will directly address to the sustainable agricultural productivity improvement and contribute to farm land conservation. The agricultural sector development and farmland conservation is the primary agricultural development strategies of the country.
- High value crops development is one of the strategies established in PADEP II. The overall goal of the Project, “temperate fruits production is promoted widely in the project target areas”, is surely consistent with the said national development policy.
- The Project concept and objective is consistent with the temperate fruit development directions of NARS (National Agricultural Research System).
- The development potential of temperate fruits in the areas has been assessed highly by the HARC, BoARD, ORDA and other development institutions. Further, such potential has been identified through the verification project under “the development Study on the Improvement of Livelihood through Integrated Watershed Management in Amhara Region” by JICA.
- Anticipated major project benefits include: i) income generation & livelihood improvement of farming communities, ii) foreign exchange earnings through export of temperate fruits to oil producing countries, iii) contribution to farmland conservation in highland areas and iv) diversification of agriculture in highland areas and attainment of sustainable agriculture in the areas.

## 2.8 Preliminary Project Evaluation

The need and effect of the Project is evaluated from the following JICA project evaluation criteria:

### (1) Relevance

The agricultural sector is the primary economic activity in the Ethiopian highland areas. The key issues in the agriculture sector are sustainable productivity improvement in agriculture, livelihood improvement and farm land conservation. The promotion of temperate fruit production in the areas envisaged in the Project will directly address the said key issues and realize the sustainable agricultural productivity improvement and contribute to farm land conservation. The agricultural sector development and farmland conservation is the primary agricultural development strategies established in PADEP II. The overall goal of the Project, “temperate fruits production is promoted widely in the project target areas”, is surely consistent with the said national development policy.

The development potential of temperate fruits in the areas has been assessed highly by the HARC, BoARD, ORDA and other development institutions. Further, such potential has been identified through the verification project under “the development Study on the Improvement of Livelihood through Integrated Watershed Management in Amhara Region” by JICA

(2) Effectiveness

The project purpose will be attained when the model nurseries are established as planned and the positive participation of woreda agricultural offices is ensured. The overall goal could be achieved when the sustainability of the Project is maintained by the regional and woreda authorities.

(3) Efficiency

The assignment of qualified full time counterparts & experts will be a key factor for the successful operation of the project activities. Further, to ensure technical support for the Project, the establishment of Standing Steering Committee and Task Force Team is planned by the inception stage of the Project.

(4) Impact

The promotion of temperate fruit production in the project area will directly contribute to the productivity improvement of agriculture & livelihood improvement in the project area and, to some extent, to farm land conservation.

(5) Sustainability

The project sustainability is largely depending on the successful establishment of branch nurseries and capacity building of woreda agricultural office staff and DAs. The provision of funds for the operation of the nurseries in the woreda development plan is essential for the sustainability of the Project.

*Appendix D: Supplemental Data on Socio-economy*



Appendix D: Supplemental Data on Socio-economy

No.	Woreda Name	Zone	Demographics						
			Rural: Male	Rural: Female	Pop. Density (persons/s q. km)	Urban Population Rate (%)	2007/1994 increase rate: Total	2007/1994 increase rate: Urban	2007/1994 increase rate: Rural
1	Enebse Sar Mider	East Gojam	60,641	61,946	126.6	9.1%	124%	166%	121%
2	Goncha Siso Enese	East Gojam	69,933	70,875	145.9	5.2%	129%	195%	126%
3	Shebele Berenta	East Gojam	48,894	50,841	115.9	4.1%	135%	253%	133%
4	Adarekaye	North Gonder	40,771	37,941	59.3	11.6%	137%	147%	136%
5	Beyeda	North Gonder	46,484	47,681	110.8	2.9%	126%	279%	124%
6	Dabat	North Gonder	66,738	62,902	118.9	10.9%	123%	144%	121%
7	Debark	North Gonder	71,334	67,966	108.3	13.0%	133%	144%	131%
8	East Belesa	North Gonder	44,274	40,487	53.8	13.3%	171%	354%	163%
9	Janamora	North Gonder	82,200	80,456	86.0	3.0%	134%	319%	131%
10	Telemt	North Gonder	28,674	28,515	45.5	0.0%	137%	147%	136%
11	West Belesa	North Gonder	68,656	65,739	121.5	5.4%	171%	354%	163%
12	Wogera	North Gonder	104,720	98,538	122.2	8.7%	121%	229%	116%
13	Angolelana Tera	North Shewa	38,590	36,913	101.1	7.0%	148%	164%	147%
14	Asagirt	North Shewa	24,613	23,603	94.9	2.6%	148%	164%	147%
15	Gishe Rabele	North Shewa	28,607	29,289	98.4	5.9%	120%	328%	115%
16	Menze Gera Mider	North Shewa	44,623	46,748	92.6	10.8%	111%	170%	108%
17	Menze Lalo Mider	North Shewa	17,865	18,245	99.3	0.0%	116%	175%	114%
18	Menze Mama Mider	North Shewa	38,927	39,676	127.7	7.7%	116%	175%	114%
19	Menze Qeya Gebriel	North Shewa	21,649	21,934	78.5	5.7%	111%	170%	108%
20	Bugena	North Wello	37,869	37,599	65.9	0.0%	113%	210%	108%
21	Dawunt	North Wello	32,951	31,621	104.9	0.8%	133%	201%	131%
22	Delanta	North Wello	60,161	60,403	122.0	6.1%	133%	201%	131%
23	Gidan	North Wello	75,458	76,944	153.1	4.8%	118%	187%	116%
24	Guba Lafto	North Wello	68,355	66,560	150.3	3.5%	100%	-	97%
25	Habru	North Wello	86,265	84,838	115.3	11.2%	115%	169%	110%
26	Kobo	North Wello	95,260	93,499	128.0	14.9%	126%	115%	129%
27	Lasta	North Wello	50,331	50,064	102.4	15.1%	113%	210%	108%
28	Mekete	North Wello	109,034	106,556	117.5	5.2%	117%	247%	114%
29	Wadela	North Wello	62,610	61,246	156.5	3.3%	120%	285%	118%
30	Artuma Fursi	Oromiya	39,175	40,397	78.8	6.9%	103%	133%	102%
31	Bati	Oromiya	45,968	44,674	97.6	15.6%	74%	86%	72%
32	Dewa Chefa	Oromiya	65,403	65,080	234.4	2.2%	106%	38%	112%
33	Dewa Harewa	Oromiya	19,603	20,048	82.4	4.1%	106%	38%	112%
34	Jilena Timuga	Oromiya	33,213	34,577	82.4	7.0%	103%	133%	102%
35	Ebinate	South Gonder	106,990	101,969	88.4	5.4%	135%	124%	136%
36	Laye Gayint	South Gonder	93,377	90,263	133.3	11.1%	124%	168%	120%
37	Libo Kemkem	South Gonder	90,003	86,321	208.5	11.1%	90%	119%	87%
38	Simada	South Gonder	108,244	109,685	101.0	4.5%	122%	223%	119%
39	Tach Gayint	South Gonder	47,236	46,700	123.5	7.8%	121%	299%	115%
40	Alebuko	South Wello	36,838	36,817	156.8	4.5%	175%	240%	171%
41	Ambassel	South Wello	58,427	57,559	133.7	4.2%	109%	130%	108%
42	Aregoba Special	South Wello	17,894	17,550	114.6	0.0%	175%	240%	171%
43	Debre Sina	South Wello	74,101	75,339	158.8	6.0%	127%	172%	125%
44	Dessie Zuria	South Wello	77,595	80,034	163.3	0.0%	78%	-	79%
45	Jamma	South Wello	60,310	60,467	118.7	5.2%	119%	180%	117%
46	Kalu	South Wello	84,327	82,001	200.7	10.9%	175%	240%	171%
47	Kelela	South Wello	64,681	65,129	93.9	5.6%	117%	189%	115%
48	Kuta Ber	South Wello	44,857	45,589	131.8	5.2%	75%	173%	73%
49	Legambo	South Wello	77,595	80,051	164.8	4.4%	104%	171%	102%
50	Legehida	South Wello	32,278	32,772	128.5	3.1%	147%	151%	146%
51	Mehal Sayint	South Wello	36,347	37,062	124.0	0.0%	113%	265%	111%
52	Mekedela	South Wello	67,239	70,277	97.1	3.6%	134%	251%	132%
53	Sayint	South Wello	69,161	70,306	98.6	3.8%	113%	265%	111%
54	Tehulederie	South Wello	51,862	51,256	250.8	12.5%	99%	125%	96%
55	Tenta	South Wello	77,492	79,740	124.3	5.4%	121%	138%	120%
56	Wogedi	South Wello	64,492	66,161	123.7	3.3%	133%	269%	131%
57	Wore Illu	South Wello	48,358	49,410	139.5	10.5%	147%	151%	146%
58	Worebabu	South Wello	46,820	46,279	124.9	6.7%	110%	148%	108%
59	Abergelie	Wag Himera	21,964	21,207	26.9	0.0%	191%	252%	187%
60	Dahena	Wag Himera	52,800	52,682	65.4	3.8%	114%	202%	112%
61	Gazgibela	Wag Himera	35,564	35,269	65.5	0.0%	191%	252%	187%
62	Sehala	Wag Himera	12,123	11,558	24.9	0.0%	138%	499%	133%
63	Seqota	Wag Himera	56,227	56,133	80.6	16.6%	191%	252%	187%
64	Zequala	Wag Himera	20,820	19,749	25.8	7.7%	138%	499%	133%
	Total		3,565,871	3,539,736	-	-	-	-	-
	Average		-	-	107.2	6.8%	127%	205%	124%
	Data Source		B	B	A & B	B	B & C	B & C	B & C

C: The 1994 Population and Housing Census of Ethiopia, Results at Country Level, June 1998, CSA

No.	Woreda Name	Zone	Infrastructure					
			ERA road length (km)	ARRA road length (km)	Community road length (km)	ERA road density (m/sq. km)	ARRA road density (m/sq. km)	Community road density (m/sq. km)
1	Enebse Sar Mider	East Gojam	0.0	4.9	52.1	0.0	4.6	48.9
2	Goncha Siso Enese	East Gojam	24.9	24.7	29.6	24.5	24.3	29.1
3	Shebele Berenta	East Gojam	0.0	8.6	49.8	0.0	9.6	55.5
4	Adarekaye	North Gonder	56.4	11.4	0.0	37.6	7.6	0.0
5	Beyeda	North Gonder	0.0	0.0	0.0	0.0	0.0	0.0
6	Dabat	North Gonder	29.5	0.0	40.4	24.1	0.0	33.0
7	Debark	North Gonder	17.2	31.9	5.1	11.6	21.6	3.4
8	East Belesa	North Gonder	0.0	75.2	32.9	0.0	41.4	18.1
9	Janamora	North Gonder	0.0	41.9	19.1	0.0	21.5	9.8
10	Telemt	North Gonder	0.0	0.0	0.0	0.0	0.0	0.0
11	West Belesa	North Gonder	0.0	0.6	70.0	0.0	0.5	59.9
12	Wogera	North Gonder	34.8	0.0	67.5	19.1	0.0	37.0
13	Angolelana Tera	North Shewa	35.0	0.2	25.3	43.6	0.2	31.6
14	Asagirt	North Shewa	1.4	23.6	20.7	2.7	45.3	39.6
15	Gishe Rabele	North Shewa	0.0	28.6	12.3	0.0	45.8	19.7
16	Menze Gera Mider	North Shewa	28.0	77.5	67.5	25.4	70.1	61.1
17	Menze Lalo Mider	North Shewa	0.0	0.0	27.1	0.0	0.0	74.6
18	Menze Mama Mider	North Shewa	46.5	0.0	37.2	69.7	0.0	55.8
19	Menze Qeya Gebriel	North Shewa	0.0	4.9	46.2	0.0	8.4	78.4
20	Bugena	North Wello	0.0	19.1	33.1	0.0	16.7	28.9
21	Dawunt	North Wello	0.0	0.0	14.4	0.0	0.0	23.1
22	Delanta	North Wello	69.3	0.0	56.7	65.8	0.0	53.9
23	Gidan	North Wello	8.5	53.9	34.2	8.1	51.5	32.7
24	Guba Lafto	North Wello	71.5	0.0	27.0	76.9	0.0	29.1
25	Habru	North Wello	80.1	0.0	78.4	47.9	0.0	46.9
26	Kobo	North Wello	24.2	51.0	94.8	14.0	29.4	54.7
27	Lasta	North Wello	60.8	24.6	55.3	52.7	21.3	47.9
28	Mekete	North Wello	125.1	0.0	43.5	64.6	0.0	22.5
29	Wadela	North Wello	50.0	0.0	85.5	61.1	0.0	104.4
30	Artuma Fursi	Oromiya	21.6	21.1	38.1	19.9	19.5	35.1
31	Bati	Oromiya	22.6	0.0	95.5	20.5	0.0	86.8
32	Dewa Chefa	Oromiya	28.4	17.1	24.9	49.9	30.1	43.8
33	Dewa Harewa	Oromiya	0.0	14.4	44.2	0.0	28.7	88.1
34	Jilena Timuga	Oromiya	34.7	0.0	13.3	39.3	0.0	15.0
35	Ebinate	South Gonder	0.0	44.6	177.9	0.0	17.9	71.2
36	Laye Gayint	South Gonder	55.5	34.2	58.8	35.8	22.1	38.0
37	Libo Kemkem	South Gonder	29.8	30.0	42.3	31.4	31.5	44.5
38	Simada	South Gonder	0.0	54.7	85.5	0.0	24.2	37.8
39	Tach Gayint	South Gonder	0.0	17.9	71.9	0.0	21.7	87.1
40	Alebuko	South Wello	0.0	0.0	15.0	0.0	0.0	30.6
41	Ambassel	South Wello	25.4	0.0	63.6	28.0	0.0	70.3
42	Aregoba Special	South Wello	0.0	0.0	8.9	0.0	0.0	28.7
43	Debre Sina	South Wello	0.0	23.6	101.5	0.0	23.6	101.4
44	Dessie Zuria	South Wello	10.5	54.1	104.6	10.9	56.1	108.3
45	Jamma	South Wello	21.1	21.3	32.0	19.7	19.8	29.8
46	Kalu	South Wello	43.8	0.0	135.3	47.1	0.0	145.6
47	Kelela	South Wello	17.2	13.8	37.4	11.8	9.4	25.6
48	Kuta Ber	South Wello	0.0	10.8	67.3	0.0	14.9	92.9
49	Legambo	South Wello	42.6	62.9	22.1	42.6	62.8	22.1
50	Legehida	South Wello	6.4	15.7	44.2	12.2	30.2	84.6
51	Mehal Sayint	South Wello	0.0	0.0	19.1	0.0	0.0	32.3
52	Mekedela	South Wello	0.0	14.8	82.0	0.0	10.1	55.8
53	Sayint	South Wello	0.0	37.3	28.5	0.0	25.3	19.4
54	Tehulederie	South Wello	25.2	8.9	43.8	53.5	19.0	93.3
55	Tenta	South Wello	77.8	11.1	80.9	58.2	8.3	60.5
56	Wogedi	South Wello	0.0	38.4	48.0	0.0	35.1	43.9
57	Wore Illu	South Wello	0.0	58.9	37.0	0.0	75.2	47.3
58	Worebabu	South Wello	0.0	46.3	10.0	0.0	58.0	12.5
59	Abergelie	Wag Himera	48.4	0.0	0.0	30.1	0.0	0.0
60	Dahena	Wag Himera	0.0	49.3	45.8	0.0	29.4	27.3
61	Gazgibela	Wag Himera	68.5	0.6	25.0	63.3	0.5	23.1
62	Sehala	Wag Himera	0.0	0.0	0.0	0.0	0.0	0.0
63	Seqota	Wag Himera	70.4	37.6	62.8	42.1	22.5	37.6
64	Zequala	Wag Himera	0.0	19.7	34.2	0.0	11.5	20.1
	Total		1,413.3	1,241.7	2,927.5	-	-	-
	Average		-	-	-	19.9	17.4	41.1
	Data Source		D	D	D	A & D	A & D	A & D

D: Amhara Rural Road Authority data

Appendix D: Supplemental Data on Socio-economy

No.	Woreda Name	Zone	Infrastructure			Education	
			Number of Electrified households	Estimated Electrification Rate	Rural water supply coverage	Illiterate population rate	Average pupil teacher rate (grade 1-8)
1	Enebse Sar Mider	East Gojam	410	1.5%	87.2%	71.4%	63.1
2	Goncha Siso Enese	East Gojam	403	1.3%	56.5%	76.4%	90.9
3	Shebele Berenta	East Gojam	880	4.0%	60.1%	81.4%	67.6
4	Adarekaye	North Gonder	0	0.0%	41.0%	85.8%	45.0
5	Beyeda	North Gonder	0	0.0%	46.7%	85.4%	55.1
6	Dabat	North Gonder	1,589	5.5%	23.5%	-	-
7	Debark	North Gonder	119	0.4%	25.3%	65.5%	66.2
8	East Belesa	North Gonder	279	1.5%	15.9%	88.6%	60.3
9	Janamora	North Gonder	0	0.0%	20.0%	85.7%	72.9
10	Telemt	North Gonder	0	0.0%	28.4%	85.8%	45.0
11	West Belesa	North Gonder	551	1.8%	15.8%	88.6%	60.3
12	Wogera	North Gonder	1,561	3.5%	9.2%	84.7%	76.6
13	Angolelana Tera	North Shewa	-	-	51.5%	68.0%	53.3
14	Asagirt	North Shewa	-	-	54.0%	-	-
15	Gishe Rabele	North Shewa	-	-	51.7%	77.0%	69.9
16	Menze Gera Mider	North Shewa	-	-	50.5%	68.1%	19.8
17	Menze Lalo Mider	North Shewa	-	-	44.0%	68.9%	51.2
18	Menze Mama Mider	North Shewa	-	-	31.6%	68.9%	51.2
19	Menze Qeya Gebriel	North Shewa	-	-	16.7%	68.1%	19.8
20	Bugena	North Wello	70	0.4%	25.8%	-	91.2
21	Dawunt	North Wello	0	0.0%	15.8%	79.6%	72.7
22	Delanta	North Wello	0	0.0%	47.1%	79.6%	72.7
23	Gidan	North Wello	2,106	6.2%	69.9%	-	81.4
24	Guba Lafto	North Wello	1,021	3.4%	93.4%	55.3%	71.3
25	Habru	North Wello	3,581	9.4%	54.4%	70.5%	73.5
26	Kobo	North Wello	917	2.2%	57.9%	-	79.2
27	Lasta	North Wello	326	1.5%	86.0%	-	91.2
28	Mekete	North Wello	0	0.0%	42.5%	-	79.0
29	Wadela	North Wello	0	0.0%	95.5%	63.3%	71.9
30	Artuma Fursi	Oromiya	559	3.2%	38.9%	72.2%	31.8
31	Bati	Oromiya	0	0.0%	23.3%	83.8%	61.2
32	Dewa Chefa	Oromiya	678	2.3%	90.4%	17.0%	41.1
33	Dewa Harewa	Oromiya	0	0.0%	27.2%	17.0%	41.1
34	Jilena Timuga	Oromiya	635	4.2%	32.3%	30.3%	43.9
35	Ebinate	South Gonder	1,164	2.5%	30.1%	-	66.5
36	Laye Gayint	South Gonder	1,800	4.4%	23.3%	67.7%	67.5
37	Libo Kemkem	South Gonder	1,869	4.8%	52.6%	83.3%	64.4
38	Simada	South Gonder	0	0.0%	29.3%	-	70.4
39	Tach Gayint	South Gonder	0	0.0%	28.3%	39.9%	68.6
40	Alebuko	South Wello	419	2.6%	33.8%	76.0%	61.8
41	Ambassel	South Wello	1,531	5.9%	23.3%	59.4%	55.6
42	Aregoba Special	South Wello	0	0.0%	15.3%	76.0%	61.8
43	Debre Sina	South Wello	644	1.9%	42.4%	58.0%	70.5
44	Dessie Zuria	South Wello	765	2.2%	72.3%	49.6%	73.5
45	Jamma	South Wello	433	1.6%	53.5%	52.0%	67.8
46	Kalu	South Wello	1,846	5.0%	31.4%	76.0%	61.8
47	Kelela	South Wello	404	1.4%	46.9%	78.9%	43.9
48	Kuta Ber	South Wello	726	3.6%	30.9%	63.8%	46.2
49	Legambo	South Wello	521	1.5%	47.0%	-	83.1
50	Legehida	South Wello	207	1.4%	54.3%	58.2%	72.6
51	Mehal Sayint	South Wello	0	0.0%	42.1%	86.6%	67.5
52	Mekedela	South Wello	532	1.7%	34.3%	-	59.7
53	Sayint	South Wello	325	1.0%	93.1%	86.6%	67.5
54	Tehulederie	South Wello	2,700	11.8%	27.4%	58.7%	67.1
55	Tenta	South Wello	1,279	3.7%	60.9%	75.2%	67.1
56	Wogedi	South Wello	208	0.7%	35.0%	57.8%	72.4
57	Wore Illu	South Wello	1,124	5.2%	59.5%	58.2%	72.6
58	Worebabu	South Wello	852	4.1%	37.7%	83.7%	59.4
59	Abergelie	Wag Himera	0	0.0%	18.3%	-	-
60	Dahena	Wag Himera	420	1.8%	41.9%	91.8%	64.4
61	Gazgibela	Wag Himera	0	0.0%	23.6%	82.4%	46.9
62	Sehala	Wag Himera	0	0.0%	19.1%	92.0%	40.4
63	Seqota	Wag Himera	183	0.7%	29.1%	82.4%	46.9
64	Zequala	Wag Himera	345	3.8%	54.0%	92.0%	40.4
	Total		35,982	-	-	-	-
	Average		-	2.3%	43.5%	70.6%	62.0
	Data Source		E	Processed data of E	F	G	G

E: Ethiopian Electric Power Authority data  
F: BoWRD data

G: Statistics of CSA, 2005

No.	Woreda Name	Zone	Health							
			No. of Hospital	No. of Health center	No. of Helath station/ clinic (gov't)	No. of Helath station/ clinic (private)	No. of Health post	No. of Drug shop	Total number of health institutions	
1	Enebse Sar Mider	East Gojam		1	4			1	1	7
2	Goncha Siso Enese	East Gojam		1				6	0	7
3	Shebele Berenta	East Gojam			5	1		1	2	9
4	Adarekaye	North Gonder		1	4			2		7
5	Beyeda	North Gonder		1	1			1	1	4
6	Dabat	North Gonder								0
7	Debark	North Gonder		1	4	3		4	1	13
8	East Belesa	North Gonder			6			1		7
9	Janamora	North Gonder		1	4			2	1	8
10	Telemt	North Gonder	n.a	n.a	n.a	n.a		n.a	n.a	0
11	West Belesa	North Gonder		1	2			1	1	5
12	Wogera	North Gonder			6			5	0	11
13	Angolelana Tera	North Shewa	n.a	n.a	n.a	n.a		n.a	n.a	0
14	Asagirt	North Shewa			1			2		3
15	Gishe Rabele	North Shewa			4	1				5
16	Menze Gera Mider	North Shewa	n.a	n.a	n.a	n.a		n.a	n.a	0
17	Menze Lalo Mider	North Shewa		1	6	1		2		10
18	Menze Mama Mider	North Shewa								
19	Menze Qeya Gebriel	North Shewa								
20	Bugena	North Wello	1	1	9			7		18
21	Dawunt	North Wello								
22	Delanta	North Wello		1	8			6		15
23	Gidan	North Wello		1	5			1	1	8
24	Guba Lafto	North Wello			6			5	0	11
25	Habru	North Wello	n.a	n.a	n.a	n.a		n.a	n.a	0
26	Kobo	North Wello		1			2	20	0	23
27	Lasta	North Wello								
28	Mekete	North Wello		1	8			10	1	20
29	Wadela	North Wello		1	6			7		14
30	Artuma Fursi	Oromiya		1	4	1		7	2	15
31	Bati	Oromiya		1	3	2		7		13
32	Dewa Chefa	Oromiya		2		5		16	2	25
33	Dewa Harewa	Oromiya								
34	Jilena Timuga	Oromiya			3	2		4		9
35	Ebinate	South Gonder		1	7	2		2	1	13
36	Laye Gayint	South Gonder		1	7			6	0	14
37	Libo Kemkem	South Gonder		1	5	1		5		12
38	Simada	South Gonder		1	7			8	0	16
39	Tach Gayint	South Gonder		1				9	0	10
40	Alebuko	South Wello	n.a	n.a	n.a	n.a		n.a	n.a	0
41	Ambassel	South Wello			6			3	1	10
42	Aregoba Special	South Wello						3		3
43	Debre Sina	South Wello		1		2		8	1	12
44	Dessie Zuria	South Wello			7			3		10
45	Jamma	South Wello			6			1	1	8
46	Kalu	South Wello		1	6	1		5	9	22
47	Kelela	South Wello		1	7				1	9
48	Kuta Ber	South Wello	1		3			5		9
49	Legambo	South Wello	1		5			6	0	12
50	Legehida	South Wello								
51	Mehal Sayint	South Wello		1	6			5	1	13
52	Mekedela	South Wello		1	4			5		10
53	Sayint	South Wello								
54	Tehulederie	South Wello		1	5			2	3	11
55	Tenta	South Wello		1	3				1	5
56	Wogedi	South Wello			5			2	0	7
57	Wore Illu	South Wello		1	6			3	3	13
58	Worebabu	South Wello			4			3	4	11
59	Abergelie	Wag Himera	n.a	n.a	n.a	n.a		n.a	n.a	0
60	Dahena	Wag Himera		1	5			1		7
61	Gazgibela	Wag Himera	n.a	n.a	n.a	n.a		n.a	n.a	0
62	Sehala	Wag Himera	n.a	n.a	n.a	n.a		n.a	n.a	0
63	Seqota	Wag Himera	1	1	8	1		5	0	16
64	Zequala	Wag Himera			5			2		7
	Total		4	33	216	25		210	39	527
	Average		-	-	-	-		-	-	-
	Data Source		G	G	G	G		G	G	G

G: Statistics of CSA, 2005



Appendix D: Supplemental Data on Socio-economy

No.	Woreda Name	Zone	Health						
			No. of Physician	No. of Health Officer	No. of Midwives	No. of Senior nurse	No. of Junior nurse	No. of Health Assistant	No. of Laboratory technician
1	Enebse Sar Mider	East Gojam		1	1	7	6	1	3
2	Goncha Siso Enese	East Gojam		1		5	5	4	2
3	Shebele Berenta	East Gojam			2	3	4	2	
4	Adarekaye	North Gonder		2		5	7	4	2
5	Beyeda	North Gonder				1	4	1	1
6	Dabat	North Gonder				5	3	9	1
7	Debark	North Gonder		2		5	3	7	2
8	East Belesa	North Gonder		1			3	1	
9	Janamora	North Gonder		2		5	4	3	1
10	Telemt	North Gonder	n.a	n.a	n.a	n.a	n.a	n.a	n.a
11	West Belesa	North Gonder		1			3	1	
12	Wogera	North Gonder				2	3	15	1
13	Angolelana Tera	North Shewa	n.a	n.a	n.a	n.a	n.a	n.a	n.a
14	Asagirt	North Shewa				2	1	2	
15	Gishe Rabele	North Shewa				3	3	2	
16	Menze Gera Mider	North Shewa	n.a	n.a	n.a	n.a	n.a	n.a	n.a
17	Menze Lalo Mider	North Shewa		1	2		4	9	2
18	Menze Mama Mider	North Shewa							
19	Menze Qeya Gebriel	North Shewa	1	2		9	4	13	4
20	Bugena	North Wello	3		1	7		20	5
21	Dawunt	North Wello							
22	Delanta	North Wello		1	1	4	4	15	2
23	Gidan	North Wello		1		5	8	4	2
24	Guba Lafto	North Wello		1		8	5	5	1
25	Habru	North Wello	n.a	n.a	n.a	n.a	n.a	n.a	n.a
26	Kobo	North Wello		1		4	9		
27	Lasta	North Wello							
28	Mekete	North Wello		2			1	12	2
29	Wadela	North Wello		1		3	9	6	2
30	Artuma Fursi	Oromiya	1	1		8	4	7	1
31	Bati	Oromiya	1	2	1	8	7	11	3
32	Dewa Chefa	Oromiya	1	2	3	13	8	16	5
33	Dewa Harewa	Oromiya							
34	Jilena Timuga	Oromiya				3	5	2	
35	Ebinate	South Gonder			1	5	9	14	2
36	Laye Gayint	South Gonder	1	2		6	7	9	2
37	Libo Kemkem	South Gonder				4		19	2
38	Simada	South Gonder			1	6	10	6	2
39	Tach Gayint	South Gonder		2		9	2	8	2
40	Alebuko	South Wello			2	1	2	5	
41	Ambassel	South Wello			2	3	3	10	
42	Aregoba Special	South Wello				3	3		1
43	Debre Sina	South Wello		2			1	9	11
44	Dessie Zuria	South Wello		1		9	3	17	
45	Jamma	South Wello				3	8	7	
46	Kalu	South Wello		1	1	6	2	15	2
47	Kelela	South Wello				4	9	5	
48	Kuta Ber	South Wello				3	4	7	
49	Legambo	South Wello		2		2	4	5	
50	Legehida	South Wello							
51	Mehal Sayint	South Wello							
52	Mekedela	South Wello		1	1	5	9	4	2
53	Sayint	South Wello							
54	Tehulederie	South Wello	1	2	1	5	3	18	2
55	Tenta	South Wello		1	1	1	1	13	2
56	Wogedi	South Wello				9	4	3	1
57	Wore Illu	South Wello		1	1	1	10	9	1
58	Worebabu	South Wello				3	4	7	
59	Abergelie	Wag Himera	n.a	n.a	n.a	n.a	n.a	n.a	n.a
60	Dahena	Wag Himera			1	7	12	2	2
61	Gazgibela	Wag Himera	n.a	n.a	n.a	n.a	n.a	n.a	n.a
62	Sehala	Wag Himera	n.a	n.a	n.a	n.a	n.a	n.a	n.a
63	Seqota	Wag Himera			1	4	12	12	2
64	Zequala	Wag Himera				7	3	4	
	Total		9	40	24	221	242	380	78
	Average		-	-	-	-	-	-	-
	Data Source		G	G	G	G	G	G	G

G: Statistics of CSA, 2005

No.	Woreda Name	Zone	Health				Rural society		
			No. of Frontline Health workers	Total number of health staff	No. of Health institutions per 10,000 people	No. of Health staff per 10,000 people	Roof material: Corrigated iron sheet	Roof material: Thatch and Wood	Roof material: Wood and Mud
1	Enebse Sar Mider	East Gojam	2	21	0.52	1.56	42.0%	57.2%	0.4%
2	Goncha Siso Enese	East Gojam	6	23	0.47	1.55	45.4%	54.4%	0.3%
3	Shebele Berenta	East Gojam	2	13	0.87	1.25	40.7%	56.1%	0.0%
4	Adarekaye	North Gonder	6	26	0.79	2.92	14.9%	74.5%	9.7%
5	Beyeda	North Gonder	3	10	0.41	1.03	4.9%	85.1%	1.7%
6	Dabat	North Gonder	6	24	0.00	1.65	22.7%	77.2%	0.0%
7	Debark	North Gonder	8	27	0.81	1.69	14.2%	83.0%	0.0%
8	East Belesa	North Gonder	4	9	0.72	0.92	2.9%	65.4%	0.2%
9	Janamora	North Gonder	6	21	0.48	1.25	6.4%	90.6%	0.5%
10	Telemt	North Gonder	n.a	n.a	n.a	n.a	14.9%	74.5%	9.7%
11	West Belesa	North Gonder	4	9	0.35	0.63	7.9%	70.2%	0.7%
12	Wogera	North Gonder	3	24	0.49	1.08	23.5%	75.8%	0.7%
13	Angolelana Tera	North Shewa	n.a	n.a	n.a	n.a	4.8%	94.7%	0.3%
14	Asagirt	North Shewa	5	10	0.61	2.02	8.8%	89.9%	0.7%
15	Gishe Rabele	North Shewa	2	10	0.81	1.62	2.0%	96.0%	1.5%
16	Menze Gera Mider	North Shewa	n.a	n.a	n.a	n.a	4.5%	68.9%	1.0%
17	Menze Lalo Mider	North Shewa	8	26	0.82	2.14	13.9%	84.1%	1.7%
18	Menze Mama Mider	North Shewa			0.82	2.14	13.9%	84.1%	1.7%
19	Menze Qeya Gebriel	North Shewa	5	38	n.a	n.a	4.5%	68.9%	1.0%
20	Bugena	North Wello	16	52	0.93	2.69	10.4%	89.1%	0.0%
21	Dawunt	North Wello		0	0.78	2.02	4.9%	88.5%	1.4%
22	Delanta	North Wello	12	39	0.78	2.02	4.9%	88.5%	1.4%
23	Gidan	North Wello	16	36	0.50	2.25	6.6%	92.9%	0.5%
24	Guba Lafto	North Wello	10	30	0.79	2.15	13.4%	85.9%	0.0%
25	Habru	North Wello	n.a	n.a	n.a	n.a	7.2%	92.8%	0.0%
26	Kobo	North Wello		14	1.04	0.63	6.7%	92.0%	1.2%
27	Lasta	North Wello		0	0.93	2.69	10.4%	89.1%	0.0%
28	Mekete	North Wello	22	39	0.88	1.72	11.2%	88.2%	0.1%
29	Wadela	North Wello	12	33	1.09	2.58	5.5%	87.0%	1.0%
30	Artuma Fursi	Oromiya	16	38	1.75	4.44	3.8%	94.9%	1.3%
31	Bati	Oromiya	14	47	1.21	4.38	6.5%	87.9%	1.2%
32	Dewa Chefa	Oromiya	19	67	1.43	3.83	20.2%	79.6%	0.2%
33	Dewa Harewa	Oromiya		0	1.43	3.83	20.2%	79.6%	0.2%
34	Jilena Timuga	Oromiya	7	17	1.24	2.33	5.1%	94.2%	0.5%
35	Ebinate	South Gonder	6	37	0.59	1.67	7.3%	92.3%	0.3%
36	Laye Gayint	South Gonder	11	38	0.68	1.84	6.6%	92.4%	0.2%
37	Libo Kemkem	South Gonder	9	34	0.60	1.71	9.9%	66.2%	0.3%
38	Simada	South Gonder	15	40	0.70	1.75	5.6%	94.1%	0.3%
39	Tach Gayint	South Gonder	9	32	0.98	3.14	23.3%	76.7%	0.0%
40	Alebuko	South Wello	1	11	n.a	1.43	12.7%	86.6%	0.3%
41	Ambassel	South Wello	6	24	0.83	1.98	26.6%	71.7%	0.3%
42	Aregoba Special	South Wello	2	9	0.85	2.54	23.0%	75.8%	0.6%
43	Debre Sina	South Wello	11	34	0.76	2.14	28.4%	71.4%	0.0%
44	Dessie Zuria	South Wello	6	36	0.63	2.28	31.6%	67.6%	0.8%
45	Jamma	South Wello	4	22	0.63	1.73	13.3%	85.2%	0.3%
46	Kalu	South Wello	11	38	1.18	2.04	23.0%	75.8%	0.6%
47	Kelela	South Wello	4	22	0.65	1.60	12.4%	85.7%	0.7%
48	Kuta Ber	South Wello	9	23	0.94	2.41	12.9%	68.2%	0.2%
49	Legambo	South Wello	12	25	0.73	1.52	26.9%	63.9%	0.3%
50	Legehida	South Wello			0.74	1.53	22.4%	77.5%	0.0%
51	Mehal Sayint	South Wello		0	0.00	0.00	11.3%	87.6%	0.9%
52	Mekedela	South Wello	9	31	0.70	2.17	14.7%	73.5%	0.6%
53	Sayint	South Wello		0	0.00	0.00	11.3%	87.6%	0.9%
54	Tehulederie	South Wello	3	35	0.93	2.97	35.3%	63.3%	0.0%
55	Tenta	South Wello	15	34	0.30	2.05	14.0%	84.0%	1.8%
56	Wogedi	South Wello	4	21	0.52	1.55	31.4%	68.4%	0.2%
57	Wore Illu	South Wello	4	27	0.74	1.53	22.4%	77.5%	0.0%
58	Worebabu	South Wello	6	20	1.10	2.00	14.9%	78.8%	0.0%
59	Abergelie	Wag Himera	n.a	n.a	n.a	n.a	8.9%	82.6%	7.7%
60	Dahena	Wag Himera	6	30	0.64	2.74	3.5%	88.2%	2.5%
61	Gazgibela	Wag Himera	n.a	n.a	n.a	n.a	8.9%	82.6%	7.7%
62	Sehala	Wag Himera	n.a	n.a	n.a	n.a	6.5%	78.7%	12.6%
63	Seqota	Wag Himera	9	40	1.19	2.97	8.9%	82.6%	7.7%
64	Zequala	Wag Himera	7	21	1.59	4.78	6.5%	78.7%	12.6%
	Total		393	1,387	-	-	-	-	-
	Average		-	-	0.78	2.05	14.3%	80.4%	1.6%
	Data Source		G	G	G	G	H & I	H & I	H & I

H: Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. II (2003), BoRD

I: Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. II (2004), BoFED

Appendix D: Supplemental Data on Socio-economy

No.	Woreda Name	Zone	Rural society				
			Roof material: Bambo	Roof material: Others	1st preference on association: Ekub	1st preference on association: Eddir/Kere	1st preference on association: Mahiber
1	Enebse Sar Mider	East Gojam	0.3%	0.1%	5.6%	49.0%	9.0%
2	Goncha Siso Enese	East Gojam	0.0%	0.0%	2.2%	12.2%	53.4%
3	Shebele Berenta	East Gojam	3.0%	0.3%	1.9%	25.7%	18.4%
4	Adarekaye	North Gonder	0.2%	0.7%	3.4%	3.8%	51.6%
5	Beyeda	North Gonder	0.4%	7.9%	3.6%	11.1%	27.1%
6	Dabat	North Gonder	0.0%	0.1%	2.9%	1.0%	28.2%
7	Debark	North Gonder	2.8%	0.0%	0.7%	0.4%	55.5%
8	East Belesa	North Gonder	31.5%	0.0%	4.1%	0.2%	43.7%
9	Janamora	North Gonder	0.8%	1.8%	2.2%	1.9%	44.0%
10	Telemt	North Gonder	0.2%	0.7%	3.4%	3.8%	51.6%
11	West Belesa	North Gonder	0.0%	21.2%	2.4%	3.2%	30.2%
12	Wogera	North Gonder	0.0%	0.0%	0.5%	0.7%	38.4%
13	Angolelana Tera	North Shewa	0.0%	0.3%	5.3%	81.4%	7.1%
14	Asagirt	North Shewa	0.3%	0.3%	6.1%	28.7%	11.3%
15	Gishe Rabele	North Shewa	0.0%	0.5%	10.6%	80.3%	4.0%
16	Menze Gera Mider	North Shewa	1.2%	24.5%	9.8%	76.9%	3.9%
17	Menze Lalo Mider	North Shewa	0.3%	0.0%	17.6%	54.4%	12.6%
18	Menze Mama Mider	North Shewa	0.3%	0.0%	17.6%	54.4%	12.6%
19	Menze Qeya Gebriel	North Shewa	1.2%	24.5%	9.8%	76.9%	3.9%
20	Bugena	North Wello	0.3%	0.1%	6.5%	6.3%	23.5%
21	Dawunt	North Wello	0.3%	4.9%	6.0%	66.6%	1.7%
22	Delanta	North Wello	0.3%	4.9%	6.0%	66.6%	1.7%
23	Gidan	North Wello	0.0%	0.0%	5.7%	75.4%	2.3%
24	Guba Lafto	North Wello	0.3%	0.4%	6.0%	89.7%	0.9%
25	Habru	North Wello	0.0%	0.0%	4.7%	76.4%	3.3%
26	Kobo	North Wello	0.2%	0.0%	3.9%	49.3%	20.0%
27	Lasta	North Wello	0.3%	0.1%	6.5%	6.3%	23.5%
28	Mekete	North Wello	0.3%	0.1%	3.6%	42.0%	7.0%
29	Wadela	North Wello	3.6%	2.8%	5.6%	52.9%	2.4%
30	Artuma Fursi	Oromiya	0.0%	0.0%	0.8%	16.9%	0.8%
31	Bati	Oromiya	0.2%	4.3%	2.2%	62.5%	1.4%
32	Dewa Chefa	Oromiya	0.0%	0.0%	1.2%	49.9%	6.1%
33	Dewa Harewa	Oromiya	0.0%	0.0%	1.2%	49.9%	6.1%
34	Jilena Timuga	Oromiya	0.3%	0.0%	1.9%	49.3%	1.9%
35	Ebinate	South Gonder	0.0%	0.1%	2.3%	38.2%	47.2%
36	Laye Gayint	South Gonder	0.0%	0.8%	2.1%	57.1%	13.1%
37	Libo Kemkem	South Gonder	13.5%	10.2%	3.1%	12.7%	61.5%
38	Simada	South Gonder	0.0%	0.0%	0.9%	45.5%	27.8%
39	Tach Gayint	South Gonder	0.0%	0.0%	6.0%	67.8%	12.4%
40	Alebuko	South Wello	0.0%	0.5%	4.3%	80.6%	1.0%
41	Ambassel	South Wello	0.0%	1.3%	3.4%	75.1%	4.9%
42	Aregoba Special	South Wello	0.6%	0.0%	3.5%	85.8%	2.3%
43	Debre Sina	South Wello	0.0%	0.1%	2.9%	88.5%	0.4%
44	Dessie Zuria	South Wello	0.0%	0.0%	1.6%	92.1%	2.3%
45	Jamma	South Wello	1.0%	0.3%	4.1%	91.8%	2.0%
46	Kalu	South Wello	0.6%	0.0%	3.5%	85.8%	2.3%
47	Kelela	South Wello	0.2%	0.9%	4.3%	72.5%	1.3%
48	Kuta Ber	South Wello	4.7%	14.0%	2.9%	83.8%	0.4%
49	Legambo	South Wello	0.1%	8.9%	4.9%	88.7%	0.7%
50	Legehida	South Wello	0.0%	0.2%	3.4%	87.4%	1.7%
51	Mehal Sayint	South Wello	0.1%	0.1%	4.2%	83.2%	2.0%
52	Mekedela	South Wello	0.4%	10.8%	6.2%	82.5%	0.9%
53	Sayint	South Wello	0.1%	0.1%	4.2%	83.2%	2.0%
54	Tehulederie	South Wello	1.3%	0.3%	1.0%	94.7%	0.0%
55	Tenta	South Wello	0.3%	0.0%	5.0%	86.1%	0.5%
56	Wogedi	South Wello	0.0%	0.0%	2.9%	88.3%	1.7%
57	Wore Illu	South Wello	0.0%	0.2%	3.4%	87.4%	1.7%
58	Worebabu	South Wello	6.3%	0.0%	4.5%	79.9%	1.6%
59	Abergelie	Wag Himera	0.4%	0.4%	2.4%	0.5%	22.8%
60	Dahena	Wag Himera	0.5%	5.2%	4.3%	0.8%	22.8%
61	Gazgibela	Wag Himera	0.4%	0.4%	2.4%	0.5%	22.8%
62	Sehala	Wag Himera	0.4%	1.8%	6.4%	1.4%	25.1%
63	Seqota	Wag Himera	0.4%	0.4%	2.4%	0.5%	22.8%
64	Zequala	Wag Himera	0.4%	1.8%	6.4%	1.4%	25.1%
	Total		-	-	-	-	-
	Average		1.3%	2.5%	4.4%	49.5%	14.7%
	Data Source		H & I	H & I	H & I	H & I	H & I

H: Rural Households Socio-economic Baseline Survey of 56 Woredas in Amhara Region Vol. II (2003), BoRD  
I: Rural Households Socio-economic Baseline Survey of 50 Woredas in Amhara Region (Phase II) Vol. II (2004), BoFED

No.	Woreda Name	Zone	Rural society			
			1st preference on association: Senbete	1st preference on association: Debo	1st preference on association: Wonfel	1st preference on association: Other
1	Enebse Sar Mider	East Gojam	23.7%	2.0%	9.1%	1.7%
2	Goncha Siso Enese	East Gojam	18.6%	3.3%	9.4%	0.9%
3	Shebele Berenta	East Gojam	22.4%	14.3%	16.2%	1.1%
4	Adarekaye	North Gonder	28.2%	11.6%	0.8%	0.6%
5	Beyeda	North Gonder	50.1%	5.2%	0.5%	2.3%
6	Dabat	North Gonder	50.8%	13.4%	0.7%	3.1%
7	Debark	North Gonder	26.5%	13.1%	1.6%	2.3%
8	East Belesa	North Gonder	37.6%	5.3%	7.4%	1.6%
9	Janamora	North Gonder	39.3%	2.7%	0.3%	9.5%
10	Telemt	North Gonder	28.2%	11.6%	0.8%	0.6%
11	West Belesa	North Gonder	24.8%	21.6%	12.4%	5.4%
12	Wogera	North Gonder	31.5%	3.3%	1.0%	24.6%
13	Angolelana Tera	North Shewa	2.0%	0.5%	3.1%	0.5%
14	Asagirt	North Shewa	0.7%	11.6%	41.0%	0.7%
15	Gishe Rabele	North Shewa	1.5%	0.5%	3.0%	0.0%
16	Menze Gera Mider	North Shewa	7.0%	1.6%	0.6%	0.1%
17	Menze Lalo Mider	North Shewa	9.3%	1.0%	4.6%	0.5%
18	Menze Mama Mider	North Shewa	9.3%	1.0%	4.6%	0.5%
19	Menze Qeya Gebriel	North Shewa	7.0%	1.6%	0.6%	0.1%
20	Bugena	North Wello	56.2%	0.7%	5.8%	1.1%
21	Dawunt	North Wello	23.5%	1.0%	0.9%	0.3%
22	Delanta	North Wello	23.5%	1.0%	0.9%	0.3%
23	Gidan	North Wello	15.8%	0.0%	0.4%	0.4%
24	Guba Lafto	North Wello	1.6%	0.4%	1.3%	0.1%
25	Habru	North Wello	8.3%	1.2%	6.0%	0.2%
26	Kobo	North Wello	4.9%	5.4%	16.1%	0.5%
27	Lasta	North Wello	56.2%	0.7%	5.8%	1.1%
28	Mekete	North Wello	44.7%	0.7%	0.7%	1.2%
29	Wadela	North Wello	37.4%	0.1%	1.5%	0.1%
30	Artuma Fursi	Oromiya	0.8%	25.1%	43.7%	11.7%
31	Bati	Oromiya	0.0%	9.8%	24.0%	0.2%
32	Dewa Chefa	Oromiya	0.0%	0.3%	25.5%	17.0%
33	Dewa Harewa	Oromiya	0.0%	0.3%	25.5%	17.0%
34	Jilena Timuga	Oromiya	0.3%	16.8%	26.3%	3.5%
35	Ebinate	South Gonder	4.9%	4.9%	0.5%	2.0%
36	Laye Gayint	South Gonder	22.9%	0.8%	1.7%	2.3%
37	Libo Kemkem	South Gonder	12.9%	2.6%	4.8%	2.4%
38	Simada	South Gonder	7.1%	3.4%	9.1%	6.2%
39	Tach Gayint	South Gonder	5.4%	1.7%	4.0%	2.7%
40	Alebuko	South Wello	0.5%	3.6%	10.0%	0.0%
41	Ambassel	South Wello	12.3%	1.4%	1.4%	1.5%
42	Aregoba Special	South Wello	0.0%	0.4%	7.4%	0.6%
43	Debre Sina	South Wello	6.2%	0.6%	1.3%	0.1%
44	Dessie Zuria	South Wello	0.0%	3.1%	0.9%	0.0%
45	Jamma	South Wello	0.5%	0.8%	0.5%	0.3%
46	Kalu	South Wello	0.0%	0.4%	7.4%	0.6%
47	Kelela	South Wello	1.7%	9.6%	10.1%	0.3%
48	Kuta Ber	South Wello	0.2%	6.6%	6.1%	0.0%
49	Legambo	South Wello	0.9%	1.4%	2.0%	1.3%
50	Legehida	South Wello	1.3%	3.9%	2.4%	0.0%
51	Mehal Sayint	South Wello	3.0%	1.1%	6.4%	0.1%
52	Mekedela	South Wello	1.8%	3.7%	4.6%	0.3%
53	Sayint	South Wello	3.0%	1.1%	6.4%	0.1%
54	Tehulederie	South Wello	0.0%	1.8%	2.3%	0.3%
55	Tenta	South Wello	3.8%	2.3%	2.1%	0.3%
56	Wogedi	South Wello	0.7%	2.9%	3.6%	0.0%
57	Wore Illu	South Wello	1.3%	3.9%	2.4%	0.0%
58	Worebabu	South Wello	0.0%	6.8%	7.2%	0.0%
59	Abergelie	Wag Himera	51.6%	1.3%	3.4%	18.0%
60	Dahena	Wag Himera	47.8%	15.2%	7.4%	1.6%
61	Gazgibela	Wag Himera	51.6%	1.3%	3.4%	18.0%
62	Sehala	Wag Himera	62.7%	2.9%	1.2%	0.2%
63	Seqota	Wag Himera	51.6%	1.3%	3.4%	18.0%
64	Zequala	Wag Himera	62.7%	2.9%	1.2%	0.2%
	Total		-	-	-	-
	Average		17.3%	4.4%	6.7%	2.9%
	Data Source		H & I	H & I	H & I	H & I

### List of NGOs having activities in the 8 Woredas

Woreda	Implementing NGO	Sector/ Project title	
1	Ebinate	ORDA	- Fruit and vegetable production
		WFP	- Integrated watershed management
		UNDP	- Capacity building
		Red Cross	- Watershed development
		Carter Center	- Health
2	Simada	FHI	- Natural Resource development
		ORDA	- Safety net program
		Meret project	- Natural Resource development
3	Bugena	Plan International Ethiopia	- Child centered community health program, Child centered poverty alleviation program, Child centered basic learning program
		FHI/ ORDA	- Productive safety net
		Kidist M/A/M	- Reproductive health project for women in reproductive age - Y-Choices youth and children with health option involving community engagement strategies
		Futaro Fund for Forest	- Greener and cleaner Lalibela
		ADV	- Community based rehabilitation Program
		EOC- DICAC	- Bugna IRDP
		OSSA	- HIV/ AIDS prevention and impact mitigation
4	Gidan	PADET	- CRC and HIV/ AIDS project - Integrated harmful traditional practice prevention
		EOC- DICAC	- Environmentally sound water supply sanitation and hygiene promotion
5	Kobo	SCD/E	- Integrated child development basic education component
		PADET	- Children and HIV/ AIDS in North Wollo
		SC-Uk	- Improving capacity to implement safety net program
		EMRDA	- Y- choices
		WMSGMMCH	- Maternal and child health clinic education and training center
		ANPPCAN	- Child right and HIV/ AIDS component of the integrated child development program - Child right promotion and prevention HTP in North Wollo
		EECMY- LWF	- Agricultural project of the joint Ethio-Danish development
6	Aregoba	-	
7	Legambo	EECMY	- Washera integrated rural community development
		APIK (Association for promotion of indigenous knowledge)	- Awareness raising on HIV/ AIDS using indigenous communication
		EKHC	- Integrated water supply sanitation, hygiene promotion and irrigation
		SC-UK	- Capacity building for responsive planning and service delivery - Youth focused HIV/ AIDS prevention - Child caring practice capacity building an integrated program to alleviate chronic malnutrition
		Red Cross	- Watershed development
		World Vision	- Relief program
8	Mekedela	Goal Ethiopia / Meret project	- Watershed development
		Rural capacity building project	- SPC
		World Vision	- Relief program
		SIDA	- Agriculture, health, Education, SSMFI

*Appendix E: Supplemental Data on Results of Participatory  
Planning*

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## Contents

### **Approaches, Strategies, Programs and Projects of Ebinate Woreda**

I. Agricultural and livestock production of Ebinate increased .....	E-1
II. Environment of Ebinate protected .....	E-5
III. Health Status of Ebinate people improved .....	E-7
IV. People of Ebinate are educated.....	E-8
V. Infrastructures of Ebinate constructed .....	E-9
VI. People of Ebinate get enough cash.....	E-10
VII. Gender mainstreaming increased in Ebinate.....	E-11

### **Approaches, Strategies, Programs and Projects of Simada Woreda**

I. Agricultural production of Simada is high .....	E-12
II. Environment situation of Simada is improved.....	E-16
III. Infrastructures of Simada are constructed .....	E-17
IV. Health condition of Simada people is high.....	E-18
V. People of Simada have enough cash .....	E-21
VI. People of Simada get good education .....	E-23
VII. People of Simada have enough awareness on Gender .....	E-23

### **Approaches, Strategies, Programs and Projects of Bugena Woreda**

I. Agricultural production of Bugena improved .....	E-24
II. Environment of Bugena protected .....	E-29
III. Health status of Bugena people improved.....	E-31
IV. People of Bugena are educated.....	E-34
V. Bugena people's access to infrastructures increased.....	E-37
VI. People of Bugena have enough cash .....	E-39
VII. Gender issues incorporated to all activities in Bugena .....	E-41

### **Approaches, Strategies, Programs and Projects of Gidan Woreda**

I. Agricultural production of Gidan increased .....	E-42
II. People of Gidan's access to infrastructures increased .....	E-45
III. Health Status of Gidan people improved.....	E-47
IV. Environment of Gidan protected .....	E-50
V. People of Gidan are educated .....	E-52
VI. People of Gidan have enough cash .....	E-54
VII. Gender issues incorporated to all activities in Gidan.....	E-56

### **Approaches, Strategies, Programs and Projects of Kobo Woreda**

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II. Health status of Kobo improved .....	E-60
III. People of Kobo are educated.....	E-62

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IV. Environment of Kobo improved.....	E-63
V. Infrastructure of Kobo improved .....	E-65
VI. People of Kobo have enough cash .....	E-67
VII. Gender issues incorporated to all activities in Kobo.....	E-68

**Approaches, Strategies, Programs and Projects of Mekedela Woreda**

I. Agricultural production of Mekedela increased .....	E-69
II. People of Mekedela are educated .....	E-73
III. Environment of Mekedela protected .....	E-74
IV. Infrastructures of Mekedela constructed.....	E-75
V. Health status of Mekedela people improved .....	E-76
VI. Gender issues incorporated in all development activities in Mekedela.....	E-79
VII. People of Mekedela have enough cash .....	E-80

**Approaches, Strategies, Programs and Projects of Legambo Woreda**

I. Agricultural production of Legambo increased.....	E-81
II. Environment of Legambo protected .....	E-84
III. Infrastructures of Legambo constructed.....	E-85
IV. Health status of people of Legambo improved .....	E-86
V. People of Legambo are educated .....	E-87
VI. Gender issues incorporated in all activities in Legambo.....	E-88
VII. People of Legambo have enough cash.....	E-89

**Approaches, Strategies, Programs and Projects of Aregoba Woreda**

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II. Infrastructure access of Aregoba improved .....	E-95
III. Health status of Aregoba people improved .....	E-96
IV. Environment of Aregoba protected.....	E-98
V. People of Aregoba are educated.....	E-99
VI. Gender issues incorporated to all activities in Aregoba .....	E-100
VII. People of Aregoba have enough cash .....	E-101



Ebinate - 1

## Approaches, Strategies, Programs and Projects of Ebinate Woreda

1-2 Dec. 2008, 6-7 Mar. 2009 and 21-22 Nov. 2010

Approach	Strategy	Final Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
								Dega	Wolna Dega	Kolla	
I. Agricultural and livestock production of Ebinate increased. (83 / 288: 28.8%) 2 years ago (90 / 300: 30.0%)	I.1 Soil fertility improved.	1	I.1-1 Organic fertilizer increase.	1	I.1-1-1 Nursery establishment for green material.	Site selection & program / Identification of planting material / Employ workers / Implementation	Ongoing	XXX	XXX	XX	(N) Agroforestry management skill
					I.1-1-2 Compost production increase.	Cow dung collection / Green material collection / Preparation site / Collection of soil & ash / Other material collection	Ongoing	XXX	XXX	XX	(A) Agronomic skill
	I.2 Soil moisture and water increment	2	I.2-1 New farming system on soil water and moisture introduction	1	I.2-1-1 Capacity building on soil moisture and water retention increment	Selecting water stress area / Targeting trainee	Ongoing	XX	XX	XXX	(N) Soil and water conservation skill
					I.2-1-2 Compost and other natural fertilizer preparation	Awareness creation to farmers	Ongoing	XX	XX	XXX	(N) Skill on natural fertilizer

Approaches, Strategies, Programs and Projects of Ebinate Woreda

1-2 Dec. 2008, 6-7 Mar. 2009 and 21-22 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
I.3 Farmers use modern farming practices.	I.3-1 Farmers adopt on capacity to new technologies increased.	3	2	I.3-1 Farmers adopt on capacity to new technologies increased.	2	I.3-1-1 Farmers field day.	Participant identification / Technology selection / Explanation for participants / Participant view	Ongoing	XXX	XXX	XXX	(N) Communication skill
						I.3-1-2 FTC will be managed.	Exhibition in model works / panel discussion	New Idea				
I.4 Crop variety improvement	I.4-1 Supply of improved and market oriented seeds	4	3	I.4-1 Supply of improved and market oriented seeds	1	I.3-1-3 Input supply increased.	Equipment & material supply / Farmer selection / Teachings aid supply / Demonstration site / Experience sharing / Conduct training	Ongoing	XXX	XXX	XXX	(A) Natural resource management skill / Crop management skill / Livestock management skill
						I.4-1-1 Strengthening research and extension linkage	Graduation	Pipeline				
I.5 Livestock management increment	I.5-1 Modern livestock management practice introduction	5	4	I.5-1 Modern livestock management practice introduction	1	I.3-1-3 Input supply increased.	Audio visual supply	New Idea	XXX	XXX	XXX	(A) Marketing skill (N) IT skill
						I.4-1-1 Strengthening research and extension linkage	Technology identification by agro-ecology / Infrastructure - building, Adoption trial	Ongoing				
I.5 Livestock management increment	I.5-1 Modern livestock management practice introduction	5	4	I.5-1 Modern livestock management practice introduction	1	I.4-1-1 Strengthening research and extension linkage	Experiment site selection /Promotion/ Creating awareness	New idea	XXX	XXX	XXX	(N)Seed multiplication and extension skills
						I.5-1-2 Training and experience sharing	Trainee selection/ Training need assessment and experience sharing site selection	New Idea	XXX	XXX	XXX	
I.5 Livestock management increment	I.5-1 Modern livestock management practice introduction	5	4	I.5-1 Modern livestock management practice introduction	1	I.5-1-1 Provision of improved inputs	Hood creamer, Dehormer and other materials provision/ Feeding, housing accessory fulfillment	New Idea	XXX	XXX	XXX	(N)Marketing and material identification skill (N)Livestock management skill

Ebinate - 3

## Approaches, Strategies, Programs and Projects of Ebinate Woreda

1-2 Dec. 2008, 6-7 Mar. 2009 and 21-22 Nov. 2010

Approach	Strategy	Final Priority Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
I.6 Livestock forage development improved.	I.6 Livestock forage development improved.	6	I.6-1 Productivity & production increase.	1	I.6-1-1 Range land management	1	Community awareness creation / Site selection for area closure / Management plan preparation	Ongoing	XX	XX	XXX	(A) Range land management skill
					I.6-1-2 Free grazing control	3	Awareness by training / Population density limiting / Improved forage material	Ongoing	XXX	XXX	XXX	(A) Forage development skill
					I.6-1-3 Urea treatment	2	Selection of farmers & training / Material collection & implementation	Ongoing	XXX	XXX	XXX	(A) Forage development skill
I.7 Pest and disease occurrence controlled.	I.7 Pest and disease occurrence controlled.	7	I.7-1 IPM (Integrated Pest Management) conduct.	1	I.6-1-4 Forage nursery establishment	4	Site selection / Identifying forage materials / Implementation	Ongoing	XXX	XX	X	(A) Forage development skill
					I.7-1-1 Pest & disease resistance variety increase.	2	Area specification / Conduct with research central for variety release / Farmer selection & training / Dissemination of variety	Pipeline	X	XX	XXX	(A) Crop protection skill
					I.7-1-2 Improved cultural practice	1	Appropriate timing for plowing and sowing / Weeding timely / Local resistance variety selection	Ongoing	XXX	XXX	XXX	(N) Quarantine skill (A) Agronomic skill
					I.7-1-3 Insecticide, pesticide, chemicals	3	Identification of chemicals / Purchasing materials & chemicals	Ongoing	X	XX	XXX	(A) Crop protection skill (N) Quarantine skill

Approaches, Strategies, Programs and Projects of Ebinate Woreda

1-2 Dec. 2008, 6-7 Mar. 2009 and 21-22 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
I.8 Livestock health improved.	I.8 Livestock health improved.	8	9	I.8-1 Modern livestock management practice introduction	I.8-1-1 CVA (Community Veterinary Assisting) training	3	Selection of target farmers / training / equipment	Pipeline	X	XX	XXX	(N) Veterinary skill
							Site selection / Building material / Equipment fulfillment	Ongoing	X	XX	XXX	(N) Veterinary skill
							Establishment of health committee on site	Ongoing	X	XX	XXX	(N) Veterinary skill
I.9 Animal breed improvement	I.9 Animal breed improvement	9	9	I.9-1 Farmers adoption of new animal breed increase	I.9-1-1 Artificial Insemination	1	Vaccine and other supply / Facilitating material	Pipeline	X	XX	XXX	(N) Veterinary skill
							Crush construction/ Awareness creation/ Capacity building to AI experts/ AI input provision	New Idea	XXX	XXX	XXX	(N) Animal breeding skill

Ebinate - 5

## Approaches, Strategies, Programs and Projects of Ebinate Woreda

1-2 Dec. 2008, 6-7 Mar. 2009 and 21-22 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get						
										Dega	Wolna Dega	Kolla							
II. Environment of Ebinat protected. (58 / 288: 20.1%) 2 yrs ago (29/300: 9.7%)	II.1 Awareness of all levels of students about environment protection increased	1	II.1-1 Curriculum preparation on natural resource for grades 1 to 12 and conduct teaching	1	II.1-1-1 Capacity building to teachers and teaching material preparation	1	Training need assessment/ Identification of potential trainees/ Book and soft ware preparator/Practical method teaching practice	New Idea	XXX	XXX	XXX	(N) Skill on environmental science							
													II.1-1-2 School environment club establishment	3	School committee establishment/ Awaiting community using religious forest sites as model	New Idea	XXX	XXX	(N) Clubs organizing skill
II.2 Law and regulation on environmental rehabilitation and protection	II.2-1 Environmental policy advocacy and strengthening Implementing agents	1	II.2-1 Capacity building to lawyers, judiciaries, legislative and executive bodies	1	Organizing community & religious leaders/ Experience sharing	New Idea	Organizing community & religious leaders/ Experience sharing	New Idea	XXX	XXX	XXX	(N) Environmental protection policy skill							
													II.2-2 Local bylaws preparation and implementation	2	Organizing community esets of bylaws/ Empowering community leaders/ Training to community leaders	New Idea	XXX	XXX	(N) Community discussion skill

Approaches, Strategies, Programs and Projects of Ebinate Woreda

Ebinate - 6

1-2 Dec. 2008, 6-7 Mar. 2009 and 21-22 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
II.3 Natural resources conserved.				II.3-1 Afforestation increased.	1	II.3-1-1 Nursery site establishment	1	Site selection / Training / Labor / Provision of material inputs / Budget	Ongoing	X	XX	XXX	(N) Surveying skill
						II.3-1-2 Plantation	2	Site selection / Preparation of pits / Labor / Budget	Ongoing	XXX	XXX	XXX	(A) Forestry (N) Surveying skill / Marketing skill
						II.3-1-3 Area closure	3	Awareness / guard (fencing) / Involvement of stake holders	Ongoing	X	XX	XXX	(N) Surveying skill
II.4 Land shortage reduced.				II.3-2 Soil erosion controlled.	2	II.3-2-1 Physical & biological conservation methods	1	Terracing / Check dam / Gabion dam etc. / Planting herbs & grasses	Ongoing	XXX	XX	X	(A) Soil & water conservation skill
						II.3-2-2 Improved agricultural practice	2	Agroecomic practices (Alley cropping / Intercropping)	Ongoing	XXX	XXX	XXX	(A) Farming system skill (N) Surveying skill
						II.4-1 Family planning improved.	1	Awareness & training / Establishment of nearby clinics	Ongoing	XXX	XXX	XXX	(A) Family planning skill
II.4 Land shortage reduced.				II.4-1 Population growth controlled.	1	II.4-1-2 Population settlement	3	Awareness / Preparation of settlement area / Preparation of infrastructures	Ongoing	XXX	XXX	XXX	(N) Surveying skill / Statistics
						II.4-1-3 Cultural barriers reduced.	2	Community awareness / Preparation of by laws / Involvement of different stakeholders	Ongoing	XXX	XXX	XXX	(A) Information / Community by laws / Indigenous knowledge

## Approaches, Strategies, Programs and Projects of Ebinate Woreda

1-2 Dec. 2008, 6-7 Mar. 2009 and 21-22 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
III. Health status of Ebinate people improved. (44 / 288: 15.3%)  2 yrs ago (58 / 300: 19.3%)	III.1 Hygiene and sanitation condition improved.	1	3	III.1-1 Access to pure water is increased. III.1-2 Personal hygiene and sanitation improved.	III.1-1-1 Water treatment by chlorine III.1-2-1 Construct latrine house / construction of toilets	1	Annual water treatment Select model farmers / Select institutions	Ongoing	XXX	XX	X	(A) Sanitation skill
	III.2 Preventive health care practices improved.	2	2	III.2-1 Knowledge toward preventive measures increased.	III.2-1-1 Conduct vaccination III.2-1-2 Describe of common diseases III.2-1-3 Awareness creation on HIV/AIDS	1 2 3	Age selection / Pregnancy selection Identification of disease with model farmers Counseling and testing / Health education	Ongoing	XXX	XXX	XXX	(A) Sanitation skill (A) Immunization skill
	III.3 People get proper medical services	3	1	III.3-1 Medical professionals increased.	III.3-1-1 Training or upgrading of personnel III.3-1-2 Construction of health centers	2 1	Selecting on job training / Select target group / Input supply / Conduct training Site selection / Construction material / Medical equipment / Community + Government participation	Ongoing	XX	X	XXX	(A) Skill on preventive measures (N) Communication skill for preventive measures
	III.4 People get enough balanced diet.	4	4	(See I. Agricultural and livestock production of Ebinat increased.)				Ongoing	XX	X	XXX	(N) Construction skill

Approaches, Strategies, Programs and Projects of Ebinate Woreda

1-2 Dec. 2008, 6-7 Mar., 2009 and 21-22 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
IV. People of Ebinate are educated. (35/288: 10.1%) 2 yrs ago (36/300: 12.0%)	IV.1 People get basic education.	1	IV.1-1 Awareness creation on the importance of education	1	IV.1-1-1 Expanding of formal schools	1	Fulfilling of equipments or inputs	Ongoing	X	X	X	(A) Educational administration skill
		1	IV.1-2 Child education	2	IV.1-2-1 Expansion of informal school	2	Construction of informal alternative school/ community	New Idea	XX	XXX	X	(N) Communication skill
		2	IV.2-1 Implement quality education package	1	IV.2-1-1 Conduct CPD (Continuous Professional Development) & induction	1	Training on quality assurance package / Experience sharing	Ongoing	XX	XX	XX	(N) Clarity skill
		3	IV.3-1 Promote about the importance of adult education	1	IV.3-1-1 Alternative school construction	1	Provision of construction materials	Pipeline	XX	XX	XX	(N) Construction skill
	IV.4 People get vocational trainings.	4	IV.4-1 Construction of vocational training centers increased.	1	IV.4-1-1 Capacity building on skill development	1	Recruitment of efficient officials / Training for trainers	Ongoing	XXX	XXX	XXX	(N) Organizing skill



## Approaches, Strategies, Programs and Projects of Ebinate Woreda

Ebinate - 9

1-2 Dec. 2008, 6-7 Mar. 2009 and 21-22 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
V. Infrastructures of Ebinate constructed. (23 / 288: 7.9%)  2 yrs ago (30 / 300: 10.0%)	V.1 Road construction increased.	1		V.1-1 Constructed rural roads	2	V.1-1-1 New road construction	2	Community participation	Ongoing	X	XX	XXX	(N) Skills in survey
	V.2 Water supply increased.	1	1	V.2-1 Constructed water supply scheme	1	V.1-1-2 Maintenance of the road	1	Access of human labor / Stone / Sand / Aggregate	Ongoing	XXX	XXX	XXX	(N) Skills in construction
						V.1-1-3 Upgrading the level of the road	3	Conducting surveying / All-weather road	New Idea	XXX	XXX	XXX	(N) Skills in construction
						V.2-1-1 Community participation (development fund)	1	Group harmonization / Supply of local material / Money contribution	Ongoing	XXX	XXX	XXX	(N) Skills socio-economy
	V.3 Telecommunication Increased.	3	2	V.3-1 Access to telecommunication	1	V.2-1-2 Training of water & sanitation committee	2	Manual preparation / Preparation of training materials	Ongoing	XXX	XXX	XXX	(N) Skills of water and sanitation
						V.2-1-3 Rehabilitation of water supply system	3	Hand dug well / Spring development / Shallow well	Ongoing	XXX	XXX	XXX	(N) Skills of construction and maintenance & professional sanitation
						V.2-1-4 Selection of technology	4	Access of special parts	Ongoing	XXX	XXX	XXX	(N) Skill of site selection (geologist)
	V.4 Supply of electricity increased.	4	4	V.4-1 Expansion of hydroelectric power	1	V.3-1-1 Telecommunication site construction	1	Site selection in each kebele/ Awareness creation for the community	Pipeline	XX	XX	XXX	(N)Seervice provision skill (N)Customer handling skill
						V.4-1-1 Dam construction (To use local river)	1	Site selection/Raw material collection/Human resource development	New Idea	XXX	XX	XX	(N)Construction training skill

Ebinate - 10

## Approaches, Strategies, Programs and Projects of Ebinate Woreda

1-2 Dec. 2008, 6-7 Mar. 2009 and 21-22 Oct. 2010

Approach	Strategy / Priority	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
VI. People of Ebinate get enough cash. (23 / 288: 7.9%) 2 yrs ago (33 / 300: 11.1%)	VI.1 Small & micro enterprise expansion.	1	1	VI.1-1 People access to off-farm activities increased.	1	VI.1-1-1 Training on metal work / wood work / food processing etc.	1	Selecting kebeles / Selecting trainees / Selecting their choice / Adjusting training materials	Ongoing	XXX	XXX	XXX	(A) Problem identification skill (N) Vocational / professional skill
				VI.1-2 Access to loan increased	2	VI.1-2-1 Financial institution establishment/Bank, credit institution,	2	Construction of institutions/Training and experience sharing/ Organizing society	New Idea	XXX	XXX	XXX	(N) Banking and insurance skill
				VI.1-3 Monitoring and evaluation	3	VI.1-3-1 Auditing institutions	3	Revenue and expense identification	Ongoing	XXX	XXX	XXX	(N) Inspection skill
	VI.2 Market access to sell produces improved.	2	2	VI.2-1 Road access increased.	1	VI.2-1-1 Organizing the community	1	Awareness creation / Involve the government / Community contribution by labor Community contribution by cash	Ongoing	XXX	XXX	XXX	(A) Facilitation skill (N) Construction skill / surveying skill
				VI.2-2 Market shed expansion improved.	2	VI.2-2-1 Increasing cooperative organizations VI. 2-2-2 Market information access increment	2	Gathering market information Communication facilities construction/ Local media strengthening	Ongoing	XXX	XXX	XXX	(A) Marketing (N) Information communication technology skill (N) Language and advertising skill
						VI.2-2-3 Market stabilization	3	Surveying of demand and supply of market / Implementing government interventions	New Idea	XXX	XXX	XXX	(N) Marketing skill

## Approaches, Strategies, Programs and Projects of Ebinate Woreda

Ebinate - 11

1-2 Dec. 2008, 6-7 Mar. 2009 and 21-22 Oct. 2010

Approach	Strategy / Priority	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
VII Gender mainstreaming increased in Ebinate. (22 / 288: 7.6%)  2 yrs ago (24 / 300: 8.9%)	VII.1 Gender mainstreaming increased.	1	1	VII.1-1 Women equality increased.	VII.1-1-1 Training on gender equality	1	People awareness increased on gender equality.	Ongoing	XXX	XXX	XXX	(A) Sociology
					VII.1-1-2 Training on HTP (Harmful Traditional Practices)	2	Women participation in leading economics & politics increased.	Ongoing	X	XX	XXX	(A) Sociology
					VII.1-1-3 Experience sharing	3	Best practice site selection/ Beneficiary selection	Pipeline	XX	X	XXX	(A) Facilitation and coordination skill
					VII.1-1-4 Strengthening school clubs	4	Organizing boys and girls/ Drama show/ Pumphlet distribution	Pipeline	XX	XXX	X	(A) Clubs organizing skill
	VII.2. Women empowerment increased.	2	2	VII.2-1 Ownership of the property increased.	VII.2-1-1 Organizing women with their sex	1	Create awareness how to be organized	Ongoing	XXX	XXX	XXX	(A) Woreda, kebele leaders & Women Affairs
					VII.2-1-2 Involving development activities	2	Women organized on IGA (Income Generating Activities) organization	Pipeline	XXX	XXX	XXX	(A) Sociology
					VII.2-1-3 Encouragement and prioritization of	3	Training and education / Employment	Ongoing	XXX	XXX	XXX	(A) Skill of empowerment of women

## Approaches, Strategies, Programs and Projects of Simada Woreda

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get	
									Dega	Wolna Dega	Kolla		
I. Agricultural production of Simada is high. (51 / 216: 23.6%) 2 yrs ago (146 / 480: 30.4%)	I.1 Strategy disseminating new extension approach.	1	1	I.1-1 Having enough knowledge about extension approach.	1	I.1-1-1 Giving training and video show to DAs and farmers	Trained experts, Das and farmers	Ongoing	XXX	XXX	XXX	(A) Extension skill	
	I.2 Agricultural system is modern.	2	2	I.2-1 Farmers get enough agriculture technologies.	1	I.2-1-1 Delivery of water technologies I.2-1-2 Modern bee hive and tools I.2-1-3 Water harvesting technologies I.2-1-4 Introducing modern farm tools I.2-1-5 Introducing watershed instruments	Motor pump, pedal pump and drilling hand dug well provision Modern bee hive dissemination Hemispherical and other ponds construction Tenkara Kind, Tie ridger, BBM (Broad Bed Maker) provision GPS / Topomap	Ongoing Ongoing Ongoing Ongoing Pipeline New Idea	XXX XX X XXX XXX	XXX XXX XX XXX XXX	XXX XXX XXX XXX XXX	(A) Irrigation Agronomy (A) Modern bee hive management skill (A) Soil and water conservation skill (A) Agronomic practicing skill (A) Watershed management skill.	
	I.3 Intensive use of land increased.	3	7	I.3-1 Agricultural productivity improved.	1	I.3-1-1 Application of fertilizers I.3-1-2 Variety selection I.3-1-3 Mixed farming system (Agro-forestry practice)	DAP & UREA, compost making Supplying different improved seeds Plantation with crops	Ongoing Pipeline Pipeline	XXX XXX XXX	XXX XXX XXX	XXX XXX XXX	(A) Agronomist (A) Agronomist (A) Agro forestry skill	
	I.4 Farmers use enough agricultural inputs.	4	6	I.4-1 Farmers have enough agricultural inputs.	1	I.4-1-1 Delivery of pesticide I.4-1-2 Delivery of all above listed	Malathion 50 % actinic, Zinc phosphide Agricultural technologies disseminated to farmers	Ongoing Pipeline	XX XXX	XXX XXX	XXX XXX	XXX XXX	(A) Plant protection skill (A) Input identification and provision skill

## Approaches, Strategies, Programs and Projects of Simada Woreda

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
	I.5 Soil fertility is improved.	5	3	I.5-1 Land sliding problems well I.5-2 Farmers do enough fallowing. I.5-3 Farmers use enough fertilizer.	4 3 2	I.5-1-1 Soil conservation practices I.5-2-1 Cropping system & farming system I.5-3-1 Application of bio-fertilizer & chemical I.5-3-2 Vertisol management	Vegetation cover improved Digging pits and mulching land Bio-fertilizer and insecticides in the pipeline process Drainage with BBM (Broad Bed Maker)	Ongoing Ongoing Ongoing & Pipeline	XXX XXX XXX XXX	XXX XXX XXX X	(A) Soil and water conservation skill (A) Agronomic practicing skill (A) Agronomic practicing skill (A) Soil fertility skill.	
	I.5-4 Soil degradation decreased.			I.5-4 Soil degradation decreased.	1	(See I.5-1-1 Soil conservation practices)						
	I.6 Farmers get enough improved varieties of crops.	6	8	I.6-1 Supply of inputs is highly improved.	1	I.6-1-1 Improved seed multiplication (New varieties / families) I.6-1-2 Introducing new varieties	Multiplication of wheat, tef, haricot bean varieties Wheat, tef, maize and other varieties introduction	Ongoing Pipeline	XXX XXX	XXX XXX	(A) Agronomist (A) Input identification and provision skill	
	I.7 Pest and disease prevalence controlled.	7	12	I.7-1 Unfavorable condition for pest & disease decreased.	1	I.7-1-1 Noxious weeds management I.7-1-2 Integrated pest management I.7-1-3 Variety selection	Siriga and other weeds managed Traditional and modern pest management Using disease and pest free varieties	Pipeline Ongoing Pipeline	XXX XX XXX	XXX XXX XXX	(A) Crop protection skill (A) Crop protection skill (A) Crop protection skill	
	I.8 Access of Irrigation.	8	5	I.8-1 Utilization of all sources of water for production increased.	1	I.8-1-1 River / spring / diversion & development I.8-1-2 Macro & micro pond construction I.8-1-3 Insitu-moisture harvesting	Weir, earth dam, SS dam, construction Trapzoidal / Hemesperical	New Idea New Idea Ongoing & pipeline	X X X	XXX XXX XXX	(N) Design skill (A) Soil and water conservation skill (A) Soil and water conservation skill	

## Approaches, Strategies, Programs and Projects of Simada Woreda

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
I.9 Livestock production increased.	I.9 Livestock production increased.	9	13	I.9-1 Livestock production increased.	1	I.9-1-1 Breed improvement	3	Improving the necessary breeds	Pipeline	XXX	XXX	XXX	(A) Animal Science (N) Breed improvement skill
						I.9-1-2 Forage improvement	1	Improving the forage pattern	Pipeline	XXX	XXX	XXX	(A) Animal Science
						I.9-1-3 Disease control & prevention	2	Giving correct veterinary service	Ongoing	XX	XXX	XXX	(A) Animal Health
I.10 Farmers use enough modern animal husbandry.	I.10 Farmers use enough modern animal husbandry.	10	4	I.10-1 Farmers introduce modern animal husbandry system.	1	I.10-1-1 Forage improvement	1	Establishing fodder nursery site, Planting fodder seedling	Ongoing	XXX	XXX	XXX	(A) Forage improvement skill
						I.10-1-2 Animal vaccination & treatment	2	Supplementation of vaccines	Ongoing	XX	XXX	XXX	(A) Vaccination and treatment skill
						I.10-1-3 Animal breeding improvement	3	Supplementation of new breeds	Pipeline	XXX	XXX	XXX	(A) Animal science of breeding skill
						I.10-1-4 Poultry production	4	Supplementing improved breeds & exotic breeds	Pipeline	XX	XXX	XX	(A) Animal science skill
						I.10-1-5 Silk production	5	Silk warm species	Pipeline	XXX	XXX	XXX	(A) Animal science skill
						I.10-1-6 Fishery farming	6	Pond construction / Fishery tools	New Idea	XXX	XXX	XXX	(A) Animal production skill
I.11 Forage production increased.	I.11 Forage production increased.	11	9	I.11-1 Farmers produce more forage.	1	I.11-1-1 Nursery establishment (private)	1	Production of different fodder grasses	Ongoing	XXX	XXX	XX	(A) Nursery management skill
						I.11-1-2 Introduce new variety	2	Introduction of different fodder grasses	Pipeline	XXX	XXX	XXX	(A) Animal production and foraster
						I.11-1-3 Control grazing	3	Selection of villages to control grazing	Pipeline	XXX	XXX	XXX	(A) Free grazing control system
						I.11-1-4 Backyard	4		Pipeline	XXX	XXX	XXX	

Approaches, Strategies, Programs and Projects of Simada Woreda

Simada - 4

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
	I.12 Livestock disease prevalence decreased.	12	10	I.12-1 Unfavorable condition for livestock disease created.	1	I.12-1-1 Establishment of laboratory	1	Supplying laboratory equipment	New Idea	XXX	XXX	XXX	(A) Animal health input provision skill
						I.12-1-2 Breed selection	2	Selection of improved breeds	Pipeline	XXX	XXX	XXX	(A) Animal health input provision skill
						I.12-1-3 Veterinary Service	3	Giving vaccines & medicine for curing	Ongoing	XXX	XXX	XXX	(A) Animal health
	I.13 Farmers use enough improved livestock	13	11	I.13-1 Crop & livestock production and productivity increased.	1	I.13-1-1 Establishment of breeding centers	1	Starting Artificial Insemination Center	New Idea	XXX	XXX	XXX	(N) Artificial Insemination Technique
						I.13-1-2 Introducing exotic breed	2	Bringing new necessary breeds	Pipeline	XXX	XXX	XX	(N) Input identification and provision skill

Approaches, Strategies, Programs and Projects of Simada Woreda

Simada - 5

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
II. Environment situation of Simada is improved. (35 / 216: 16.2%) 2 yrs ago (55 / 480: 11.5%)	II.1 Natural environment is improved.	1	1	II.1-1 Deforestation of natural forest decreased.	II.1-1-1 Area closure	1	Land reclamation / Moisture harvesting structures	Pipeline	XXX	XXX	XXX	(A) Forestry & agro-forestry skills
	II.2 Other environmental issues are improved.	2	2	II.2-1 Conservation of biomass energy.	II.1-1-2 Afforestation on religious places II.1-1-3 Control illegal forest & forest products & deforestation. II.2-1-1 Introducing modern stoves	2 3 1	Planting indigenous tree species Create awareness of community about forest & development Access of molds and other materials	Pipeline	XXX	XXX	XXX	(A) Forestry & agro-forestry skills (A) Forest management skills (N) Alternative energy source utilization skills



Simada - 6

## Approaches, Strategies, Programs and Projects of Simada Woreda

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get	
									Dega	Wolna Dega	Kolla		
III. Infrastructures of Simada are constructed. (31 / 216: 14.4%) 2 yrs ago (86 / 480: 17.9%)	III.1 Road is improved.	1	1	III.1-1 Transportation accessibility of towns with kebeles is high.	1	III.1-1-1 Construction of roads	Construction of bridges & culverts	Pipeline	XX	XX	X	(A) Design skill	
							Construction of fords & roads	Ongoing	XX	XX	XXX	(A) Surveying skill	
	III.2 Water supply is improved.	2	2	III.2-1 Access to potable water supply	1	III.2-1-1 Construction of water points	Rope pump	Pipeline	XXX	XXX	X	(A) Electro-mechanical skill	
							Gravity spring developed	Pipeline	XXX	XXX	XXX	(A) Electro-mechanical skill	
	III.3 Electricity is available.	3	3	III.3-1 Access to electrical power for towns and clusters (small towns)	1	III.3-1-1 Hydropower construction to generate electricity	Spring & hand dug well	Ongoing	XXX	XXX	XXX	(A) Site selection skill	
							Shallow well	Ongoing	XXX	XXX	XX	(A) Design skill	
							Deep well	Ongoing	XXX	XXX	XX	(A) Design skill	
	III.4 Telecom. is available.	4	4	III.4-1 Access to mobile, wireless phones and automatic phones in each household (in towns)	1	III.4-1-1 Build telecommunication powers and design networked structures	Spring & hand dug well	Ongoing	XXX	XXX	XX	(A) Electro-mechanical skill	
							The tekezie hydropower is being constructed and hence the remaining part is the work in the sub-station & distribution.	Ongoing	XX	XXX	XX	(N) Electrical engineers and related fields like electricity experts	
								Wireless phones are distributed in many kebeles of Simada Woreda.	Ongoing	XXX	XXX	XXX	(A) Computer scientists, tele-operators (N) Designers (related to network)

Approaches, Strategies, Programs and Projects of Simada Woreda

Simada - 7

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get	
									Dega	Wolna Dega	Kolla		
IV. Health condition of Simada people is high. (30 / 216: 13.8%) 2 yrs ago (74 / 480: 15.4%)	IV.1 People have enough balanced diet.	1		IV.1-1 Agricultural production of Simada is high. (Also see I. Agricultural production of Simada is high.)	1	IV.1-1-1 Available inputs (fertilizers) and technologies	Farmers realize the importance of fertilizer and valuable technologies.	Ongoing	XXX	XXX	XXX	(A) Agro economist / Plant scientist / Animal scientist / Water & soil conservation experts / LARMEP	
				IV.1-2 People get enough fruits and vegetables.	3	IV.1-2-1 Cultural influence of people toward fruits & vegetable consumption decreased.	Farmers accustomed production of different crops.	Ongoing	XX	XXX	XXX	(A) Vegetable & fruit experts	
				IV.1-3 Family size is reduced.	4	IV.1-2-2 Farmers produce enough varieties of vegetables.		Ongoing	-	XX	XXX	XXX	(A) Trained farmers as well as vegetable & fruit expert, plant scientist
				IV.1-4 People have enough knowledge of nutrition.	2	IV.1-3-1 Practicing family planning techniques (ex. Dipo injection, pills).	Especially female attitude is really changed & improved.	Ongoing	XX	XXX	XX	XX	(A) Health extension workers and public nurses
						IV.1-4-1 Capacity building training on nutrition & its use	The problem is emerged and it is on the way to begin & implement the	Pipeline	XX	XX	XXX	(N) Home economist and food scientist	

## Approaches, Strategies, Programs and Projects of Simada Woreda

Simada - 8

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
IV.2	Level of private hygiene and sanitation increased.	2	2	IV.2-1 Standard of living house of people improved.	1	IV.2-1-1 Construction of houses which has separate rooms, dining, sanitary rooms (family package) complements the 11th package.	1	About 1845 people households graduate from family package practices.	Ongoing	XXX	XXX	XXX	(A) Trained farmers and health extension agents
				IV.3-1 Enough medical centers are constructed.	1	IV.3-1-1 Health post, health center, hospital construction	1	Health posts & health center	Ongoing	XX	XXX	XX	(A) General medical professionals, health officers, nurses, health extension workers, sanitary laboratory technicians, pharmaceutical technicians
IV.3	People got proper medical care.	3	3	IV.3-2 Enough health professionals are available.	2	IV.3-2-1 Upgrading the existing professionals, and recruitment.	1	Professionals are employed & others get the appointments to upgrade to higher level education.	Ongoing	XX	XXX	XX	(N) Specialists, pharmacists
				IV.3-3 Enough medical equipments are available.	3	IV.3-3-1 Purchasing medical equipments and promoting fundraising NGOs as well as others.	1	The government purchases medical equipments & UNICEF and others provide necessary medical equipments. Addition of chlorine, controlling turbidity and bacteria development with addition of chemicals & regents.	Ongoing	XX	XXX	XX	(A) Purchaser who has knowledge of medical instruments

Approaches, Strategies, Programs and Projects of Simada Woreda

Simada - 9

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
	IV.4. Malaria infestation decreased.	4	4	IV.4-1 Favorable condition for malaria is decreased.	1	IV.4-1-1 Bed net distribution & removing abandoned ponds that store stagnant waters	1	Bed nets are distributed for almost 95% of the population.	Ongoing	XX	XX	XXX	(A) Sanitarian, malaria prevention technician
	IV.5. Waterborne disease	5	5	IV.5-1 Enough preventive measures practiced.	1	IV.5-1-1 Waterborne disease control	1	Almost all springs and hand dug wells are chlorinated.	Ongoing	XXX	XXX	XXX	(A) Water quality experts, water supply & sanitation experts
	IV.6. TB / HIV decreased. (Prevalence)	6	6	IV.6-1 TB / HIV decreased. (Prevention)	1	IV.6-1-1 Capacity building for health professionals IV.6-1-2 Awareness Creation of the people	1 2	Using ABC Methods. (Abstain, Be faithful, Condom) People realize the importance of counseling & testing.	Ongoing	XXX	XXX	XXX	(A) Counseling skill
						IV.6-1-3 Community conversation	3	Use PMTCT. (Prevent Mother-To-Child Transmission)	Ongoing	XXX	XXX	XXX	(A) Skill of preventive aspect (Health education)

Note: LARMIEP = Land Resource Management and Environmental Protection

## Approaches, Strategies, Programs and Projects of Simada Woreda

Simada - 10

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get	
								Dega	Wolna Dega	Kolla		
V. People of Simada have enough cash. (28 / 216: 13.0%)  2 yrs ago (35 / 480: 7.3%)	V.1 People practice enough I.G.A.s.	1	4	V.1-1 Cultural influence of people reduced.	V.1-1-1 Training people and giving credit	Practicing off farm activities	Pipeline	XX	XX	XX	(N) Practice off farm activities	
				V.1-2 People have enough skill.	V.1-2-1 Training	Identifying trainers Allocation of budget Recruiting skilled manpower	Ongoing Pipeline Ongoing	XX XXX XX	XX XXX XX	XX XXX XX	(A) Training, skilled manpower  (N) Budget	
				V.2-1 Credit institutions available.	V.2-1-1 Well organized SSMFI (Small scale and Micro Finance Institutions)	Enough working capital Skilled manpower	Pipeline	XX	XX	XXX	(A) Semi-skilled manpower	
	V.3 Farmers sell their produce at good price.	3	1	3	V.3-1 Farmers have enough market places.	V.3-1-1 Transportation facilities improvement (Also see III. Infrastructure of Simada are constructed.)	Road maintenance Road construction Access of vehicles (public busses) Allocation of budget	Ongoing Pipeline Pipeline Ongoing	XX XX XX XX	XX XX XX XX	XXX XXX XXX XXX	(A) Public labor / skilled, semi-skilled labor  (N) Budget
					V.3-2 Farmers have enough knowledge on cash crops.	V.3-2-1 Farmers get enough training on cash crops	Skilled manpower training Budget	Ongoing Ongoing Pipeline	XX XX XXX	XX XX XXX	XX XX XXX	(A) Skilled manpower  (N) Budget
					V.3-3 Farmers produce enough quality produces.	V.3-3-1 Farmers get improved type of seeds / Seed multiple center	Budget Selection of type of soil Skilled manpower Budget.	Pipeline Ongoing Ongoing	XXX XX XX	XXX XX XX	XXX XXX XX	(A) Soil type, skilled manpower  (N) Budget
	V.4 People sell livestock at good price.	4	5	1	V.4-1 Cultural influence of farmers reduced.	V.4-1-1 Creating good awareness to avoid these cultural practices	Budget.	Ongoing	XXX	XXX	XXX	(A) Religious institutions  (N) Budget

Approaches, Strategies, Programs and Projects of Simada Woreda

Simada - 11

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
	V.5 People use available cash effectively.	5	6	V.5-1 People use a saving institution.	V.5-1-1 Creating awareness for saving practice. / Building ACSI.	1	Budget	Pipeline	XXX	XXX	XXX	(A) Manpower
							Manpower	Ongoing	XX	XX	XX	(N) Budget
	V.6 People get necessary off-farm activity inputs.	6	3	V.6-1 Well organized SSMFI and suppliers' office.	V.6-1-1 Awareness creation through well organized CSTC (Community Skill Training Center) & TVE (Technical & Vocational Education) training centers.	1	Training		XXX	XXX	XXX	(N) Vocational and technical skilled manpower
							Skilled manpower	Pipeline	XXX	XXX	XXX	

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## Approaches, Strategies, Programs and Projects of Simada Woreda

28-29 Oct. 2008, 29-30 Jan. 2009 and 26-27 Oct. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
VI. People of Simada get good education. (22 / 216: 10.1%)  2 yrs ago (53 / 480: 11.0%)	VI.1 People get basic education.	1	1	VI.1-1 Expansion of opportunity of education	1	VI.1-1-1 Building schools		Public participation	Ongoing	XX	XX	XX	(A) Participation, teachers skill training
	VI.2 People can access higher education.	2	2	VI.2-1 Expansion of universities, collages, vocational training	1	VI.2-1-1 Privatizing schools VI.2-1-2 Developing fund raising projects	2	Budget allocation Employing teachers	Pipeline	XXX	XXX	XXX	
VII. People of Simada have enough awareness on Gender. (19 / 216: 8.8%)  2 yrs ago (31 / 480: 6.5%)	VII.1. Bad cultures reduced.	1	2	VII.1-1 Educated females.	1	VII.1-1-1 Education access to females	1	Initiating females. - Giving priority to females on mobilizing students	Pipeline	XXX	XXX	XXX	(N) Mainstreaming skill (Focusing on females participation)
	VII.2. Women equality improved.	2	1	VII.2-1 Division of labor reduced.	1	VII.2-1-1 Experience sharing	1	Visiting local areas. - Awura Amba	New Idea	XX	XX	XXX	(A) Facilitation skill (N) Professional skill
	VII.3. Women empowerment improved.	3	3	VII.3-1 Women actively participate on various forums.	1	VII.3-1-1 Affirmative action practiced	1	Motivating females. - training. - Giving seats on councils	Pipeline	XXX	XXX	XXX	(N) Forum preparation skill

Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone		Expertise (A)=Already have (N)=Need to get									
									Woina	Kolla										
I. Agricultural production of Bugena improved. (100 / 280: 35.7%) 2 yrs ago (143 / 542: 26.4%)	I.1 Soil fertility improved.	1	I.1-1 Soil erosion reduced.	1	I.1-1-1 Flood erosion is controlled. I.1-1-2 Proper soil conservation protected. I.1-1-3 Afforestation increases.	2 1 3	Terracing / Check dam / Plantation / Grass band Stone check dam / SS dam / Gabion check dam / Plantation Gully plantation / Seedling preparation / Plantation / Site	Ongoing Ongoing Ongoing	XX XX XX	XXX XXX XXX	(N) Terracing and check dam skills (N) Gabion and SS dam skills (N) Gully and seedling management skill									
												I.1-2 Improved agricultural inputs utilization increased.	1	I.1-2-1 Increase awareness creation of I.1-2-2 Increase purchasing power of the farmer.	1 3	terracing / Conference / Experience sharing Improved credit access / Sowing culture / Market oriented production produced	Ongoing Ongoing	XXX XXX	XXX XXX	(N) Public relation skill (A) Sowing, credit & marketing skill
	I.2 Modern farming practice increased.	2	I.2-1 Undulated topography management increased. I.2-1-1 Suitable farming system selection for undulated topography increased. I.2-1-2 Promote none timber forest product (NTFP).	1 1 2	Use small equipments / Making bench terrace / Fangique terrace Gum / resin / bamboo forest / medicinal plants	New Idea New Idea New Idea	XX XXX XXX	XXX XXX XXX	(N) Small agricultural skills (A) Forest expert											



Bugena - 2

## Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)		Expertise (A)=Already have (N)=Need to get
										Woina	Kolla	
I.3 Livestock health improved.	I.3 Livestock disease decreased.	3	2	I.3-1 Livestock disease decreased.	1	I.3-1-1 Epidemic livestock diseases controlled.	1	Use vaccine & treatment	Ongoing	XX	XXX	(A) Isolation of diseases occurrence skill
								Use Quarantine method	New Idea			
I.4 Enough livestock food available.	I.3-2 Enough livestock drugs are provided.	3	2	I.3-2 Enough livestock drugs are provided.	2	I.3-2-1 Established kebele animal health clinic.	1	Culling method	New Idea	XX	XXX	(N) Laboratory skill
								Employ animal health workers	Pipeline			
I.4 Enough livestock food available.	I.4-1 Forage development increased.	4	4	I.4-1 Forage development increased.	1	I.4-1-1 Use of improved forage types.	1	Awareness of the farmers increase.	Ongoing	XXX	XXX	(A) Animal health skill
								Use improved forage such as Vetch, Espania, Elephant grass, Peager pea, Cow pea & Vetiver grass.	Ongoing			
I.5 Pest and disease controlled.	I.4-1-2 Use of crop residues.	4	4	I.4-1-2 Use of crop residues.	3	I.4-1-2 Use of crop residues.	3	Use urea treatment.	Pipeline	XX	XX	(A) Skill of forage production
								Awareness creation.	Ongoing			
I.5 Pest and disease controlled.	I.4-1-3 Area closure and protection of free grazing.	5	5	I.4-1-3 Area closure and protection of free grazing.	2	I.4-1-3 Area closure and protection of free grazing.	2	Collect timely & sufficiently crop residues.	Ongoing	XXX	XX	(A) Extension skill
								Use Cud & Cawy system / Awareness creation for farmers.	Ongoing			
I.5 Pest and disease controlled.	I.4-1-4 Arrangement of grazing system.	5	5	I.4-1-4 Arrangement of grazing system.	4	I.4-1-4 Arrangement of grazing system.	4	Use of rotational grazing / awareness creation / use of zero grazing	New Idea	XX	XXX	(A) Animal production skill
								Use of rotational grazing / awareness creation / use of zero grazing	New Idea			
I.5 Pest and disease controlled.	I.5-1 Improved agronomic practice.	5	5	I.5-1 Improved agronomic practice.	1	I.5-1-1 IPM (Integrated Pest Management) / FFS establishment and strengthening increased.	1	Appreciate indigenous knowledge of farmers / Strength crop assessments / Training for IPM members.	Ongoing	XX	XXX	(N) Public relation skill / Extension skills
								Provide credit access / Offering chemicals on time / Proper use of chemical at the time of application.	Ongoing			
I.5 Pest and disease controlled.	I.5-2 Improve agronomic management.	5	5	I.5-2 Improve agronomic management.	2	I.5-2-1 Improved access of chemicals.	1	Germination test / seed mature analysis / provide seeds	Pipeline	XX	XXX	(A) General laboratory skills (N) Seed testing skill
								Germination test / seed mature analysis / provide seeds	Pipeline			

Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)		Expertise (A)=Already have (N)=Need to get					
									Woina	Kolla						
I.6 Modern livestock management increased.				I.6-1 Livestock breeds improvement increased.	I.6-1-1 Selection of best breed of animal.	1	Good performance with meat & milk production.	Pipeline	XXX	XX	(A) Skill of animal production					
							Tolerance for drought & diseases.	Ongoing								
							Adaptation for climatic condition.	Ongoing								
							Select short wearing period.	New Idea								
							I.6-1-2 Use of Artificial Insemination (AI).	2				Use good semen / Awareness creation for farmers.	New Idea	XXX	XX	(N) Skill of AI
												Cut & carry system.	Ongoing	XX	XX	(A) Animal production skill
							I.6-2-1 Use indoor rearing system.	2				Feed balance diet.	New Idea	XXX	XX	(A) Animal production skill
												Decrease number of animals by create awareness of farmers / Use special breeds.	Pipeline	XXX	XXX	(A) Animal production skill
							I.6-3-1 Modern bee production system.	1				Use modern beehive & full accessory.	Pipeline	XXX	XX	(A) Beekeeping skill
												Use splitting system of bee colony.	Pipeline	XXX	XX	(A) Beekeeping skill
							I.6-3-2 Increase bee colonies.	5				Protect from pesticide and insecticide and use of IPM.	Ongoing	XXX	XXX	(A) Integrated Pest Management skill
												Inspect the inner and outer part of the hive and clean the site.	Ongoing	XXX	XX	(A) Bee keeping skill
I.6-3-3 Protection of chemicals.	3	Tree plants (nectar & pollen) / shrub plants (pollen)	Ongoing	XXX	XXX	(A) Apiculture skill										
		Improved feed production / improved breed / health improved	Ongoing	XX	XXX	(A) Animal production skill										
I.6-3-4 Use proper hive inspection.	4	Good supply of water / improved feed production / improved breed / health improved	New Idea	XXX	XX	(A) Animal production skill										
		I.6-3-5 Increase honey bee plants.		XXX	XXX											
I.6-4-1 Improved meat quality.	1															
		I.6-4-2 Improved milk production.	2													

Bugena - 4

## Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)		Expertise (A)=Already have (N)=Need to get
									Woina	Kolla	
				I.6-5 Improvement of fish production.	5	I.6-5-1 Modern fish production system expansion.	Awareness creation for farmers / increasing water conservation	New Idea	XX	XXX	(N) Aqua culture skill
				I.6-6 Poultry production increased.	4	I.6-6-1 Modern hen production system.	Increasing & proper number of hen composition / House construction (ventilation, drinking etc.) / hen management / hygiene & sanitation / incubator provision	New Idea	XXX	XX	(A) Skill of poultry production
						I.6-6-2 Poultry feed increase.	Cereal green / forages / mineral & vitamins	New Idea	XXX	XX	(A) Skill of poultry production
						I.7-1 Improve water for production improved.	River diversion / Geomembrane / Use tie ridger / Making deep or shallow well pond.	Ongoing	XXX	XXX	(N) Irrigation skills
						I.7-2 Improve holding capacity of the soil.	Inter cropping / mixed cropping / trap cropping / contour planting / fallowing.	New Idea	XXX	XXX	(N) Cropping skills
						I.8-1 Farmers towards holidays improved / Farmers towards dependency on species is improved.	Use of extension package.	Ongoing	XXX	XXX	(N) Extension skills

Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)		Expertise (A)=Already have (N)=Need to get
									Woina	Kolla	
I.9 Shortage of land reduced.		9	10	I.9-1 Population growth controlled.	1	I.9-1-1 Farming planning.	Awareness creation / Training / Use of contraceptive method.	Ongoing	XX	XXX	(N) Health extension skill
				I.9-2 Back gardistic farming practice is improved.	2	I.9-2-1 Promote vegetable production.	Age to age / Religious institute / At school / At community level.	Ongoing	XX	XXX	(N) Public relation skill / Extension skills
I.10 Livestock by-product improvement increased.		10	6	I.10-1 Improve hide and skin production.	1	I.9-2-2 Fruit production.	Producing cabbage, onion, tomato etc.	New Idea	XXX	XXX	(N) Vegetable production skills
				I.10-1-1 Improve hide and skin production.	1	I.10-1-1 Cure external parasite.	Producing mango, papaya and Control of mange mite, tick lice, flies etc.	New Idea	XXX	XXX	(A) Fruit production skills
				I.10-1-2 Use best drying and storage system.	2	I.10-1-2 Use best drying and storage system.	Use proper slaughter of animals by creation of awareness for farmers. Build storage by standard.	Ongoing	XXX	XXX	(N) Hide and skin production skill
								Pipeline	XXX	XXX	(A) Skilled in animal drugs & equipments

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26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone		Expertise (A)=Already have (N)=Need to get
										Woina	Kolla	
II. Environment of Bugena protected. (40 / 280: 14.3%) 2 yrs ago (80 / 542: 14.8%)	II.1 Natural resources conserved.	1	1	II.1-1 Afforestation increased.*	2	II.1-1-1 Seedling preparation.	2	Seed bed preparation / Seed germination / Site selection	Ongoing	XXX	XXX	(N) Skill on agro forestry / Skill on soil laboratory / Surveying skill
				II.1-2 Forest management.	1	II.1-1-2 Forest management.	1	Pruning / Tinning / Giving space.	New Idea	XX	XXX	(A) Tinning skill / Skill on pruning / Awareness creation
				II.1-3 Area closure.	3	II.1-1-3 Area closure.	3	Fencing / Stone collection.	Pipeline	XX	XXX	(A) Skill on fencing / Mobilization skill
				II.1-2 Soil erosion controlled.	1	II.1-2-1 Soil conservation.**	1	Stone collection / Making check dam / Making bend / Making terrace.	Ongoing	XXX	XXX	(A) Skill on soil & water conservation / Construction skill / Awareness creation skill
				II.1-2-2 Afforestation.*	3	II.1-2-2 Afforestation.*	3	Site selection / Seed preparation / Germination / Plantation.	Ongoing	XXX	XXX	(A) Skill on soil laboratory / Agroforestry skill / Awareness creation skill
				II.1-2-3 Control free grazing.	2	II.1-2-3 Control free grazing.	2	Zero grazing / Fencing.	Pipeline	XX	XXX	(A) Extension skill / Community mobilization skill
				II.1-3-1 Wild animals conservation.	1	II.1-3-1 Wild animals conservation.	1	Area closure	New Idea	XXX	XXX	(N) Skill on agroforestry / extension skills on community mobilization
				II.1-3-2 Domestic animals conservation.	2	II.1-3-2 Domestic animals conservation.	2	Rotational grazing / zero grazing / cut & carry	New Idea	XXX	XXX	(N) Skill on agroforestry / extension skills on community mobilization
				II.1-4-1 Biomass saving improved.	1	II.1-4-1 Biomass saving improved.	1	Use of improved stove / wise use of resources	New Idea	XXX	XXX	(A) Skill on biogas technology / skill on improved stoves
				II.1-4-2 Use of biogas technology.	2	II.1-4-2 Use of biogas technology.	2	Animal dump / human wastage / use of straw	New Idea	XXX	XXX	(A) Skill on biogas technology

Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone		Expertise (A)=Already have (N)=Need to get
										Woina	Kolla	
III.2 Environmental pollution protected.		2	3	III.2-1 Sanitation.	1	III.2-1-1 Sanitation.	1	Constructing toilet / Removing waste	Ongoing	XXX	XXX	(N) Skill on hygiene & environmental sanitation / Skill on toilet construction
				III.2-2 Afforestation.	2	III.2-2-1 Afforestation.*	1	Site selection / Seed preparation / Germination / Plantation.	Ongoing	XXX	XXX	(A) Skill on soil laboratory / Agroforestry skill / Awareness creation skill
				III.2-3 Environmental maintenance.	3	III.2-3-1 Set up a number of clubs / awareness creation.	1	Peer group / grouping by age / grouping by sex / coffee ceremony	New Idea	XXX	XXX	(A) Skill on communication / awareness creation skill
III.3 Water / moisture for production increased.		3	2	III.3-1 Soil moisture / water content improved.	1	III.3-1-1 Water harvesting.	2	Fertilization using biological fertilizer / natural fertilizer / reduction of chemical fertilizers	New Idea	XXX	XXX	(A) Skill on communication / awareness creation skill
						III.3-1-2 Soil & water conservation.**	1	Making deep/shallow well / Making pond & check dam / Using geomembrane.	Ongoing	XXX	XXX	(N) Surveying skill / Skill on pond & check dam construction
						III.3-1-3 Afforestation.*	3	Stone collection / Making check dam / Making bend / Making terrace.	Ongoing	XXX	XXX	(A) Surveying skill / Construction skill / Skill on community mobilization
						III.3-1-3 Afforestation.*	3	Site selection / Seed preparation / Germination / Plantation.	Ongoing	XXX	XXX	(A) Skill on soil laboratory / Agroforestry skill / Awareness creation skill / Mobilization skill

## Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov.2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)		Expertise (A)=Already have (N)=Need to get
									Woina	Kolla	
III. Health status of Bugena people improved. (37 / 280: 13.2%)	III.1 Water borne disease controlled.	1	2	III.1-1 Potable water coverage increased.	III.1-1-1 Urban water supply and sanitation construction.	1	Site selection / Construction / Designing / Community mobilization.	Pipeline	XXX	XXX	(N) Water civil engineering
				III.1-2 Hygiene and sanitation improved.	III.1-2-1 Rural water supply con sanitation. III.1-2-1 Proper sewage disposal & monitoring of hotels' services. III.1-2-2 Using of chlorine to maintain clean lines of water. III.1-2-3 Persuade the community to prepare toilets & properly dispose dirt.	2 2 3 1	Designing / Site selection / Needs of persons. Give health education at hotels / Conduct periodic monitoring and evaluation. Providing education to the community about use of chlorine. Mobilization / Monitoring & evaluation.	Ongoing New Idea Ongoing Ongoing	XXX XXX XXX XXX	XXX X XXX XXX	(N) Water civil engineering (N) Water civil engineering (A) Sanitary (A) Quality water utilization and sanitary (A) Sanitary & health extension

Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov.2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)		Expertise (A)=Already have (N)=Need to get	
										Woina	Kolla		
	III.2 People get proper medical care.	2	1	III.2-1 Drug and medical equipment supply increased.	3	III.2-1-1 Fund raising.	4	Close communication with concerned organs.	Ongoing	XXX	XXX	(A) Information providing skill concerning health	
						III.2-1-2 Provision of accurate demographic data & epidemiologic data of diseases must be done.	3	Designing proper morbidity & mortality data.	Ongoing	XXX	XXX	(A) Quantification skill / Recording skill / Skill of statistics	
						III.2-1-3 Create awareness in the community about proper utilization of drugs.	1	Conducting health drug education.	Ongoing	XXX	XXX	(A) Dispensing skill / Prescribing skill (N) Communicating skill	
						III.2-1-4 Motivating establishment of private drug suppliers.	2	Site selection / Government approval & assistance	New Idea	XXX	X	(N) Inspection skill / Purchasing skill / Drug selection skill	
						III.2-2 Medical professional availability increased.	2	Proper allocation & consumption of government budget / Fulfilling determinant requirements for professionals.	Ongoing	XXX	XXX	(A) Financial management	
						III.2-3 Health center coverage increased.	1	Mobilization / Site selection / Designing.	Ongoing	XXX	XXX	(N) Building construction	
						III.2-4 Reducing HIV/AIDS epidemic & increase life span of people.	4	On time provision of drugs / Monitoring of patients / counseling	Pipeline	XXX	XXX	(A) Having skill on HART clinics	
							1	On time provision of drugs / Antenatal care services / Drug adherences	Pipeline	XXX	XXX	(A) Having skills on hART clinic	
							1	III.2-4-2 Pregnant mother to child transmission of HIV/AIDS controlled.					
							1						
							1						



Approaches, Strategies, Programs and Projects of Bugena Woreda

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26-27 Nov.2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)		Expertise (A)=Already have (N)=Need to get
										Woina	Kolla	
	III.3 Combating harmful traditional practices (HTP) increased.	3		III.3-1 Access to education increased. (See IV. People of Bugena are educated.)	1	III.3-1-1 Construction of schools. III.3-1-2 Help the community know the dangerous outcomes of traditional practices & benefit of learning.	1	Community mobilization / Site selection / Designing. Gender selection / Grouping in terms of ages.	Ongoing	XXX	XXX	(N) Building construction (A) Health extension
		3			2		2		Ongoing	XXX	XXX	

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## Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone		Expertise (A)=Already have (N)=Need to get				
										Woina	Kolla					
IV. People of Bugena are educated. (34 / 280: 12.1%) 2 yrs ago (68 / 542: 12.5%)	IV.1 Quality of education increased.	1	1	IV.1-1 Teacher development program increased.	1	IV.1-1-1 Participating teachers in professional development training.	1	Train & distribute professional books.	Pipeline	XX	XX	(N) Entrepreneurship skill				
				IV.1-1-2 Increased awareness of the program for all stakeholders.	2	To give train.	Ongoing	XX	XX	(N) Announce with the program						
				IV.1-1-3 Practice sharing an experience.	3	Select the best and then confirm the budget.	Ongoing	XXX	XXX	(N) Planning skill						
				IV.1-1-4 Professional certification.	4	Seize the teachers activity in portfolio.	Ongoing	XX	XX	(N) Train profile cf. each skill						
				IV.1-1-5 Appraising best teachers.	5	To budget for reward.	Ongoing	XXX	XXX	(N) Planning skill, budget skill						
				IV.1-2 Information communication technology increased.	2	Contact with telecommunication	New Idea	XX	XXX	(A) Protect designing skills						
				IV.1-3 Student motivation.	3	To give the higher score students / setting criterion / committee formulation / PTA formulation	New Idea	XX	XXX	(A) Educational administration skill						

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## Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone		Expertise (A)=Already have (N)=Need to get									
									Woina	Kolla										
IV.2 Access to education increased.		2		IV.2-1 People get basic education.	1	IV.2-1-1 Special need education.	Teaching aid material (Braille, eyeglasses)	New Idea	XX	XXX	(A) Educational administration skill									
						IV.2-1-2 Minimedia.	Select the district which needs minimedia / finding the material which need for minimedia	New Idea	XX	XXX	(A) Educational administration skill									
						IV.2-1-3 Increasing number of schools.	Prepare school map.	New Idea	XX	XX	(N) Participatory public skill									
						IV.2-1-4 Increasing alternative basic education centers.	Construct education center.	Pipeline	XX	XX										
						IV.2-1-5 Increasing number of teachers.	Train sufficient number of teachers.	Ongoing	XXX	XXX	(N) Project proposal skill									
						IV.2-1-6 Upholding school feeding program.	To find a fund.	New Idea	XXX	XXX	(N) Project proposal skill									
				IV.2-2 People get adult education.		3		IV.2-2-1 Organizing cluster committee.	1	IV.2-2-1 Organizing cluster committee.	Elect & train.	Ongoing	XX	XX	(N) People organization skill					
										IV.2-2-2 Improved awareness of adult education for the people.	To train committee members	Ongoing	XXX	XXX						
										IV.2-2-3 Increase non-formal education institution.	Construct non-formal education center.	New Idea	XXX	XXX	(N) Public relation skill					
										IV.2-2-4 Increase number of facilitators and trainees.	Train local facilitators.	New Idea	XXX	XXX	(N) School mapping skill & proposal					

## Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)		Expertise (A)=Already have (N)=Need to get
									Woina	Kolla	
				IV.2-3 People get enough vocational trainings.	IV.2-3-1 Increased skilled manpower.	1	Train potential human resource.	Pipeline	XXX	XXX	(N) Promotion of the recent technology
					IV.2-3-2 Increased vocational training centers.	2	Construct vocational training center.	Pipeline	XXX	XXX	(N) Project proposal skill
				IV.2-4 People get higher education.	IV.2-3-3 Fulfill training inputs.	3	Allocate budget for the inputs.	Ongoing	XXX	XXX	(N) Project proposal skill
					IV.2-4-1 Increased higher educational institution.	2	Construct higher educational institute.	Ongoing	XXX	XXX	(N) Project proposal skill
					IV.2-4-2 Increased in skilled manpower.	3	Access students to join to university.	Pipeline	XX	XX	(N) Student consultation
					IV.2-4-3 Keep the quality of education in lower classes.	1	Achieve general educational improvement programs.	Ongoing	XX	XX	(N) Announce with educational program
				IV.2-4-4 Assist students who can't support themselves.	4	System design of fund raising.	Ongoing	XXX	XX	(N) Project designing skill	

## Approaches, Strategies, Programs and Projects of Bugena Woreda

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26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)		Expertise (A)=Already have (N)=Need to get	
										Woina	Kolla		
V. Bugena people's access to infrastructures increased. (31 /280: 11.1%)  2 yrs ago (75 / 542: 13.8%)	V.1 Water supply increased.	1	1	V.1-1 Constructed urban & rural water supply increase.	1	V.1-1 Construct hand dug well & spring water.	1	Site selection / Mobilizing the people.	Ongoing	XXX	XXX	(N) Designer / skilled labor / water civil engineer (site selection)	
				V.1-2 Construct a pond.	2	V.1-2 Construct a pond.	2	Site selection / Mobilizing the people.	Ongoing	XX	XX	(A) Community mobilization, Designer	
				IV.2-1 Road construction increased.	2	V.2-1-1 1st line road construction increased.	2	Communicate with NGOs / Establish proposal	Pipeline	XXX	XXX	(A) Communication skill / proposal designer.	
	V.2 Road construction increased.	2	2		V.2-1-2 Fodder road construction increase.	1	V.2-1-2 Fodder road construction increase.	1	Discuss with the people / Knowing the participants.	Ongoing	XX	XXX	(A) Community mobilization skill.
					V.2-1-3 Bridge construction increased.	3	V.2-1-3 Bridge construction increased.	3	Site selection / material identification and collection / designing	New Idea	XXX	XXX	(A) Communication skill / skilled labor
					V.3-1 Solar energy power increases.	2	V.3-1-1 Create awareness of the people.	1	Communicate with the community.	New Idea	XXX	XXX	(A) Community mobilization skill / advertiser (N) Skilled labor
	V.3 Electricity supply increased.	3	4		V.3-2 Water energy power increases.	1	V.3-2-1 Assessing the user's demand & inform the E.L.P.A.	1	Identify the users' number / Inform to the E.L.P.A.	Ongoing	XXX	XX	(A) Data collection skill / community mobilization skill
					V.3-3 Wind power energy increases.	3	V.3-3-1 Create awareness of the people on wind power energy.	1	Communicate with the community / To train the community	New Idea	XXX	XXX	(N) Advertising / skilled labor

Approaches, Strategies, Programs and Projects of Bugena Woreda

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26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone		Expertise (A)=Already have (N)=Need to get
									Woina	Kolla	
	V.4 Tele-communication structure construction increased.	4	3	V.4-1 Increase landline tele-communication.	V.4-1-1 Establish the user's proposal for the E.T.C. to expand their broad band.	2	Close relation with E.T.C. (Ethiopia Telecommunication Corporation).	Ongoing	XXX	XXX	(A) Data collection skill / proposal designing. / communication skill
					V.4-1-2 Opening E.T.C. center in the	1	Site selection / Designing.	Pipeline	XXX	(N) Skilled labor / designer	
					V.4-1-3 Increased internet access.	3	Close relation with E.T.C. / site election	New Idea	XXX	(N) Proposal designing / communication skill	
					V.4-2 Wireless phone construction increase.	1	Mobilizing the people / Site selection / Advertising.	Ongoing	XX	(A) Community mobilization skill / advertiser / designer	

## Approaches, Strategies, Programs and Projects of Bugena Woreda

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26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone		Expertise (A)=Already have (N)=Need to get
										Woina	Kolla	
VI. People of Bugena have enough cash. (22 / 280: 7.9%)  2 yrs ago (42 / 542: 7.7%)	VI.1 Job opportunity to people improved.	1	1	VI.1-1 Workshops and factory expansions increased.	1	VI.1-1 Electricity. (See V.3 Electricity supply increased.)	1	Site selection / lining a wire.	New Idea	XXX	XX	(N) Electrical engineering / maintenance skill
				VI.1-2 Increased the demand of factory products.	3	VI.1-2-1 Increased the demand of factory products.	3	Produce value added materials.	New Idea	XX	XXX	(A) Marketing management
				VI.1-3 Proper raw material increased.	2	VI.1-3-1 Proper raw material increased.	2	To select materials use professional person.	New Idea	XXX	XX	(A) Facilitation skill
				VI.1-4 Mining process improved.	4	VI.1-4-1 Mining process improved.	4	To select minerals like stone and sand	On going	XXX	XX	(A) Mineral assessment skill
				VI.1-2 People's capacity to create job improved.	1	VI.1-2-1 Organize jobless people increased.	1	First contact young youth people.	On going	XXX	XX	(A) Organization skill
					1	VI.1-2-2 Training provision on income generating activities	2	By using farming institutions / center.	On going	XXX	XX	(N) Facilitation skill
				VI.1-2-3 Accessing inputs credit.	3	VI.1-2-3-1 Accessing inputs credit.	3	Use credit organizations and funds.	On going	XX	XXX	(A) Credit facilitation
				VI.1-3 Identification of job opportunities at other areas improved.	3	VI.1-3-1 Use vocational institution and provide internet system.	1	Building vocational institutions and tele-com.	Pipe Line	XXX	XX	(N) Income Generating Technologies (IGT) skill

## Approaches, Strategies, Programs and Projects of Bugena Woreda

26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone		Expertise (A)=Already have (N)=Need to get
									Woina	Kolla	
VI.2 Farmers sell their produce at good price.				VI.2-1 Farmers produce quality and diversified crops, fruits, vegetables etc.	1	VI.2-1-1 Introduce about new technologies / New extension system.	Use multi media system / Extension agents.	New Idea	XX	XXX	(A) Technological skill
				VI.2-1-2 Supply inputs like fertilizers, improved seeds, use other technologies.	2	Buying and supplying inputs.	New Idea	XXX	XX	(A) Financial management	
				VI.2-1-3 Share experience on agricultural input.	3	Use physical contact	New Idea	XXX	XX	(A) Potential experience / site selection skill / guiding skill	
				VI.2-2 Market access improved.	2	VI.2-2-1 Market oriented crop production	1	Collect selected seeds and supply to the farm.	New Idea	XXX	XX
VI.3 People's saving practice improved.				VI.2-2-2 Promote agricultural products.	2	Using media / Communication of face to face.	New Idea	XXX	XX	XX	(N) Information communication skill
				VI.2-2-3 Create market chain.	3	Advertisement	New Idea	XXX	XXX	(A) Marketing management	
				VI.3-1 Credit and saving institution coverage increased.	1	Tell the use of saving.	On going	XXX	XX	(N) Banking facility	
VI.4 Controlling high cost of living increased.				VI.3-1-2 Create the demand of credit.	1	Use training on the wage of credit.	On going	XXX	XX	(A) Facilitation skill	
				VI.4-1 Credit access for stat-up capital increased.	2	Use training on credit to people.	New Idea	XX	XX	(A) Financial management	
				VI.4-2 Farmers extravagance expenditures reduced.	1	VI.4-2-1 Social expenditures of farmers reduced.	Training on family planning and home management.	New Idea	XX	XX	(A) Facilitation skill



## Approaches, Strategies, Programs and Projects of Bugena Woreda

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26-27 Nov. 2008, 23-24 Feb. 2009 and 7-8 Nov 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get	
										Woina Dega	Kolla			
VII. Gender issues incorporated to all activities in Bugena. (16 / 280: 5.7%) 2 yrs ago (39 / 542: 7.2%)	VII.1 Women empowerment increased.			VII.1-1 Gender mainstreaming increased.	1	VII.1-1-1 Enhancing awareness of the people about gender equality.	1	Train selected people.	Ongoing	XXX	XXX	XXX	(N) Public relation	
						VII.1-1-2 Organizing community & co-operatives.	2	Select members & train selected members.	Ongoing	XX	XXX	XXX	(N) Organizational skills	
						VII.1-1-3 Improve females participation on formal education.	3	Create awareness to society	Ongoing	XXX	XX	XX	(N) Public relation	
						VII.1-1-4 Reduce harmful traditional practice (HTP) which practiced on females.	4	Creation awareness on early marriage	Ongoing	XXX	XX	XX	(N) Public relation	
						VII.1-1-5 Politically creation awareness.	5	Train females about their rights, duties and responsibilities.	New Idea	XXX	XX	XX	(N) Public relation	
	VII.2 Women labor work reduced.		2	1	VII.1-2 Work delegation for men and women improved.	1	VII.1-2-1 Awareness creation.	1	Train selected people.& transfer to society.	Ongoing	XXX	XXX	XXX	(N) Public relation
							VII.1-2-2 Organizing women in group.	2	Train members / access credit	New Idea	XXX	XX	XX	(N) Public relation / organizational skill

Gidan - 1

## Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009, 5-6 Nov 2010 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get			
								Dega	Wolna Dega	Kolla				
I. Agricultural production of Gidan increased. (85 / 337: 25.2%) 2 yrs ago (125 / 506: 24.7%)	I.1 Livestock production increased.	1	1	I.1-1 Forage development improved.	I.1-1-1 Awareness to farmers on forage development increased.	They train on demonstration site / Also in FTC.	Ongoing	XXX	XX	XX	(A) Forage development skill			
				I.1-1-2 Free grazing controlled.	I.1-1-2 Duplication and distribution of vetch, oat, their forage trees.	Ongoing	XXX	XX	XX	(A) Skilled in grazing land management				
				I.1-1-3 Farmer should get improved forage seeds.	I.1-1-3 Training in FTC by DA's.	Ongoing	XX	XXX	XX	(A) Skilled in forage seed's SPP				
				I.1-2 Modern livestock management practicing increased.	I.1-2-1 Farmers get enough awareness on farm management / small-scale.	Ongoing	2	XXX	XX	(A) Skilled in farm management				
				I.1-3 Livestock health improved.	I.1-3-1 Construction of animal health center.	Ongoing	1	XXX	X	(N) Veterinary				
				I.1-4 Livestock breed improved.	3	2	3	I.1-3-2 Supply of enough drugs & health equipments.	Scarcity of enough drugs & equipments.	Ongoing	XXX	XX	XX	(A) Skilled in animal drugs & equipments
								I.1-3-3 Practicing preventive measures increased.	There are different diseases cured through preventive measures.	Ongoing	XXX	XX	XX	(A) Skill in animal disease
								I.1-4-1 Genetic improvement through Artificial Insemination (AI) / cross breeding.	They have own genetically pure breeds.	New Idea	XXX	XXX	XXX	(N) Skilled in Artificial Insemination (AI)
								I.1-4-2 Farmers should be introduced improved breed.	They use only their local breeds.	New Idea	XXX	XXX	XXX	(N) Skilled in animal breeds.
				I.1-4-3 Productivity increases through selection.	3	4	3	I.1-4-3	There are varieties breeds.	Ongoing	XXX	XX	XX	(N) Skilled in selection of productive indigenous SPP

Gidan - 2

## Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009, 5-6 Nov 2010 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX= Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
I.2 Crop production and productivity increased.		2	1	I.2-1 Farmers get enough awareness about technologies.	1	I.2-1-1 Farmers get proper extension service.	Audio visual materials / teaching aid materials / animal health center.	Ongoing	XXX	XXX	XXX	(N) Extension communication skill
							Increased technical skill / communication skill.	Ongoing	XXX	XXX	XXX	(N) Technical knowledge on packages & technologies.
							The impact of the technologies / on the utilization of the technologies.	Ongoing	XXX	XXX	XXX	(A) Skill on coordination of experience sharing
				I.2-2 Price of technologies affordable.	2	I.2-2-1 Credit access.	Provision of credit.	Ongoing	XXX	XXX	XXX	(A) Organizing skill
							I.2-2-2 Price subsidy.	Ongoing	XXX	XXX	XXX	
							I.2-2-3 Creating transport access.	Ongoing	XXX	XXX	XXX	(N) Road construction skill
				I.2-3 Proper agricultural technology utilization increased.	3	I.2-3-1 Technological training of farmers.	Technical training on the utilization of the technologies for farmers.	Ongoing	XXX	XXX	XXX	(N) Technical skill on the technologies.
							I.2-4-1 Delivery of bio-fertilizer.	Pipeline	XX	XXX	XX	(N) Technical skill on bio-fertilizer
							I.2-4-2 Compost preparation.	Ongoing	XXX	XXX	XXX	(A) Mobilization / coordination
				I.2-4 Soil fertility improved.	4	I.2-4-3 Construction of soil conservation practices. (See IV.1-1-1 Farmers do proper plow for undulated land nature of farmlands.)	Creating awareness / Improving technical skill on preparation.	Ongoing	XXX	XXX	XXX	(N) Technical skill on preparation (for farmers).

## Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009, 5-6 Nov 2010 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX= Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
								Dega	Wolna Dega	Kolla	
	I.3 Farmers get access to enough improved varieties.	3	2	I.3-1 Seed multiplication of improved varieties increased.	I.3-1-1 Provision of certified improved w33e varieties. I.3-1-2 Seed multiplication by farmers (improved / on-farm)	Provision of improved varieties for farmers. Improved seed delivery for seed multiplication by farmers.	Ongoing Ongoing	XXX XX	XXX XXX	XXX XXX	(N) Management skill of the improved varieties. (N) Technical skill about the improved seed varieties.
	I.4 Providing farmers fruit production.	4	N								
	I.5 Pest and disease occurrence controlled.	5	3	I.5-1 Farmers do proper agronomic practices.	I.5-1-1 Integrated pest management (IPM). I.5-1-2 Farmers have enough oxen to plow. (especially during sowing time)	Establishment of FFS. Credit access for plowing oxen.	Ongoing Pipeline	X XX	XX XXX	XXX XXX	(N) Skill on establishment of FFS (A) Selection

Gidan - 4

## Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Program	Final Priority	Priority 2 yrs ago	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
								Dega	Wolna Dega	Kolla	
II. People of Gidan's access to infrastructures increased. (60 / 227: 17.8%)  2 yrs ago (94 / 506: 18.6%)	II.1 Infrastructures constructed.	II.1-1 Road construction increased.	1	1	II.1-1-1 Public participation in constructing kebele roads.	There are access in kebele gravel road.	Ongoing	XXX	XXX	XXX	(A) Surveying skill
					II.1-1-2 Constructions by regional budget. (RRSO) Ex. Delb-Muja Road Construction Project.	Good transport access.	Ongoing	XXX	XXX	XXX	(N) Engineering skill / surveying skill / construction skill
					II.1-1-3 Formulated proposal fund from NGOs.	To improve the quality access roads.	New Idea	XXX	XXX	XXX	(N) Construction skill
					II.1-1-4 Upgrading of feeder road (kebele to kebele, woreda to kebele).	Upgrading of roads from kebele to kebele, woreda to kebele / Construct culvert & fords / mass mobilization	Pipeline	XXX	XXX	XXX	(A) Surveying & construction skill
					II.1-1-5 Asphalt - concrete from Gidan - Kobo C in upgrading.	Providing construction material e.g. cement, machineries / designing / awareness created to the 5 communities	New Idea	XXX	XXX	XXX	(N) Surveying & construction skill
		II.1-2 Water supply and sanitation increased.	2	N							

Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Priority	Program	Final Priority	Priority 2 yrs ago	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
		1	II.1-3 Electricity supply increased.			II.1-3-1 Expansion of hydroelectric power project. II.1-3-2 Using generator to set electric power. II.1-3-3 Using solar electric power. II.1-3-4 Generating electricity from wind power.	1 2 3 4	Gain much power supply 24 hours. Inaccessible areas can get power easily. Get alternative power supply. Good site selection / wind detector, tower installation / Mines and energy proposal advocacy.	Ongoing Pipeline Pipeline New Idea	XXX XX XX XXX	XXX XXX XXX XXX	(A) Electrical engineering skill (N) Electrical technical, mechanical skill (N) Technical skill (N) Technical in electric & material status	
			II.1-4 Telecommunication structure construction increased.			II.1-4-1 Using optical fiber technologies. II.1-4-2 By using collar system technology and wireless telecom. II.1-4-3 Creating internet access. II.1-4-4 Microwave implementation (TV). II.1-4-5 Postal service.	1 2 3 4 5	Exercise fast communication. Inaccessible areas can communicate easily. Network installation & hardware material e.g. CPU, Microwave receiver & ground cables installation / Broadcasting agency permission approval. Post office construction.	Pipeline Pipeline New Idea New Idea New Idea	XXX XXX XXX XXX XXX	XXX XXX XXX XXX XXX	(N) Telecom engineering skill (N) Telecom engineering skill / computer engineering (N) Telecom engineering skill (N) Telecom engineering skill / computer engineering (N) Telecom engineering skill / computer engineering (N) Post management & communication skill	

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## Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get	
									Dega	Wolna Dega	Kolla		
III. Health status of Gidan people improved. (43 / 337: 12.8%) 2 yrs ago (83 / 506: 16.3%)	III.1 People get enough balanced diet.	1	III.1-1 Awareness creation increased.	1	III.1-1-1 Community mobilization. III.1-1-2 Training and experience sharing.	1 2	Distribution of flip charts, family guideline, pamphlets. Facilities, trainer, training materials, transportation.	Ongoing / Pipeline	XXX	XXX	XXX	(A) Professional manpower	
	III.2 Water borne disease controlled.		III.2-1 People get enough potable water.		III.2-1-1 Water schemes construction increased.	1	The people protected to spring & hand-dug well, site selection / Community participation.	Ongoing	XXX	XXX	XXX	(N) Skilled manpower (A) Water skills & artisans	
		2			1	III.2-1-2 Environmental and personal hygiene and sanitation improved.	2	Suitable construction materials.	Ongoing	XXX	XXX	XXX	(A) Sanitation skilled professionals
		3			3	III.2-1-3 Recycling of water.	3	Training skilled manpower or capacity building	New Idea	XXX	XXX	XXX	(N) Water disposal and usage skill
						III.2-1-4 Improve water quality test.	4	Water testing tool kits provision / Identification of water points, sources / chemical purchase	New Idea	XXX	XXX	XXX	(N) Water chemical skill
	III.3 Preventive measure practicing increased.			III.3-1 People get enough knowledge on preventive measures.		III.3-1-1 Health extension service improved. III.3-1-2 Training on environmental hygiene. III.3-1-3 Motivate, rewarding people who have good environmental care.	1 2 3	Facilities, skilled manpower. Prepared training materials / Facilitator & trainer. Identification of people participate in environmental care / training to the rewardees / recognition on moral and certificate	Ongoing Ongoing New Idea	XXX	XXX	XXX	(A) Need to professional health workers (A) Sanitation skill (N) Rewarding system skill
			3		2					XXX	XXX	XXX	
										XXX	XXX	XXX	
										XXX	XXX	XXX	
										XXX	XXX	XXX	
										XXX	XXX	XXX	
										XXX	XXX	XXX	

Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolha Dega	Kolla	
	III.4 People get proper medical care.	4		III.4-1 Enough health professionals available.	1	III.4-1-1 Training / capacity building to professionals (upgrading).	1	Suitable training materials prepared / facilities. Suitable work site and department.	Ongoing	XXX	XXX	XXX	
						III.4-1-2 Professionals development increased.	2	Policies and strategies / Identification of candidate professionals / Training thematic area identification.	Ongoing	XXX	XXX	XXX	(A) Skilled manpower (health)
				III.4-2 Medicine supply increased.	2	III.4-2-1 To establish special pharmacy in all health centers.	1	Constructed additional classes & block.	Ongoing	XXX	XXX	XXX	(N) Construction skill
						III.4-2-2 To facilitate health care financing (HCF) capacity increased.	2	Capacity building of skilled manpower.	Ongoing	XXX	XXX	XXX	(N) Finance management skill
				III.4-2-3 Medicine preserving facilities improved.	3	Using proper store shelf / Using refrigerator & cold box	Ongoing	XXX	XXX	XXX	(N) Medicine equipment and store management skill		
				III.4-2-4 Traditional healers into modern system.	4	Identification of traditional healers / training provision / medical equipment provision	New Idea	XXX	XXX	XXX	(A) Community communication skill / training need assessment skill		



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## Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolha Dega	Kolla	
				III.4-3 People go health centers on time.		III.4-3-1 People awareness on an on time treatment improved.	Community mobilization and training.	Ongoing	XXX	XXX	XXX	(A) Community communication skill
					3	III.4-3-2 Increased number of health centers.	Construction of proper health centers in proper sites.	Ongoing	XXX	XXX	XXX	(N) Construction skill
						III.4-3-3 Improving health center service delivered.	Implementing BPR / Using right professional in right position.	Ongoing	XXX	XXX	XXX	(N) Health center management skill
				III.4-4 People attitude towards long term solutions improved.	5	III.4-4-1 Behavioral change by prevention & by training / by community awareness.	Training for communities / experience sharing.	Ongoing	XXX	XXX	XXX	(N) Communication skill
				III.4-5 Upgrading fast service provision.	4	III.4-5-1 Increase emergency service and referral linkage system.	Increase electrical access /increase benefit payment of professionals / increasing emergency transportation and communication system (ambulance and telecommunication)	New Idea	XXX	XXX	XXX	(A) Clinical diagnosis and supporting inpatient skill

Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
								Dega	Wolna Dega	Kolla	
IV. Environment of Gidan protected. (42 / 337: 12.5%) 2 yrs ago (68 / 506: 13.4%)	IV.1 Natural resources conserved.	1	1	IV.1-1 Soil erosion reduced.	IV.1-1-1 Farmers do proper plow for undulated land nature of farmlands. (See 1.2-4-3 Construction of soil conservation practices.)	Plowing horizontal / Terracing / Following practice.	Pipeline	X	XX	XX	(A) Crop production
					IV.1-1-2 Proper Soil & Water Conservation (SWC) practice increased.	Awareness created on people / Gully rehabilitation / Biological plantation.	Ongoing	XXX	XX	XX	(A) Band conservation skill / SS dam construction skill / Nursery site management
					IV.1-1-3 Flood control and increased drainage capacity.	By doing the stone paved waterway / by doing the mulching process / by doing flood water diversion using & spreading bunds / by doing the vegetative waterway	New Idea	XXX	XXX	XXX	(A) Natural resource management (ISWC skill)
IV.2 Enough water is available for production.	2	2	1	IV.2-1 Afforestation increased.	IV.2-1-1 Population growth controlled.	Family planning service education was extended.	Ongoing	XX	XX	XX	(A) Health educated
				IV.2-1-2 Seedling production plantation management.	Increased area closure / Increased agro-forestry practice / Establishment community nursery site.	Ongoing	XX	XX	XX	(A) Plant science / Nursery management	
IV.3 Afforestation increased.		3	N								

Approaches, Strategies, Programs and Projects of Gidan Woreda

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24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
IV.4 Undulated lands managed properly.	IV.4	4	3	IV.4-1 Farmers implement modern agricultural practice.	IV.4-1-1 Intensive utilization of farmlands increased.	2	Awareness created for farmers.	Pipeline	XXX	XXX	XXX	(A) Agro-forestry skill / Range land management skill
				IV.4-1-2 Apply land classification system.	1	To increase productivity to use utilization of land	New Idea	XXX	XXX	XXX	(A) Combined agricultural extension	
IV.5 Environmental pollution protected.	IV.5	5	4	IV.5-1 Reduced deforestation.	IV.5-1-1 Awareness creation about the environment.	2	Improved environmental pollution.	New Idea	XXX	XXX	XXX	(A) Environmental science / Wild life / Sanitary
				IV.5-1-2 Supported & created environmental clubs.	3	Attitudinal change for the community / Providing	Pipeline	XXX	XXX	XXX	(A) Environmental protection skill	
				IV.5-1-3 Introducing new technology.	1	By using bio-gas and solar energy	New Idea	XXX	XXX	XXX	(A) Natural resource management	

Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
V. People of Gidan are educated. (41 / 337: 12.2%) 2 yrs ago (61 / 506: 12.1%)	V.1 Access to education to all people increased.	1	1	V.1-1 People get enough basic education.	4	V.1-1-1 Established alternative basic education centers.	Out of school children have got basic education.	Ongoing	XXX	XXX	XXX	(A) Pedagogy / Psychological treat skill / Educational administration
				V.1-1-2 Constructions new schools in all kebeles.	3	Achieved 96% education coverage.	Ongoing	XXX	XXX	(A) Construction skill		
				V.1-1-3 Supplying potable water.	2	Site selection / ensuring availability of permanent water in the selected site / supplying construction materials / developing the spring / taking the water pipe to the center / taking care of the water by fencing, appointing the guard, training the customers / roof rain water harvesting	New Idea	XXX	XXX	XXX	(A) Construction skill	
				V.1-1-4 Feeding program	1	Preparing store in which the food kept / Transporting the food the center to the consumers / preparing cooking materials / training cooks how to prepare and handle the food in proper manner.	New Idea	XXX	XXX	XXX	(A) Facilitation skill	
	V.1-2 People get adult education.	2	2	V.1-2-1 Establishing adult education centers.	1	Adult basic education program expanded.	Pipeline	XXX	XXX	XXX	(A) Facilitation skill	
	V.1-2 Supply adult basic education materials.	2	2	Improved adult's knowledge.	2	Pipeline	Pipeline	XXX	XXX	XXX	(A) Facilitation skill	

## Approaches, Strategies, Programs and Projects of Gidan Woreda

24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
V.2 Education quality improved.	V.2 Education quality improved.	2	2	V.2-1 Teacher development program increased.	1	V.2-1-1 Applied Continuous Professional Development (CPD) & induction program by on the job training	2	Teachers improve their professional skill.	Ongoing	XXX	XXX	XXX	(A) Facilitation skill / Teacher development program training / Training need analysis skill / Professional skill
				V.2-1-2 Exercising TESO Program by Pre-job training.	1	Best qualified teachers deployed.	Ongoing	XXX	XXX	(A) Teacher training skill			
				V.2-1-3 Benefit package improvement	3	Conducting action research / discussing with the concerned bodies on the problems identified from the research / implementing the payment	New Idea	XXX	XXX	(A) Facilitation skill			
				V.2-2 People get enough vocational education.	2	V.2-2-1 Establishing new technical & vocational	1	Income generation / Improve their technical skill	Pipeline	XXX	XXX	(N) Vocational & technical training skill	
V.3. People get adult education.	V.4. People get vocational education.	3	N	V.2-3 People get higher education.	3	V.2-3-1 Applied six educational standard quality programs.	1	Students knowledge improved.	Pipeline	XXX	XXX	(A) Teaching skill to higher level	
		4	N										

Approaches, Strategies, Programs and Projects of Gidan Worda

Gidan - 13

24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
VI. People of Gidan have enough cash. (36 / 337: 10.7%) 2 yrs ago (43 / 506: 8.5%)	VI.1 People get enough credit access.	1	4	VI.1-1 Farmers use credit service institutions improved.	1	VI.1-1 Enough credit service institutions constructed.	Access to credit & saving service increased.	Ongoing	XXX	XXX	XXX	(N) Drafting skill
	VI.2 Farmers have enough alternative income source.	2	1	VI.2-1 People attitude towards cottage craft improved.	2	VI.2-1-1 Enough vocational skill training centers constructed.	Saving habit improved.	Ongoing	XXX	XXX	XXX	(A) Accountant
	VI.3 Farmers produce market oriented crops (cash crops).	3	2	VI.2-2 Farmers get enough skill.	1	VI.2-2-1 Promotion of new technologies.	Increasing income using technologies.	Ongoing	XXX	XX	X	(N) Handcraft skill
				VI.3-1 Intensive utilization of farmlands improved.	2	VI.3-1-1 Awareness creation on technologies.	Build capacity of trainees.	Ongoing	XXX	XX	X	(N) Textile skill
				VI.3-2 Farmers get enough knowledge on cash crop production.	1	VI.3-2-1 Farmers get enough training through extension on cash crop production.	Efficient utilization of resources increased.	Ongoing	XXX	XXX	XXX	(A) Extension / communication skill
							Produce market oriented crop.	Ongoing	XXX	XXX	XXX	(A) Marketing skill

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## Approaches, Strategies, Programs and Projects of Gidan Worda

24-25 Nov. 2008, 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
	VI.4 People sell their produce at good price.	4	3	VI.4-1 Access to market information improved.	1	VI.4-1-1 Establishment of ICT centers.	Communication problems solved.	Ongoing	XXX	XXX	XXX	(N) Computer science skill
				VI.4-2 Farmers bargaining power improved.	2	VI.4-2-1 Farmers income increased.	Letting children go to school.	Ongoing	XXX	XXX	XXX	(N) Mini-media operating skill
				VI.4-3 Production quality improved.	3	VI.4-3-1 Enough supply of cash crop seeds.	Productivity increased.	Ongoing	XXX	XXX	XXX	(A) Extension skill
	VI.5 Farmers saving practice improved.	5	5	VI.5-1 People's attitude towards saving practice improved.	2	VI.5-1-1 Establishment of credit & saving institutions (co-operatives).	Credit equity.	Ongoing	XXX	XXX	XX	(A) Accountant
				VI.5-2 Knowledge of resource utilization improved.	1	VI.5-2-1 Extravagance for social affairs reduced.	Living standard improved.	Ongoing	XXX	XXX	XXX	(A) Skill on "Equb" facilitation

Approaches, Strategies, Programs and Projects of Gidan Woreta

24-25 Nov. 2008 and 25 Feb. 2009 and 5-6 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
VII. Gender issues incorporated to all activities in Gidan. (30 / 337: 8.9%)  2 yrs ago (32 / 506: 6.3%)	VII.1 Women empowerment increased.	1	1	VII.1-1 Gender mainstreaming improved.	VII.1-1-1 Preparing gender analysis.	1	Gender problems identified.	Pipeline	XXX	XXX	XXX	(N) Anthropology skill
				VII.1-2 Awareness creation on gender issues for the society.	VII.1-2-1 Women participation realized.	2	Women participation realized.	Ongoing	XXX	XXX	XXX	(N) Sociology skill
				VII.1-3 Harmful traditional practices (HTPs) controlled.	VII.1-3-1 Life expectancy increased.	3	Life expectancy increased.	Ongoing	XXX	XXX	XXX	(N) Socio-economic skill
				VII.1-4 Building their education capacity.	VII.1-4-1 Tutorial / insensitive / psychological treatment	4	Tutorial / insensitive / psychological treatment	New Idea	XXX	XXX	XXX	(A) Teachers & training skill (N) Pedagogy, psychological skill / facilitation skill / vocational & technical training skill
				VII.1-5 Increase women's job participation (Government not private).	VII.1-5-1 Give training / create job opportunities / do promotion	5	Give training / create job opportunities / do promotion	New Idea	XXX	XXX	XXX	(N) Training on job creation skill
VII.2 Eradication of HTPs and				VII.1-2 Women association capacity increased.	VII.1-2-1 Establishing women forum.	1	Reducing jobless females. Improve the community cash / increase.	Ongoing	XXX	XXX	XXX	(N) Managing skill



Kobo - 1

## Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get						
									Dega	Wolna Dega	Kolla							
I. People of Kobo have enough food. (49 / 190: 25.8%) 2 yrs ago (148 / 500: 29.6%)	I.1 Crop production and productivity improved.	1	I.1-1 Enough water source is available for protection.	1	I.1-1-1 Dam construction.	New Idea	50,000m <sup>3</sup> water will be utilized to develop 100ha.	Ongoing	X	XX	XXX	(N) Dam construction skill						
													I.1-1-2 Diversion canal (run off)	Ongoing	5 km canal, 1,000ha	XX	XXX	(A) Labor
	I.1-2 Soil fertility improved.	2	I.1-2-1 Compost preparation.	1	20m <sup>3</sup> / head	Ongoing	XXX	XX	(A) Composite preparation skill									
										I.1-2-2 Artificial fertilizer.	Ongoing	Ongoing	XXX	XXX	(A) Input supplier & implement skill.			
																I.1-2-3 Green manuring	Ongoing	0.5ha / head
	I.1-3 People get access to enough technology.	3	I.1-3-1 Motor pump.*	2	20 motor pumps for 100ha.	Ongoing	XX	XXX	(A) Input supplier & implement skill									
										I.1-3-2 Improved seeds provision increased.	Ongoing	Ongoing	XXX	XXX	(A) Input supplier & implement skill			
																I.1-4-1 Supply drought resistance varieties. (cassava)	New Idea	3.5 ton (350 Qlc) / ha
	I.2 Crop protection improved.	2	I.2-1 IPM (Integrated Pest Management) will be practiced.	1	12 IPM-FFS / 60ha.	Ongoing	XX	XXX	(A) Crop protection skill.									
										I.2-2 Different pesticides.	Ongoing	200 liter / 200ha, 100kg / 75ha.	XX	XXX	(A) Input supplier & implement skill			
																I.3-1 Soil erosion decreased.	Ongoing	3,000ha land is protected from erosion
	I.3 Conservation practice improved.	3	I.3-1 Soil erosion decreased.	1	Forest development.	Ongoing	XXX	XXX	(A) Forestry skill									

## Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get																																																							
									Dega	Wolna Dega	Kolla																																																								
I.4 Livestock production and productivity improved.	I.4 Livestock production and productivity improved.	4	3	I.4-1 Forage development improved.	I.4-1-1 Agro-forestry developed. I.4-1-2 Forage plant produced.	2	Nutrition value of animal feed increased. Feed shortage alleviated / Nutritional value goes up for all livestock.	Pipeline	XX	XXX	XXX	(A) Nursery site management skill																																																							
													1	Feed shortage alleviated / Nutritional value goes up for all livestock.	Ongoing	X	XXX	XX	(N) Forage seed multiplication skill																																																
																				3	Feed shortage alleviated / Nutritional value goes up for small animals.	New Idea	X	XX	(A) Urea treatment skill																																										
																										4	Food shortage alleviated / Nutritional value goes up for large animals.	New Idea	X	XXX	(A) Silage making skill																																				
																																1	Production and productivity of animals improved.	Ongoing + New Idea	X	XX	(A) AI skill																														
																																						1	Production and productivity of animals improved.	New Idea	XX	XXX	(A) Bull management skill																								
																																												1	Remote kebele's dwelling farmers veterinary service provided.	Ongoing	X	XXX	(N) Veterinary extension skill																		
																																																		2	Uniform health service for woreda kebeles provided.	New Idea	X	XXX	(A) Veterinary service coverage skill												
																																																								3	Better veterinary service is provided.	New Idea	X	XXX	(N) Veterinary extension skill						
																																																														1	One tomato paste factory.	New Idea	X	XXX	(N) Tomato paste production skill

Kobo - 3

## Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
I.6 Aforestation. (Production of food from trees.)		6		I.6-1 Food trees plantation encouraged.	I.6-1-1 Moringa olifera nursery site established at model integrated watershed area.	6	Not toxic element have & palatable moringa olifera planted to give not only food but also medical care.	New Idea	X	XX	XXX	(A) Forestry skill
						2	3,500ha land is needed 5250,000 trees to be planted.	New Idea	X	XX	XXX	(A) Forestry skill
						3	At 187 ha, 12,500HHs plant moringa olifera SPP.	New Idea	X	XX	XXX	(A) Forestry skill
						4	670,000 seedlings have to be planted.	New Idea	X	XX	XXX	(A) Forestry skill. Soil and water conservation skill
						5	At 100km road side, 500 seedlings per kilometer	New Idea	X	XX	XXX	(A) Forestry skill (N) Survey skill
						1	200km farmland edge, 500 seedlings planted per	New Idea	X	XX	XXX	(A) Forestry skill (N) Survey skill
I.7 Edible food source species conserved.		7	6	I.7-1 Cactus (edible food source) species conserved.	I.7-1-1 Protection of cactus from clearance for the reason of agricultural expansion & investment need.	1	The edible cactus species food access for the local community & nearby community.	Ongoing	X	XX	XXX	(A) Forestry and fruit tree skill
						1	Have its own value food compensation opportunity at the food gap months for local community.	New Idea	X	XXX	XX	(N) Forestry skill
						1	Increase financial income for the nearby community.	New Idea	X	XX	XXX	(N) Forestry skill

Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
II. Health status of Kobo improved. (34 / 190: 17.9%)  2 yrs ago (91 / 500: 18.2%)	II.1 People get enough medical care.	1	4	II.1-1 Promotion of health institutions and medical equipments.	1	II.1-1-1 Construct health center & health posts.	1	Community can get medical service in living area.	Ongoing	XXX	XXX	XXX	(A) Skill in medical care
						II.1-1-2 Training for health workers.	3	Improve their skills.	Ongoing	XXX	XXX	XXX	
						II.1-1-3 Fulfill medical equipments & other facilities.	2	People can get enough / full medical treatment.	Pipeline	XXX	XXX	XXX	
	II.2 People hygiene condition improved.	2	2	II.2-1 People get enough knowledge about sanitation.	1	II.2-1-1 Capacity building of extension agents.	1	Improved their skills.	Ongoing	XXX	XXX	XXX	(A) Skill in medical care
						II.2-1-2 Use mass-media & prepared ICT materials.	2	People can get current information about sanitation.	Pipeline	XXX	XXX	XXX	
	II.3 Malaria control improved.	3	3	II.3-1 People get enough knowledge on preventive measures.	1	II.3-1-1 Manage malaria case area.	2	Drainage swarm area (water).	Ongoing	X	XX	XXX	(A) Skill in sanitation
II.3-1-2 Awareness creation.						1	Well malaria prevention.	Ongoing	X	XX	XXX		

Kobo - 5

## Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
II.4 People get enough potable water.		4	1	II.4-1 Undertaking water supply & sanitation program.	1	II.4-1-1 Construction of water scheme.*	1	Spring development, hand dug well, deep well & shallow well construction.	Ongoing	XXX	XXX	XXX	(A) Construction & maintenance technology
						II.4-1-2 Operation & maintenance of existing water supply system.*	2	Maintenance of spring, hand dug well, deep well & shallow well.	Ongoing	XXX	XXX	XXX	
						II.4-1-3 Training of water committees.*	3	Awareness creation.	Ongoing	XXX	XXX	XXX	
						II.4-1-4 Expanding mass mobilization in construction & maintenance to ensure sustainability.	4	Awareness creation.	Ongoing	XXX	XXX	XXX	
III.5. Waterborne disease controlled.		5	5	II.5-1 Waterborne disease control	1	II.5-1-1 Conduct water quality test & treatment.*	2	Bacteriological, chemical, physical Sanitary survey	Ongoing	XXX	XXX	XXX	(A) Skill in sanitation
						II.5-1-2 Promoting and expanding toilet facilities.	1	Construction of pit & latrine.	Ongoing	XXX	XXX	XXX	

Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get	
									Dega	Wolna Dega	Kolla		
III. People of Kobo are educated. (30 / 190: 15.8%)  2 yrs ago (71 / 500: 14.2%)	III.1 Need quality education.	1	2	III.1-1 Improve quality education.	1	III.1-1-1 Teachers' training.	Teachers' equipment	Ongoing	XX	XX	XX	(N) Quality teaching skill	
						III.1-1-2 Teachers' training.	Equipment provision / teachers' guide / audio visual materials / student texts	Ongoing	XX	XX	XX	(N) Equipment provision skill	
	III.2 People get basic education.			III.2-1 Expansion of opportunity of education.	1	III.2-1-1 Building alternative child education increased.	Creating access to education for those who do not get the chance.	Ongoing	XX	XXX	XXX	(A) Quality teaching skill	
						III.2-1-2 Adult education improved.	Community skills training center (CSTC) improvement.	Ongoing	X	X	XXX	(N) Qualified-technical personnel skill	
				III.2-2 Creating conducive school environment.	2	III.2-1-3 School construction. (formal)	Community participation	Ongoing	XXX	XXX	XXX	(A) School construction skill	
						III.2-1-4 Upgrading school level.	Upgrading 1-4 to 5-8, 1-8 to 9-10 and 9-10 to 11-12	Ongoing	XXX	XXX	XXX	(A) Upgrading school level skill	
				III.2-3 Encourage special need education.	3	III.2-1-5 Feeding and stationary.	Providing school material and food	Ongoing	XXX	XXX	XX	(A) Protecting absenteeism skill	
						III.2-2-1 Male and female toilet construction.	Site selection / community participation	Ongoing	XXX	XXX	XXX	(N) Construction skill	
							III.2-3-1 Establish special need education center.	Special need material provision / training special need teachers	New Idea	X	XX	XXX	(N) Special need upgrading skill

Kobo - 7

## Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get					
									Dega	Wolna Dega	Kolla						
IV. Environment of Kobo improved. (26 / 190: 13.7%)  2 yrs ago (74 / 500: 14.8%)	IV.1 Natural environment protected.	1		IV.1-1 Environmental rehabilitation and protection.	1	IV.1-1-1 Soil and water conservation.	Gully treatment. Terraces. Check dams.	Ongoing	XXX	XXX	XX	(A) Skill in soil and water conservation techniques.					
						IV.1-1-2 Afforestation and area closure.	Seedling raising (nurseries). Participatory forest management /- Wagab system/ Rehabilitate degraded	Ongoing	XXX	XXX	XX	(A) Knowledge of agro-forestry					
						IV.1-1-3 Promoting fuel- saving stoves.	(See VII.1-2-1 Develop saving stove usage.)	Pipeline	XXX	XXX	XXX						
						IV.1-1-4 Awareness creation.	Training and experience sharing.	Ongoing	XXX	XXX	XXX						
						IV.1-1-5 Organize environment protection club.	Training and experience sharing.	Ongoing	XXX	XXX	XXX	(N) Skill in social work					
						IV.1-1-6 Using alternative construction materials.	Training and experience sharing. Improved & support small scale enterprise	Ongoing	XXX	XXX	XXX	(A) Construction skill					
						IV.1-2-1 Land certification.	Identify land size & use.	Ongoing	XXX	XXX	XXX	(A) Knowledge in land administration					
						IV.1-2-2 Land use / management.	Identify agro-eco & living condition.	New Idea	XXX	XXX	XXX	(A) Agronomy, natural resources and livestock (N) Surveying					

Kobo - 8

## Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get	
										Dega	Wolna Dega	Kolla		
IV.2 Environmental pollution controlled.				IV.2-1 Application of environmental friendly technology.	1	IV.2-1-1 Control carbon release.	1	Usage of other energy sources such as hydro power, solar energy	New Idea	XXX	XXX	XXX	(A) Knowledge in environment	
						IV.2-1-2 Production and consumption of easily decomposed materials.		3	Use of ethanol as a fuel.	New Idea	XXX	XXX	XXX	
						IV.2-1-3 Minimize chemical fertilizer usage.		2	Removal of non-decomposable materials.	New Idea	XXX	XXX	XXX	
									Promote integrated pest management	Pipeline	XXX	XXX	XXX	(A) Skill in protection
									Promote natural fertilization	Pipeline	XXX	XXX	XXX	(A) Skill in agronomy
									Promote Jatropha plantation	New Idea	X	XXX	XXX	(N) Skill in Jatropha plantation & management
									Construction of ditches & drainage structures.	New Idea	XXX	XXX	XXX	
									Construction of pit & latrine.	Ongoing	XX	XX	XXX	(A) Skill in sanitation & construction
										Ongoing	XXX	XX	XXX	
									IV.2-2 Government sanitation program.	1				
		IV.2-2-1 Construction of sewerage facilities.	3											
		IV.2-2-2 Promoting toilet & facilities. (Also see II.5-1-2 Promoting and expanding toilet facilities.)	2											
		IV.2-2-3 Awareness creation.	1											



Kobo - 9

## Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
								Dega	Wolna Dega	Kolla	
V. Infrastructure of Kobo improved. (22 / 190: 11.6%) 2 yrs ago (39 / 500: 7.8%)	V.1 Water supply is improved.	1	4								
	V.2 Transportation improved.	2	1	V.2-1 Road construction improved.	V.2-1-1 Connecting farm lands with rural networks.	Constructing road facilities.	New Idea	XXX	XXX	XXX	(A) Skill in rural construction.
				V.2-1-2 Construction of asphalt roads. (National / regional)	Supply of technology and materials to station.	New Idea	XXX	XXX	XXX		
				V.2-1-3 Construction of gravel roads. (National / regional)		New Idea	XXX	XXX	XXX		
	V.3 People get access to enough electric power.	3	3	V.2.2 Transportation facility improved.	V.2-2-1 Introducing least-cost transportation	Introducing animal & motor-wheeled transportation	New Idea	XXX	XXX	XXX	(N) Knowledge of engineering
				V.3-1 Electricity improved.	V.3-1-1 Promotion of hydroelectric power. (National / regional)	Construction of dams on rivers.	New Idea		XX	X	
				V.3-1-2 Usage of biogas production	V.3-1-2 Usage of biogas production	Storage of animal waste produced.	New Idea	XXX	XXX	XXX	
					V.3-1-3 Usage of solar energy.	Construction of satellite stations.	New Idea	XXX	XXX	XXX	(N) Technical knowledge of electricity.
	V.3-1-4 Wind energy.	Application of wind technology.	New Idea	XXX	XXX	XXX	X				

Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
	V.4 People's communication improved.	4	2	V.4-1 Telecommunication construction improved.	V.4-1-1 Promotion of wireless telephones. (National / regional)	1	Construction of satellite stations.	Ongoing	XXX	XXX	XXX	
					V.4-1-2 Promotion of digital telephones. (National / regional)	2	Construction of telephone station of microwaves.	Pipeline	XXX	XXX	XXX	
					V.4-1-3 Promotion of internet service.	3	Promotion of network station to internet.	Pipeline	XXX	XXX	XXX	
	V.5 Modern & well-organized market centers constructed.	5	5	V.5-1 Promotion of market-based production & preservation mechanism.	V.5-1-1 Construction of modern stores.	1	Develop entrepreneurship capability	New Idea	X	X	XXX	(N) Technical knowledge in information system.  (A) Skill in construction, business and engineering.
					V.5-1-2 Training of entrepreneurship.	2	Experience sharing	New Idea	XXX	XXX	XXX	
					V.5-1-3 Enhancing the construction of agro-industries.	3	Promotion of better production for local & foreign market. Creating conducive environment for the development of agro-	New Idea	XXX	XXX	XXX	

Kobo - 11

## Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
VI. People of Kobo have enough cash. (16 / 190: 8.4%)  2 yrs ago (52 / 500: 10.4%)	VI.1 People get enough income generating activities.	1	1	VI.1-1 Off-farm activity improved.	1	VI.1-1-1 Weaving practice developed.	Providing proto-type machines with low price.	Ongoing	X	X	XXX	(N) Skill in textile
					2	VI.1-1-2 Training skill to youth farmers on construction and building.	Providing building and construction training.	Ongoing	XXX	XXX	XXX	(A) Knowledge in construction and building
					3	VI.1-1-3 Food processing practice developed.	Providing food preparation and preservation training.	Ongoing	XXX	XXX	XXX	(A) Skill in food preparation and preservation
					6	VI.1-1-4 Metal work practice developed.	Supplying materials for metal workshop.	Ongoing	XXX	XXX	XXX	(A) Skill in metal work
					5	VI.1-1-5 Tailoring practice developed.	Providing tailoring skill training.	Ongoing	XXX	XXX	XXX	(A) Skill in tailoring practice
					4	VI.1-1-6 Pottery practice developed.	Supplying pottery machine for trainees.	Ongoing	XXX	XXX	XXX	(A) Skill in pottery practice
					7	VI.1-1-7 Coble stone processing practice developed.	Providing coble stone production training & equipments.	Ongoing	X	X	XXX	(A) Skill in metal work
					8	VI.1-1-8 Hides & skin processing practice.	Providing hides & skins processing training & equipments.	Ongoing	X	X	XXX	(A) Skill in hides & skin
					9	VI.1-1-9 Wood work practice developed.	Supplying materials for wood workshop.	Ongoing	X	X	XXX	(A) Skill in wood work
					10	VI.1-1-10 Horn processing activity.	Horn processing practice training & machineries.	Pipeline	X	X	XXX	(N) Skill in horn processing
					11	VI.1-1-11 Electronic equipments maintenance developed.	Supplying electronic materials to workshop.	Ongoing	XXX	XXX	XXX	(A) Skill in electronics
2	VI.2 Saving practice of people	2	VI.2-1 Micro-finance improved.	N	1	VI.2-1-1 Saving and credit practice developed.	Encouraging saving interest by decreasing credit interest rate and extending grace	Ongoing	XXX	XXX	(A) Banking skill	

Approaches, Strategies, Programs and Projects of Kobo Woreda

12-13 Nov. 2008, 6-7 Feb. 2009 and 10-11 Nov. 2010

Approach	Strategy	Final Priority Priority 2 yrs ago	Program	Final Priority Priority 2 yrs ago	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
VII. Gender issues incorporated to all activities in Kobo. (13 / 190: 6.8%) 2 yrs ago (25 / 500: 5.0%)	VII.1 Harmful traditional practices controlled.	1	VII.1-1 Providing capacity building training.	1	VII.1-1 Avoiding early marriage.	2	Awareness creation developed.	Ongoing	XX	XXX	XXX	(A) Skill in HTP
							Avoiding traditional believes.	Ongoing	XX	XXX	XXX	(N) Upgrading skill in HTP
							Providing saving stove with low price.	Ongoing	XXX	XXX	XXX	(A) Persuasive skills in creating powerness in gender.
												(A) High skill with home economics

## Approaches, Strategies, Programs and Projects of Mekedela Woreda

Mekedela - 1

3-4 Nov. 2008, 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX= Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get			
									Dega	Wolna Dega	Kolla				
I. Agricultural production of Mekedela increased. (124 / 298: 41.6%) 2 yrs ago (156 / 458: 34.1%)	I.1 Drought problem reduced.	1		I.1-1 Forest coverage increased.	3	I.1-1 Increased fuel saving stove used.*	Deforestation decreases.	Pipeline	XX	XX	XXX	(N) Modern rural energy skill			
				I.1-2 Distribution of rain improved.	4	I.1-2-1 Afforestation.*	Evapo transpiration from trees increase.	Ongoing	XX	XXX	X	(N) Modern forestry skill			
				I.1-3 Enough water available for production.	1	I.1-3-1 Soil & water conservation practice.* I.1-3-2 Small scale irrigation.	Soil moisture improved / increased. Rivers diverted / Self teams developed.	Ongoing	X	XX	XXX	(A) SWC (Soil & water conservation) skill (N) Irrigation skill			
				I.1-4 Rain water harvesting.	2	I.1-4-1 Roof water harvest. I.1-4-2 Surface water harvesting.	Construction of reservoir Dam (earth dam) construction / pond construction	New Idea	X	XXX	XX	(A) SWC (Soil & water conservation) skill (A) SWC (Soil & water conservation) skill			

## Approaches, Strategies, Programs and Projects of Mekedela Woreda

Mekedela - 2

3-4 Nov. 2008, 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get		
									Dega	Wolna Dega	Kolla			
	I.2 Crop production and productivity increased.	2		I.2-1 Soil fertility improved.	1	I.2-1-1 Soil erosion reduced.	Pure water flow from the catchments.	Ongoing	XXX	XX	X	(A) Soil & water conservation skill		
				I.2-1-2 Compost preparation increased.		2	I.2-1-2 Compost preparation increased.	Improve soil structure.	Ongoing	XX	XXX	XX	(A) Crop protection & production expertise	
				I.2-1-3 Crop rotation is used.		3	I.2-1-3 Crop rotation is used.	Crop diseases & weeds are decreased.	Ongoing	X	XXX	XX	(A) Crop production & protection expertise	
				I.2-2 Modern crop management increased.	3	I.2-2-1 Improve crop storage structures.	2	I.2-2-1 Improve crop storage structures.	Reduction of pre & post harvest losses.	Ongoing	X	XX	XXX	(N) Post harvesting skills
				I.2-2-2 Pest, disease & weeds occurrence reduced.		1	I.2-2-2 Pest, disease & weeds occurrence reduced.		Pipeline	X	XX	XXX	(N) Post harvesting skills	
				I.2-3 Improved horticultural seeds.	4	I.2-3-1 Multiply improved seeds.	1	I.2-3-1 Multiply improved seeds.	Increasing supply of fruits & vegetables in the markets.	Pipeline	X	XXX	XX	(N) Horticultural production skill
				I.2-3-2 Increased horticultural productivity.		2	I.2-3-2 Increased horticultural productivity.	Farmers use improved seeds.	Pipeline	X	XXX	XX	(N) Horticultural production skill	
				I.2-4-1 Farmers get enough training.**		1	I.2-4-1 Farmers get enough training.**	Self motivation of farmers increased	Ongoing	XX	XX	XX	(N) Extension communication skills	
				I.2-4-2 Improved crop varieties.	2	I.2-4-2 Improved crop varieties.	2	I.2-4-2 Improved crop varieties.	Farmers use improved seeds.	Pipeline	XXX	XXX	XXX	(N) Crop production skill
				I.2-4-3 Supply of agricultural technologies.		3	I.2-4-3 Supply of agricultural technologies.		Pipeline	XXX	XXX	XXX		

## Approaches, Strategies, Programs and Projects of Mekedela Woreda

Mekedela - 3

3-4 Nov. 2008, 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX= Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get									
									Dega	Wolna Dega	Kolla										
I.3 Livestock production increased	I.3 Livestock production increased	3	3	I.3-1 Improving livestock management.	I.3-1-1 Improving livestock house.	1	Livestock house construction	Ongoing	XXX	XXX	XXX	(A) Construction skill									
													I.3-1-2 Improving feeding & watering. ***	2	Access of forage and water	Pipeline	XXX	XXX	XXX	(A) Quality feed preparation skill	
																					I.3-1-3 Well established clinical service.
				I.3-2 Genetic potential of livestock improved.	I.3-2-1 To use hybrid system.	1	Availability of exotic breed / trained manpower	New Idea	XXX	XXX	X	(N) Hybrid skill									
													I.3-3 Improved livestock breeds increased.	I.3-3-1 Introduced imported breed.	1	Capital / know-how	Ongoing	XXX	XXX	XX	(N) Breeding skill
				I.3-4 Forage development increased.	I.3-4-1 Increase soil fertility	1	Teaching farmers	Ongoing	XXX	XXX	XXX	(N) Breed selection skill									
													I.3-4-2 use urea treatment.	2	Addition of compost / crop rotation	Ongoing	XXX	XXX	XXX	(N) Soil and water conservation skill	
																					I.3-4-3 Introduce new forage species. ***
				I.3-4-4 Introduce new forage species. ***	3	Introduction of new species / awareness creation / adaptation trial at nursery	Ongoing	XXX	XXX	XXX	XXX	(N) Forage development skill									

Approaches, Strategies, Programs and Projects of Mekedela Woreda

Mekedela - 4

3-4 Nov. 2008, 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX= Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
	I.4 Intensive land utilization increased.			I.4-1 Enough family planning practiced.	1	I.4-1 Intensive utilization of contraceptive methods.	Population size (birth rate) decreases.	Ongoing	XX	XX	XXX	(N) Family planning expertise
				I.4-2 Working habit of farmers improved.	5	I.4-2-1 Vocational training centers for farmers.**	Awareness of farmers increases.	Pipeline	XX	XX	XX	(N) Extension communication skills
		4	4	I.4-3 Land administration and use proclamation & regulation.	2	I.4-3-1 Controlling illegal land uses.	Awareness creation to the farmers / punishment taking illegal land users / losing land ownership	Pipeline	XXX	XXX	XXX	(A) Land administration & use skill
				I.4-4 Land use sustainability.	3	I.4-4-1 Issue certificate.	Awareness for land holder / Identify land holder / Land registration	Ongoing	XX	XXX	X	(N) Surveying skill
				I.4-5 Land holder demarcation.	4	I.4-5-1 Prevent / avoid land disputes.	Give awareness for land users / Land demarcation	New Idea	XX	XXX	X	(A) Land administration & use skill



## Approaches, Strategies, Programs and Projects of Mekedela Woreda

Mekedela - 5

3-4 Nov. 2008 and 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
II. People of Mekedela are educated. (41 / 298: 13.8%) 2 yrs ago (47 / 458: 10.3%)	II.1 People get vocational education.	1	2	II.1-1 People get enough technical training.	1	II.1-1 Enough vocational training centers established.	People get various technical skills.	Ongoing	XX	X	XXX	(N) Wood work. Metal work. Construction, tailoring
	II.2 People get basic education.	2	1	II.2-1 Students get enough basic education.	1	II.2-1-1 Strengthen primary schools.	Providing financial, material & skilled human power support.	Pipeline	XX	X	XXX	(A) Teaching skill of the subjects
				II.2-2 People get adult education.	2	II.2-2-1 Strengthen adult education sites.	Providing adult education materials.	Pipeline	XX	X	XXX	(N) Program facilitation skill
				II.2-3 Students get special need education.	3	II.2-3-1 Strengthen special need classes.	Providing financial, material & skilled human power support.	Pipeline	XX	X	XXX	(N) Teaching skill of special need

Approaches, Strategies, Programs and Projects of Mekedela Woreda

Mekedela - 6

3-4 Nov. 2008 and 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Priority	Program	Final Priority	Priority 2 yrs ago	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
III. Environment of Mekedela protected. (31 / 298: 10.4%) 2 yrs ago (48 / 458: 10.5%)	III.1 Natural environment condition improved.	Priority	III.1-1 Environmental management system.	1	2	III.1-1-1 Performance measures & community involvement program.	Access environmental indicators / sharing environmental data openly with the community / open dialogue through public forums / Open discussion between business & the community / Encourage the environmental clubs	New Idea	XX	XXX	X	(N) Environmentalist
						III.1-2-1 EIA implemented in all projects like irrigation, road.	Reduction of externalities of the projects (sewage / any waste). Polluters pay / re-use / re-cycle / reduction	New Idea	XX	XXX	X	(N) Environmentalist
						III.1-3-1 Prevention of plants / weeds from different insects or pests.	Safe chemical handling is attend.	Ongoing	XXX	XXX	XXX	(N) Knowledge of chemical handling is needed.
				3	3	III.1-3-2 Provision of safety & precaution effort and creation of awareness about the impact of chemicals to people.	Reducing the vicious effect of chemical environmental load.	New Idea	XXX	XXX	XXX	(N) Safe use of Chemical's intervention is needed.
				3		III.1-3-3 Disposal of expired chemicals & drugs exercised.	Reducing the impact of chemicals on the environment.	Ongoing	XXX	XXX	XXX	(N) Knowledge of chemical disposal is needed.

Note: Priorities of VI. Environment are included in II. Health. Also project VI.1-1-2 is integrated with health projects.

Mekedela - 7

## Approaches, Strategies, Programs and Projects of Mekedela Woreda

3-4 Nov. 2008 and 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Priority	Program	Final Priority	Priority 2 yrs ago	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
IV. Infrastructures of Mekedela constructed. (31 / 298: 10.4%)  2 yrs ago (63 / 458: 13.8%)	IV.1 Infrastructure service supply.	1	IV.1-1 Road network improved.	1	1	IV.1-1-1 Rural road construction & maintenance.	New bridge building / creation of awareness of the society on participation / availability of construction of machineries	Pipeline	XXX	XXX	XXX	(N) Surveying capacity, construction
			IV.1-2 Potable water supply coverage is increased.	2	1	IV.1-2-1 Getting 24 hours water supply.	Connection of the sources of the ground water with hydro electric power	Pipeline	X	XXX	X	(A) Chemical engineer (N) Mechanical engineer, chemical engineer, hydraulic engineer
			IV.1-3 Electric provision is improved.	3	2	IV.1-2-2 Hand tools for maintenance & construction of water supply scheme.	Pipe tender / pipe cutter / pipe wrench / mechanical hand tools	Pipeline	X	XXX	X	(A) Chemical engineer (N) Mechanical engineer, chemical engineer, hydraulic engineer
			IV.1-4 Communication is improved.	4	3	IV.1-3-1 Improving access of local villages to electric power access. IV.1-4-1 To get computerized world wide communication for woreda sector.	Distribution of generator access to local villages Local net connection / supply of computer / building of I.C.T. center	Ongoing	XXX	XXX	XXX	(N) Electrical engineers, electro mechanical engineers  (N) ICT Expert, electrical engineering, computer operation skill

Approaches, Strategies, Programs and Projects of Mekedela Woreda

Mekedela - 8

3-4 Nov. 2008, 9-10 Feb. 2009 and 18-19 Nove. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Final Priority	Priority 2 yrs ago	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
											Dega	Wolna Dega	Kolla	
V. Health status of Mekedela people improved. (29 / 298: 9.7%)  2 yrs ago (76 / 458: 16.6%)	V.1 Implementing disease preventing measures increased.	Final Priority	Priority 2 yrs ago	V.1-1 Personal hygiene.	1	1	V.1-1-1 Latrine construction.	1		Ongoing	XXX	XXX	XXX	(A) Health extension skill (N) Environmental health
							V.1-1-2 Clean area and body.	2	Can be solved from dirt borne germs and insects.	Ongoing	XXX	XXX	XXX	(A) Health extension skill (N) Environmental health
							V.1-1-3 Food & water sanitation.*	3	Prevalence of water borne disease will be minimized.	Ongoing	XXX	XXX	XXX	(A) Health extension skill (N) Environmental health
							V.1-2-1 Outreach site construction.*	1	Improvement of immunization coverage and controlling of contamination.	New Idea	XXX	XXX	XXX	(A) Carpenter
							V.1-2-2 Provision of immunization equipment.**	3	Safe transportation & good sanitation of the vaccine is maintained.	Ongoing	XXX	XXX	XXX	(A) Purchasers, pharmacy technicians
							V.1-2-3 Vaccine management facility.	2	Safe transportation & increase EPI (Expand Program Immunization) coverage	New Idea	XXX	XXX	XXX	(N) Cold chain management skill

Mekedela - 9

## Approaches, Strategies, Programs and Projects of Mekedela Woreda

3-4 Nov. 2008, 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Final Priority Priority 2 yrs ago	Program	Final Priority Priority 2 yrs ago	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
		1	V.1-3 Decreasing HIV prevalence.	3	V.1-3-1 VCT site construction & improving VCT service.	2	Decreasing HIV prevalence.	Ongoing	XXX	XXX	XXX	(A) Contractor, supervision (engineers), health professional
						1						
						3						
						4						
						1						
						2						
						3						
						4						
						1						
						2						
		1	V.1-4 Care & support for PLWHA, OVC & vulnerable group.	4	V.1-4-1 IGA training for PLWHA, OVC and vulnerable group.	1	Material provision / equip. (tables, chairs, shelves, laptop computers, etc.)	New Idea	XXX	XXX	XXX	
						2						
						3						
						4						
						1						
						2						
						3						
						4						
						1						
						2						
		1	V.1-5 Medical treatment of the people increased.	5	V.1-5-1 Health center construction.*	3	Increase health service coverage.	Ongoing	XXX	XXX	XXX	(N) Upgrading trainer staff
						1						
						2						
						3						
						4						
						1						
						2						
						3						
						4						
						5						
		1	V.1-5 Medical treatment of the people increased.	5	V.1-5-2 Provision of medical equipment & drug.**	1	Increase treatment, decrease mortality rate.	Ongoing	XXX	XXX	XXX	(A) Purchasers, pharmacy technicians
						2						
						3						
						4						
						5						
						1						
						2						
						3						
						4						
						5						
		1	V.1-5 Medical treatment of the people increased.	5	V.1-5-3 Capacity building to health workers.**	2	Good treatment, decrease mortality rate.	Ongoing	XXX	XXX	XXX	(A) Health professionals and health extension skill
						3						
						4						
						5						
						1						
						2						
						3						
						4						
						5						

Approaches, Strategies, Programs and Projects of Mekedela Woreda

Mekedela - 10

3-4 Nov. 2008, 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Final Priority	Priority 2 yrs ago	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX= Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
				V.1-6 Awareness creation on preventive measures.	6	9	V.1-6-1 Life skill training. V.1-6-2 Social mobilization using anti-AIDS clinic and testimony. V.1-6-3 Youth dialogue. V.1-6-4 Community conversation program.	Increase behavioral change.	Ongoing	XXX	XXX	XXX	
				V.1-7 Malaria control.	7	2	V.1-7-1 Bed net distribution, chemical spray, drying water bodies.	Controlling biting of mosquitoes, reducing mosquitoes.	Ongoing	X	XX	XXX	(A) Health extension skill (N) Environmental health
				V.1-8 Awareness creation of medical utilization.	8	5	V.1-8-1 Training & health education.**	Increase in medical utilization.	Ongoing	XXX	XXX	XXX	(A) Health professionals and health extension skill (N) Supervisors
	V.2 Waterborne disease prevalence decreased.	2	1	V.2-1 Potable water coverage increased.	1		V.2-1-1 Construction of water supply schemes.**	Enough potable water for domestic use is supplied.	New Idea	X	XX	XXX	(N) Upgrading of artisans' skill, upgrading of designers skill (A) Supervisors
				V.2-1-2 Maintaining water supply schemes and water quality & sanitation practice.	2		V.2-1-2 Maintaining water supply schemes and water quality & sanitation practice.	Safe potable water for drinking and other domestic uses supplied.	Ongoing	X	XX	XXX	(A) Supervisors (N) Upgrading of artisans' skill, upgrading of designers skill
				V.2-1-3 Strengthening beneficiaries water care taker's committee.	1	1	V.2-1-3 Strengthening beneficiaries water care taker's committee.	Water supply schemes have guarded, fenced, properly utilized and protected from contaminations.	New Idea +Ongoing	X	XX	XXX	(A) Trainers
				V.2-1-4 Expansion of existing water supply schemes.**	3		V.2-1-4 Expansion of existing water supply schemes.**	Provision of enough quality potable water is secured.	Ongoing	X	XX	XXX	(A) Supervisors (N) Upgrading of artisans' skill, upgrading of designers skill

Note: VCT = Voluntary consulting and testing, PLWHA = People living with HIV/AIDS, OVC = Orphans and vulnerable children, PMTCT = Prevention of Mothers to Children Transmission

## Approaches, Strategies, Programs and Projects of Mekedela Woreda

Mekedela - 11

3-4 Nov. 2008, 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Program	Priority	Program	Final Priority	Priority 2 yrs ago	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
VI. Gender issues incorporated in all development activities in Mekedela. (24 / 298: 8.1%)  2 yrs ago (22 / 458: 4.8%)	VI.1 Gender equality practiced.	VI.1-1 Mainstreaming.	1	VI.1-1-1 Strengthening women affairs office to do awareness creation activities.	1	1	People awareness increased on gender equality.	Ongoing	XX	X	XXX	(N) Organizing, gender equality training
				VI.1-1-2 Attitudinal change of community towards gender increased.	2	2	Women participation in leading economics & politics increased.	Ongoing	XX	X	XXX	(A) Facilitation skill
				VI.1-1-3 Participation of women in IGA activities increased.	3	3	People start equal sharing of work & wealth. Women organized on IGA organization.	Ongoing	XX	X	XXX	(A) Integrated work (A) Training on organizing women

Approaches, Strategies, Programs and Projects of Mekedela Woreda

Mekedela - 12

3-4 Nov. 2008, 9-10 Feb. 2009 and 18-19 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Program	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
VII. People of Mekedela have enough cash. (18 / 298: 6.0%) 2 yrs ago (46 / 458: 10.0%)	VII.1 Production of food increased.	1	1	(See I. Agricultural production of Makedela increased.)									
	VII.2 Farmers produce market oriented products.	2	2	VII.2-1 Good market networks established.	1	VII.2-1-1 Market information center established.	1	Up to date market information will be available.	Ongoing	XXX	XXX	XXX	(N) Market management skill
				VII.2-2 Farmers sell their produce at good price.	1	VII.2-2-1 Capacity of development agents increased.	1	DA's intellectual capacity in marketing increased.	Ongoing	XXX	XXX	XXX	(N) Agro economics, / agri-business / business management
				VII.3-1 Extravagancy of people reduced.	1	VII.3-1-1 People get aware on reducing necessary expenditure increased.	1	Coffee ceremony / pamphlets / public gathering are used.	Ongoing	XX	X	XXX	(N) Accounting / Co-operative / marketing
				VII.4-1 Enough micro-finance institutions established.	1	VII.4-1-1 Establish credit & saving institutions / co-operatives	1	People have access to credit & saving	Ongoing	XX	XXX	X	(N) Credit saving / accounting
			VII.4-2 Wise use of resources increased.	4	VII.4-2-1 Establish adult education centers.	3	People get knowledge how to use resources.	Pipeline	XX	X	XXX	(N) Management / economics / sociology	
			VII.4-3 Cultural influence reduced.	4	VII.4-3-1 Organizational intermediators strengthened.	2	People develop awareness on the disadvantages of extravagancy	Ongoing	XX	X	XXX	(N) Sociology	
	VII.5 People get enough alternative income source.	5	3	VII.5-1 People engaged in various kind of IGAS	1	VII.5-1-1 Skill training centers established.	1	Technology transformation	Ongoing	XX	XXX	X	(N) Tailoring, weaving, hand craft



## Approaches, Strategies, Programs and Projects of Legambo Woreda

Legambo - 1

6-7 Nov. 2008, 21 Feb. 2009 and 22-23 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Wurch	Dega	Woina Dega	
										I.1	I.1 People's use of modern agricultural practices improved.	1	
I.2	I.2 Soil fertility improved.	2	I.1-3 Minimize pre & post harvest crop yield loss. I.2-1 Soil erosion reduced.	3 2	I.1-2-2 People get enough extension service. I.1-3-1 People are trained how to minimize pre & post harvest yield loss. I.2-1-1 Farm cultivated properly. I.2-1-2 Gully rehabilitated.	1 1 3 2	Farmers utilize agricultural technologies effectively. Farmers minimize pre and post harvest yield loss. Soil structure & texture improved. / Plant growing media improved. Soil sedimented. / Non-productive land becomes productive.	Ongoing Ongoing Ongoing Ongoing	XX XXX XXX XXX	XX XXX XXX XXX	XXX XXX XXX XXX	(A) Extension agent (service) (A) Extension agent (service) (A) Soil & water conservation (N) Watershed management (WSM) skill (N) Soil engineering skill (A) Soil & water conservation (N) Watershed management (WSM) skill (A) Plant science skill (N) Upgrading (A) Plant science skill (N) Upgrading	
		1	I.2-2 Soil management increased.	1	I.2-2-1 Crop rotation practice increased. I.2-2-2 Following practice increased.	1 2	Nutrient availability improved. Soil nutrients availability increased.	Ongoing New Idea	XXX XX	XXX XXX	XX XXX	(A) Plant science skill (N) Upgrading (A) Plant science skill (N) Upgrading	

## Approaches, Strategies, Programs and Projects of Legambo Woreda

Legambo - 2

6-7 Nov. 2008, 21 Feb. 2009 and 22-23 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Wurch	Dega	Woina Dega	
I.3	People use different agricultural inputs.	3	2	I.3-1 People get different agricultural inputs & participate on the preparation.	1	I.3-1-1 Supplying of inputs and preparing it on the necessary time and place.	2	Most farmers use inputs appropriately on time.	Ongoing	XX	XXX	(A) Skilled person on input utilization	
				I.3-1-2 Training on inputs utilization and preparation / produce.	1	Most farmers prepare composites and produce different types seeds.	Ongoing	XX	XXX	(A) Skilled person on utilization, preparation and production of input			
I.4	Forest cover increased.	4	6	I.4-1 Afforestation increased.	1	I.4-1-1 Construction and fuel wood production increased.	2	Construction & fuel wood constraints solved.	Ongoing	XX	XXX	(A) General forestry skill & farm forestry skill (N) Upgrading	
				I.4-1-2 Agro forestry practiced.	3	Multi-benefits obtained.	Pipeline	XX	XXX	(N) Agro forestry skill			
I.5	Livestock production increased.	5	4	I.5-1 Forage development improved.	2	I.5-1-1 Forage improve in quantity & quality.	1	Livestock products changed.	Ongoing	XX	XXX	(N) Forage management skill & animal science	
				I.5-2 Cross breeds improved.	4	I.5-2-1 Animals and inseminated bull service provided.	1	Supply in proved variety breeds.	Ongoing	XXX	XX	(N) Genetics skill	
				I.5-3 People practice enough modern livestock production system.	1	I.5-3-1 To introduce how to improve modern livestock production.	1	Farmers have done modern practical livestock production. / Farmers become well awared.	Ongoing	XXX	XXX	(A) Animal science skill & extension communication skill	
				I.5-4 Animal health improved.	3	I.5-4-1 Veterinary service provided.	1	Diseases occurrence reduced.	Ongoing	XX	XXX	(A) Veterinary skill (N) Upgrading	

## Approaches, Strategies, Programs and Projects of Legambo Woreda

Legambo - 3

6-7 Nov. 2008, 21 Feb. 2009 and 22-23 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Wurch	Dega	Woina Dega	
I.6 People use water resources properly / efficiently.	I.6-1 People get enough knowledge to use water resources.	6	3	I.6-1	1	I.6-1-1 Create awareness how to use water resources.	1	Water resources will be utilized.	Ongoing	XXX	XXX	XXX	(N) Engineering on river diversion
				I.6-2	2	I.6-2-1 Farmers participation for river diversion and spring development.	1	Most farmers will have access to waters for irrigation.	Ongoing	XXX	XXX	XXX	(N) Engineering on spring development
I.7 Producing high marketing oriented produces	I.7-1 Farmers produce market oriented agricultural products.	7	7	I.7-1	1	I.7-1-1 Familiarizing farmers about market crops & inform the current price regularly.	1	More market oriented agricultural crops will be produced.	Ongoing	XX	XXX	XXX	(N) Skilled person on marketing, promoting market information.

Approaches, Strategies, Programs and Projects of Legambo Woreda

Legambo - 4

6-7 Nov. 2008, 2 Feb. 2009 and 22-23 Nov. 2010

Approach	Strategy	Priority	Program	Priority	Project	Final Priority	Priority 2 yrs ago	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get	
										Wurch	Dega	Woina Dega		
II. Environment of Legambo protected. (46 / 210: 21.9%) 2 yrs ago (65 / 390: 16.7%)	II.1 Natural environment conserved.	1	II.1-1 Watershed management increased.	1	II.1-1-1 Soil and water conservation increased.	1	1	Moisture content increased / soil is	Ongoing	XXX	XXX	XXX	(N) Integrated watershed management skills	
			II.1-2 Afforestation.	2	II.1-2-1 Nursery establishment.	2	1	Number of seedlings raised.	Ongoing	XXX	XX	XX	(A) Skills of natural resources / awareness creation of people	
			II.1-2-2 Plantation of forest seedling and management increase.	3	2	Area closure are covered by afforestation.	Ongoing	XXX	XXX	XXX	XXX	XXX	(A) Awareness creation of stove	
			II.1-3 Energy saving technology.	3	1	II.1-3-1 Improved stove construction.	1	N	Organize the team / cooperatives / stove construction	Ongoing	XXX	XXX	XXX	(A) Awareness creation of
			II.1-3-2 Biogas implementation / utilization.	2	2	Biogas plant construction / training / dairy / cattle rearing & vegetable production.	New Idea	XXX	XXX	XXX	XXX	XXX	XXX	(A) Awareness creation of (N) Skills for biogas implementation

## Approaches, Strategies, Programs and Projects of Legambo Woreda

Legambo - 5

6-7 Nov. 2008, 2 Feb. 2009 and 22-23 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get	
									Wurch	Dega	Woina Dega		
III. Infrastructures of Legambo constructed. (26 / 210: 12.4%) 2 yrs ago (42 / 390: 10.8%)	III.1 Water supply increased.	1	III.1-1 Standard water supply constructed.	1	III.1-1-1 Constructing spring development and hand-dug well construction.	1	Decreasing waterborne diseases & improved water sanitation.	Ongoing	XXX	XXX	XXX	(A) Water quality & water engineers skilled	
					III.1-1-2 Constructing bore hole with motorized pumps.	2	Designing / digging with machineries	New Idea	X	XXX	XXX		
					III.1-1-3 Fountain construction.	3	Trench excavation / lining / surveying	New Idea	X	XXX	XXX		
					III.1-1-4 Treatment of water by chemicals.	4	Disinfectants / water quality kits with accessories.	New Idea	XXX	XXX	XXX	(A) Water quality & water engineers skilled	
	III.2 Road network improved.	2	III.2-1 Standard road construction.	1	1	III.2-1-1 Standard gravel packed road construction.	1	Increased access to road availability.	Ongoing	XXX	XXX	XX	(A) Road construction workers skilled
						III.3-1 Solar system expansion.	1	Necessary material and required to collect radiation energy from the sun.	New Idea	XXX	XXX	XXX	(N) Electrical engineer / electro mechanics
	III.3 Electrification increased.	3	III.3-2 Electrification increased.	2	2	III.3-2-1 Constructed hydro electrical power plant.	1	People have access to electricity / Small scale industries increased.	Ongoing	XXX	XXX	XXX	(N) Utilization skill of electricity
						III.4-1 People get exchange information.	2	Increased people information system.	Ongoing	XXX	XXX	XXX	(N) Skill of line worker
	III.4 Telecommunication access improved.	4	III.4-2 Mobile network access.	1	1	III.4-2-1 Installing of mobile micro wave.	1	Designing / surveying / construction	New Idea	XXX	XXX	XXX	(N) Telecommunication engineer, surveyor labor / daily

Approaches, Strategies, Programs and Projects of Legambo Wordea

Legambo - 6

6-7 Nov. 2008, 21 Feb. 2009 and 22-23 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get	
										Wurch	Dega	Woina Dega		
IV. Health status of people of Legambo improved. (25 / 210: 11.9%)  2 yrs ago (58 / 390: 14.9%)	IV.1 People get enough balanced diet.	1	1	IV.1-1 People get enough nutrition.	1	IV.1-1-1 Awareness creation on nutritional stake increases.	1	Awareness creation of people on nutrition.	Ongoing	XXX	XX	XX	(A) Community discussion skill & health extension worker	
				IV.1-1-2 Establishing supplementary feeding center.	2	SC (Stabilizing center) / OTP (outpatient therapeutic program)	Pipeline	XXX	XX	XX	(N) Skill in accessing mal-nourished children			
	IV.2 People get enough potable water.	2	2	IV.2-1 People knowledge of hygiene and sanitation improved.	1	IV.2-1-1 Awareness creation and use.	1	Increase knowledge of the community.	Ongoing	XXX	XXX	XX	(A) Environment health skill & health center	
				IV.3-1 Health centers provide proper service.	1	IV.3-1-1 Standard health centers constructed.	1	People access to health center.	Ongoing	X	XX	XXX	(N) Planning	
	IV.3 People get enough medical care.	3	3	IV.3-2 Communicable disease controlled.	2	IV.3-1-2 Drug supply increased.	2	Participation of client increases.	Ongoing	X	XXX	XX	XX	(A) Professional health skilled nurse
						IV.3-1-3 Capacity building to human resources increased.	3	Patients get enough treatment.	Ongoing	XXX	XXX	XX	(A) Participation of kebele leaders & other stakeholders	
						IV.3-2-1 People knowledge of CDC (Communicable Disease Control).	1	Increase knowledge of the communicable diseases.	Pipeline	XXX	XXX	XXX	(N) IDSR (Integrated Disease Surveillance) training	

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## Approaches, Strategies, Programs and Projects of Legambo Woreda

6-7 Nov. 2008, 21 Feb. 2009 and 22-23 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get	
								Wurch	Dega	Woina Dega		
V. People of Legambo are educated. (21 / 210: 10.0%) 2 yrs ago (49 / 390: 12.6%)	V.1 People get access to adult education.	1	2	V.1-1 Establishing adult education centers.	V.1-1-1 Adult education centers work & aware people effectively.	People go to school.	Ongoing	XX	XXX	XXX	(A) Teaching skill	
					V.1-1-2 Construction of adults library (reading center).	People access to know and introduce with new technology.	New Idea	XX	XXX	XXX	(A) Library science	
					V.2-1-1 Construction of primary schools.	Students access to school.	Ongoing	XX	XXX	XXX	(A) Educational planning & management	
					V.2-1-2 Construction of alternative basic education center.	Students have access to learn.	Ongoing	XX	XXX	XXX	(A) Skill of facilitating	
	V.2 People get basic education.	2	1	V.2-1 Increasing educational coverage.	V.2-1-3 Construction of public library.	People will access to increase / improve / their knowledge.	New Idea	XX	XXX	XXX		
					V.2-1-4 Improving education equipments & facilities.	To improve educational quality (laboratory / chemicals / books / furniture)	Ongoing	XX	XXX	XXX		
					V.3-1-1 Vocational education institutions work efficiently.	People have awareness.	Ongoing	XX	XXX	XXX	(A) Vocational teaching	
					V.4-1 Implementing educational quality improvement packages.	Improve student's result.	Ongoing	XX	XXX	XXX	(A) Teaching skill	
	V.3 People get enough vocational education.	3	3			V.3-1-1 Vocational education institutions work efficiently.	People have awareness.	Ongoing	XX	XXX	XXX	
						V.4-1 Improve educational quality.	Improve student's result.	Ongoing	XX	XXX	XXX	
						V.4-1 Implementing educational quality improvement packages.	Improve student's result.	Ongoing	XX	XXX	XXX	
						V.4-1 Improve educational quality.	Improve student's result.	Ongoing	XX	XXX	XXX	

Approaches, Strategies, Programs and Projects of Legambo Woreda

6-7 Nov. 2008, 21 Feb. 2009 and 22-23 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get	
									Wurch	Dega	Woina Dega		
VI. Gender issues incorporated in all activities in Legambo. (18 / 210: 8.6%) 2 yrs ago (29 / 390: 7.4%)	VI.1 Mainstreaming of gender increased.	1	1	VI.1-1 All sectors plan gender issue on their annual plan.	1	VI.1-1-1 Awareness for people about gender.	Awareness created.	Ongoing	XX	XXX	XXX	(A) Gender mainstreaming skill	
				VI.1-2 Women's empowerment.	2	VI.1-2-1 Women's property ownership.	1	Women can mobilize and hold their properties.	New Idea	XX	XXX	XXX	(N) Skilled in administration & leadership
				VI.1-3 Ending HTPs (Harmful Traditional Practices) & outlooks towards women.	3	VI.1-2-2 Affirmative action.	1	The number of heads and experts will increase.	New Idea	XX	XXX	XXX	
					3	VI.1-3-1 Awareness creation and follow-up.	1	Awareness will be created in the community.	New Idea	XX	XXX	XXX	(A) Skilled in ending HTPs & outlooks
					2	VI.1-3-2 Educating persons practicing HTPs.	1	HTPs will be eliminated.	New Idea	XX	XXX	XXX	
					1		1		New Idea	XX	XXX	XXX	



## Approaches, Strategies, Programs and Projects of Legambo Woreda

6-7 Nov. 2008, 21 Feb. 2009 and 22-23 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get		
									Wurch	Dega	Woina Dega			
VII. People of Legambo have enough cash. (14/ 210: 6.7%) 2 yrs ago (44 / 390: 11.3%)	VII.1 Agricultural production	1	1	(See i. Agricultural production of Legambo increased.)										
	VII.2 People have enough income generating activities.	2	2	VII.2-1 People awareness and skill on I.G.A. improved.	VII.2-1-1 Training institutions work efficiently.	1	People have got awareness & skill.	Pipeline	X	XXX	X	(N) Marketing skill		
				VII.2-2 Strengthen TVET (Technical and Vocational Education Training).	VII.2-2-1 Strengthen TVET (Technical and Vocational Education Training).	2	Expansion of TVET / fulfill internal facilities	New Idea	X	XXX	X	(A) Teaching skill (N) Identification skill for internal facilities		
				VII.2-3 People have access to loans.	VII.2-3-1 Establish small scale enterprises.	1	People have got enough job.	Ongoing		XXX	X			
	VII.3 Farmers sell their produce at good price.	3	3	VII.2-3 People have access to loans.	VII.2-3-1 Strengthening & establishing micro finance / credit institutions.	1	Access to loan.	Ongoing			XXX		(N) Saving and credit skill	
				VII.3-1 People get enough market access.	VII.3-1-1 Strengthening cooperatives & infrastructures.	1	Access to market information.	Ongoing			XXX	XXX		
				VII.3-2 People produce quality produces.	VII.3-2-1 Market information access.	2	Farmers get actual market price.	New Idea	XXX	XXX	XXX	XXX		(N) Marketing information skill
				VII.3-2 People produce quality produces.	VII.3-2-1 Supply of improved seeds.	1	Resistance to pests to grow.	Ongoing			XXX	XX		(N) Seed selection skill

Approaches, Strategies, Programs and Projects of Legambo Woreda

6-7 Nov. 2008, 21 Feb. 2009 and 22-23 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Wurch	Dega	Woina Dega	
VII.4	People expenditure managed / is economical.	4	4	VII.4-1 Consumers get commodities at reasonable price.	VII.4-1-1 Increase suppliers and cooperatives.	1	Increase commodity supplies.	Ongoing	XXX	X	(A) Marketing	
				VII.4-2 Farmers / people get inputs at reasonable price.	VII.4-1-2 Produce more important production.	2	Use modern agriculture inputs & technology.	New Idea	XXX	XXX	(N) Cash crop production skill	
				VII.4-2 Farmers / people get inputs at reasonable price.	VII.4-1-3 Strengthen private merchants.	3	Private merchants organized	New Idea	XXX	XXX	(N) Business skill	
VII.5	People practicing saving system improved.	5	5	VII.5-1 Saving and credit institutions operation improved.	VII.4-2-1 Road construction.	1	Access to market.	Ongoing	XXX	XXX	(N) Surviving skill	
				VII.5-2 People get enough knowledge of saving.	VII.5-1-1 Develop skill of employers.	1	Customers satisfaction.	Ongoing	XXX	XX	(A) Human resource management	
				VII.5-3 Commercial expenditure of people for social affairs improved.	VII.5-1-2 Awareness creation for the people.	2	Wisely use economic.	New Idea	XXX	XXX	(N) Credit saving skill	
					VII.5-2-1 Training.	1	People save efficiently.	Ongoing	XXX	XX	(N) Business management	
					VII.5-3-1 Training on harmful traditional practices.	1	Awareness created.	Ongoing	XXX	XX		

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## Approaches, Strategies, Programs and Projects of Aregoba Woreda

18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy	Final Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get					
									Dega	Wolna Dega	Kolla						
I. Agricultural production of Aregoba is high. (71 / 291: 24.4%) 2 yrs ago (120 / 539: 22.3%)	I.1 Soil moisture is improved.	1	I.1-1 Enough water for production increased.	1	I.1-1-1 Awareness creation.	1	Training people for water conservation / organizing the people for utilization and training.	Pipeline	XXX	XXX	XXX	(N) Extension and communication skill					
					I.1-1-2 Improving agroecomic practice.	2	Introducing broad applying improved practices / compost preparation / tillage practice.	Pipeline	XXX	XXX	(N) Agronomy skill						
					I.1-1-3 Enhancing insitu moisture conservation measures.	3	Mulching practice / Intercropping Tillaging	Ongoing Pipeline	XXX	XXX							
					I.1-1-4 Constructing modern irrigation schemes.	4	Modern river diversion / construct lined canal and fkume.	Pipeline	XXX	XXX	(N) Water engineering skill						
					I.1-2-1 Soil and water conservation structure.	1	Site selection / material collection / awareness created.	Ongoing	XXX	XXX	(N) Water & soil conservation skill						
					I.1-2-2 Improving water management system.	2	Establishment of water users association.	Ongoing	XXX	XXX	(N) Water management skill						
					I.1-3-1 Water harvesting structure constructed.	1	Site selection / material collection / Facilitation of the structures.	Pipeline	XXX	X	(N) Skill of water harvesting technique						
					I.1-3-2 Modern irrigation scheme is established.	2	Site selection / skilled manpower / materials / equipment	New Idea	X	X	(N) Irrigation engineering skill						
					I.1-3-3 Experience sharing / Scale up.	3	Field visit / supervision	Ongoing	XXX	XXX							
					I.2 Pest infestation is reduced.	2	3	I.2-1 Crop agronomy & protection improved.	1	I.2-1-1 Farmers training on pest controlling mechanisms.	1	Manuals / equipment / FFS demonstration site / skilled manpower.	Ongoing	XX	XX	XX	(N) Skill of crop protection
										I.2-1-2 IPM (Integrated Pest Management) FFS is launched / established.	2		Ongoing	X	XX	X	
										I.2-1-3 Provision of diseases and pest resistant variety of seeds.	3	Introducing diseases and pests resistant / improved seeds	New Idea	XXX	XXX	XXX	

## Approaches, Strategies, Programs and Projects of Aregoba Woreda

18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy	Final Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get					
									Dega	Wolna Dega	Kolla						
I.3 Livestock production and productivity improved.	I.3 Livestock disease controlled.	3	I.3 Livestock disease controlled.	1	I.3-1-1 Give vaccination and awareness creation.	1	Livestock get enough vaccination and to aware the community about the importance of vaccination	Ongoing	X	XX	XXX	(A) Vaccination skill					
					I.3-1-2 Building veterinary clinic.	3	Stores equipments & medicine / Livestock get treatment.	Ongoing	XX	XXX	(N) Construction skill						
					I.3-1-3 Training of skilled manpower.	2	To solve the problem like livestock disease.	New Idea	XX	XXX	(N) Facilitation skill, training need assessment skill. Livestock disease assessment skill						
					I.3-1-4 Supply of medicine.	4	All livestock get treatment.	Ongoing	XX	XXX	(N) Skill of livestock medicine utilization						
					I.3-1-5 Training of community animal health workers (CAHW).	4	To provide community based veterinary service	New Idea	XXX	XXX	(N) Community animal health skill						
					I.3-2-1 Established livestock and product marketing.	1	To provide livestock and product marketing access.	New Idea	XXX	XXX	(N) Marketing skill						
					I.3 Livestock and livestock product marketing.	I.3 Livestock and livestock product marketing.	2	I.3 Livestock and livestock product marketing.	2	I.3-2-1 Established livestock and product marketing.	2	To provide livestock and product marketing access.	New Idea	XXX	XXX	XXX	(N) Marketing skill

## Approaches, Strategies, Programs and Projects of Aregoba Woreda

18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy	Final Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
I.4 Soil fertility is improved.	I.4 Soil fertility is improved.	4	I.4-1 Soil erosion reduced.  I.4-2 Afforestation increased.  I.4-3 Farmers use enough organic fertilizer.	1	I.4-1-1 Extension promotion.	1	Awareness creation about soil erosion for the community.	Ongoing	XXX	XXX	XXX	(N) Community / communication skill
					I.4-1-2 Training and experience sharing.	2	Training need assessment / manual preparation / experience sharing site selection / capacity building.	Pipeline	XXX	XXX	XXX	(N) Soil and water conservation
					I.4-1-3 Provision of sound land use system.	3	Proclamation of land use policy / manual preparation / training / community participation.	New Idea	XXX	XXX	XXX	(N) Land use and environmental protection
					I.4-1-4 Provision of bio-physical conservation measures.	4	Standardized implementation of physical structure / strengthened physical structure by biological conservation measures.	Ongoing	XXX	XXX	XXX	(N) Soil and water conservation
					I.4-2-1 Nursery site establishment.	1	Need assessment / species selection / site selection / availability of water & soil labor / need materials / manual preparation / training.	Ongoing	XXX	XXX	XXX	(N) Forestry development skill
					I.4-2-2 Introducing forest management system.	2	Educating people about forest policy / Training people about forest management practice / organize the people for proper utilization.	New Idea	XXX	XXX	XXX	(N) Forest production skill
					I.4-2-3 Introducing fuel saving technologies.	3	Manual preparation / training / awareness creation / implementation.	Pipeline	XXX	XXX	XXX	(N) Alternative energy utilization skill
					I.4-2-4 Provision of farm activities.	4	Need assessment / manual preparation / selection of target community / training / implementation credit / producing market facility.	Ongoing	XXX	XXX	XXX	(N) Cooperative and small enterprise skills.
					I.4-3-1 Training on compost preparation.	1	Preparing manuals / skilled manpower / site selection / collection of materials	Ongoing	XX	XX	XX	(N) Skill of soil fertility management
					I.4-3-2 Green manuring and compost preparation.	2			XX	XX	X	
					I.4-3-3 Farm yard manure utilization.	3			XXX	XXX	XXX	
					I.4-3-4 Application of inorganic fertilizers in irrigated areas.	4	Proper utilization / demand creation	New Idea	XXX	XXX	XXX	(N) Natural resource management skill

Approaches, Strategies, Programs and Projects of Aregoba Woreda

18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
I.5 Livestock forage improved.	I.5 Livestock get enough forage.	5	8	I.5-1 Livestock get enough forage.	1	I.5-1-1 Establishment & forage nursery site.	1	Improved livestock forage / to feed livestock properly.	Pipeline	XXX	XXX	XXX	(N) Forage development skill
						I.5-1-2 Controll & tree grazing.	2	Effective utilization of feed.	Pipeline	XXX	XXX	XXX	(A) Awareness of community worker
						I.5-1-3 Using cut and carry forage system.	3	To control livestock energy loss / to impeove feed habit.	Pipeline	XXX	XXX	XXX	(A) Training of manpower skill
I.6 Farmers practiced modern agricultural technologies / inputs.	I.6-1 Rising awareness about the new technologies.	6	4	I.6-1	1	I.6-1-1 Training on new technologies.	1	Manuals / equipment / Selected site / FTC / skilled manpower.	Pipeline	XX	XX	XX	(N) Skill of agriculture inputs and communication
				I.6-2 Operating development activities in demonstration site.	2	I.6-2-1 Demonstration site estabsheshment at FTC.	1		Pipeline	X	X	X	
I.7 Command irrigable area increased.	I.7-1 Farmers use irrigation water efficiently.	7	5	I.7-1 Farmers use irrigation water efficiently.	1	I.7-1-1 Training on irrigation	1	Manuals / equipment / skilled manpower	Ongoing	XX	XX	XX	(N) Skill of irrigation engineering
						I.7-1-2 Practicing new technologies for irrigation water application.	2	Farrow irrigation water application system. Applying drip irrigation / applying sprinkler irrigation.	Ongoing New Idea	XXX	XXX	XXX	(N) Water engineering skill
						I.7-1-3 Utilization of water (surface & ground) properly.	3	Pump irrigation. Pond construction / well construction (shallow & deep)	Ongoing Pipeline	XXX	XXX	XXX	(N) Water engineering skill
I.8 Improved livestock breed.	I.8-1 Improved local breed.	8	7	I.8-1 Improved local breed.	1	I.8-1-1 Crossing of local breed with exotic breed.	1	To increase the genetic potential of indigenous breed	New Idea	XXX	XXX	XXX	(N) Breeding skill

## Approaches, Strategies, Programs and Projects of Aregoba Woreda

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18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy	Priority	Program	Final Priority	Priority 2 yrs ago	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
										Dega	Wolna Dega	Kolla	
II. Infrastructure access of Aregoba improved. (56 / 291: 19.2%) 2 yrs ago (149 / 539: 27.6%)	II.1 Infrastructures constructed.	1	II.1-1 Road construction increased.	1	1	II.1-1-1 Constructing roads.	1	Main and feeder roads construction	Pipe line	XXX	XXX	XXX	(N)Design construction skill
						II.1-1-2 Promote investment on construction.	2	Investment skill	New idea	XXX	XXX	XXX	(N)Electricity engineering skill
						II.1-1-3 Road maintenance.	3	Main and feeder roads	New idea	XXX	XXX	XXX	(N) Mass mobilization, design construction skill
						II.1-2-1 Develop / Promote power supply investment. (Spread enterprises.)	1	Generator / solar energy / hydro electricity	On going + New idea	XXX	XXX	XXX	(N)Electricity engineering skill
			II.1-2-2 Constructing energy / power generating station.	2	2	Power station construction	2	Power station construction	New idea	XXX	XXX	XXX	(N)Energy source / mechanical energy / skill
			II.1-3 Telecom. structures construction increased.	3	3	II.1-3-1 Construct / build / telecom. station. II.1-3-2 Promote telecom. investment.	1 2	Mobile network / digital network / wireless network Budget collection	New idea New idea	XXX XXX	XXX XXX	XXX XXX	(N)ICT skills / technique (N)Skill of Mechanical energy
			II.1-4 Postal service	4	3	II.1-4-1 Building postal service offices.	1	Supply post office box / establish post agent	New idea			XXX	(N)Skills in postal service

## Approaches, Strategies, Programs and Projects of Aregoba Woreda

18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy / Priority	Final Priority	Priority 2 yrs ago	Program	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get											
								Dega	Wolna Dega	Kolla												
III. Health status of Aregoba people improved. (43 / 291: 14.8%) 2 yrs ago (101 / 539: 18.7%)	III.1 People get enough potable water.	1	1	III.1-1 Increase water supply coverage.	III.1-1-1 Water supply schemes construction.  III.1-1-2 Water quality control & treatment.  III.1-1-3 Establish & train water committee & beneficiaries.  III.1-1-4 Capacity building of woreda expert about practical solution.	Hand dug wells construction & spring development.  Shallow wells & deep wells construction.  Sanitation inspection / physical inspection / disinfection.  Bacteriological test.  Water committee establishment / water committee training / sanitation  To train short-term water professionals  Health education.	Ongoing  New Idea  Ongoing  Pipeline  Ongoing  Ongoing	XXX  XXX  XXX  XXX  XXX	XXX  XX  XXX  XXX  XXX	XXX  XXX  XXX  XXX  XXX	(N) Study & design, construction, supervision  (N) Water quality control, treatment  (A) Operation & maintenance  (N) Community mobilization  (N) Training practical knowledge  (N) Hygiene & sanitation  (N) Supervision											
												III.2-1 Environmental & personal hygiene improved.	III.2-1-1 To give training for health extension. III.2-1-2 Practicing preventive measures increased.	1	2	1	1	2	1	2	1	
												III.3-1 Increase awareness of the community about immunization & family planning.	III.3-1-1 To give training for health extension.	1	3	1	1	1	1	1	1	1



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## Approaches, Strategies, Programs and Projects of Aregoba Woreda

18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy / Priority	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
	III.4 People get enough knowledge on HIV/AIDS.	4	4	III.4-1 Increase awareness how to prevent HIV/AIDS.	III.4-1-1 Practicing preventive measures.	1	Abstain / be faithful / use condom	Ongoing	XXX	XXX	XXX	(N) Distribution of ART drug skill
							Promoting VCT service	Ongoing				
	III.5 People get proper medical care.	5	5	III.5-1 Capacity of health professionals increased.	III.5-1-1 To train short term health profession. (Short term training to health	1	Laboratory test / diagnosis / physical exam.	Ongoing	XXX	XXX	XXX	(N) Test, analysis, ethics of diagnosis
							Supplying of ART drug	New Idea				
							Health post construction / laboratory equipment / drug supply.	Ongoing				
					III.5-1-2 Experience sharing.	2						
					III.5-1-3 Health post construction & upgrading health center services.	3						

## Approaches, Strategies, Programs and Projects of Aregoba Woreda

18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy	Final Priority	Priority 2 yrs ago	Program	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get	
									Dega	Wolna Dega	Kolla		
IV. Environment of Aregoba protected. (36 / 291: 12.4%) 2 yrs ago (26 / 539: 4.8%)	IV.1 Natural resources conserved.	1	1	IV.1.1 Biodiversity conserved.	IV.1-1-1 Planting indigenous tree species.	1	Establishing indigenous nursery sites.	Pipeline	XXX	XXX	XXX	(N) Nursery management skill	
					IV.1-1-2 Reserving area for wild life and domestic animals. (Area closure)	2	Planting fuel wood species / improved stoves	New Idea	XXX	XXX	(A) Natural resource management skill		
					IV.1-1-3 Using alternative energy source.	3	Improved stoves	Ongoing	XXX	XXX	XXX	(A) Skill of alternative energy application	
					Biogas		New Idea	XX	XX	XX			
					Create awareness		Ongoing	XXX	XXX	XXX			
								Use solar energy	New Idea	XX	XX	XX	
			Awareness creation through experience sharing training.	Ongoing	XX	XX	XXX	(N) Skill of crop protection					
IV.2 Watershed conserved.	IV.2-1 Integrated watershed management.	2	2	IV.2-1-1 Create awareness.	IV.2-1-1-1 Create awareness.	2	Demonstrate on model watershed.	Pipeline	XXX	XXX	XXX	(N) Skill of integrated watershed management	
					IV.2-1-2 Implementing soil & water conservation	4	Construct physical & biological soil conservation.	Ongoing	XXX	XXX	XXX	(A) Soil & water conservation skill	
					IV.2-1-3 Implementation of agrosilvo postural system.	5	Control fee grazing / Forage development / Agroforestry / Insect & pest management.	Ongoing	XXX	XXX	XXX	(A) Animal production skill / Plant production skill	
					IV.2-1-4 Conducting EIA.	1	Prepare environmental impact assessment for all projects.	Ongoing	XXX	XXX	XXX	(N) Forest management skill	
					IV.2-1-5 Implementing land use planning.		3	Create awareness / prepare training / preparation of land use policy / manual	New Idea	XXX	XXX	XXX	(N) Environmental sciences skill
					IV.2-1-6 Disaster risk management.		6	Pre- and post- disaster mitigation measures	New Idea	XXX	XXX	XXX	(N) Land use & environmental protection (N) Skill of disaster risk management

## Approaches, Strategies, Programs and Projects of Aregoba Woreda

18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy	Final Priority Priority 2 yrs ago	Program	Priority	Project	Priority	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get					
									Dega	Wolna Dega	Kolla						
V. People of Aregoba are educated. (32 / 291: 11.0%) 2 yrs ago (86 / 539: 16.0%)	V.1 Access of education for all.	1	V.1-1 People get enough access to basic education.	1	V.1-1-1 School construction increased.	2	Extension of classroom for each primary school at each kebele.	Ongoing	XXX	XXX	XXX	(N) Construction skill					
			V.1-2 People get adult education.	2	V.1-1-2 People awareness about education increased.	1	At the end of the month people discuss about school environment.	Ongoing	XXX	XXX	XXX	(N) Supervision skill					
			V.1-3 People get higher education.	3	V.1-1-3 Safe and health school environment increased.	3	Facilitate 350 student desks.	Ongoing	XXX	XXX	XXX	(N) Designing skill					
			V.2-1 Promoting induction course.	1	V.1-2-1 Facilitator teachers increased.	1	Facilitator teach the community properly.	Pipeline	XXX	XXX	XXX	(A) Coordination skill					
			V.2 Quality of education for all.	2	2	V.2-1-1 Arranging facilitator in groups.	1	V.1-3-1 Construction of school for higher level education.	1	In 2009, one high school constructed in one kebele.	New Idea	XXX	XXX	XXX	(N) Laboratory equipment identification organizing skill		
						V.2-1-2 Distributing induction course books.	2	V.1-3-2 Facilitating degree teachers.	2								
						V.2-2 Training on work. (OJT)	2	V.2-1-1 Arranging facilitator in groups.	1	Around 40 teachers will promote induction course. (OJT)	Ongoing	XXX	XXX	XXX	(N) Summer program arrangement skill		
						V.2-3 Input provision.	3	V.2-2-1 Arranging summer course for teachers.	1	Around 22 teachers upgrade from certificate to diploma summer program.	Ongoing	XXX	XXX	XXX			
								V.2-2-2 Facilitating distance education for teachers.	2	To compute teachers with GPA, work experience.	Ongoing	XXX	XXX	XXX			
									V.2-3-1 Increasing teaching material like student books, reference books and laboratory equipment.	1	Distribute student books, laboratory equipment & reference books.	Ongoing	XXX	XXX	XXX		

Approaches, Strategies, Programs and Projects of Aregoba Woreda

18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy / Priority	Final Priority	Priority 2 yrs ago	Program	Priority	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get
									Dega	Wolna Dega	Kolla	
VI. Gender issues incorporated to all activities in Aregoba. (30 / 291: 10.3%) 2yrs ago (12 / 539: 2.2%)	VI.1 Harmful traditional practice controlled.	1	2	VI.1-1 Preparing society forum and establishing referral system.	1	VI.1-1-1 Separating harmful tradition from the society culture and developing a good culture.	Improve a good cultural habits / Supporting cultural and anti-HIV/AIDS clubs	Pipeline	XXX	XXX	XXX	(N) Understanding environmental situation and cultural skill
						VI.1-1-2 Giving training for those who work on the harmful traditional practice.	Society get awareness about harmful traditional practice	Pipeline	XXX	XXX	XXX	
	VI.2 Gender mainstreaming improved.	2	1	VI.2-1 Preparing gender analysis / preparing women forum.	1	VI.2-1-1 Training on gender equality & on harmful tradition.	Women get participation. Community get awareness about gender.	Ongoing	XXX	XXX	XXX	(A) Training, leadership
						VI.2-1-2 Developing / achieving women participation in development.	Women get motivation, competent enough / confidence.	Ongoing	XXX	XXX	XXX	
						VI.2-1-3 Organizing idle / nonworking / jobless females by cooperatives & by small micro enterprises.	Reducing jobless females. Improve the community cash / increase.	Pipeline	XXX	XXX	XXX	(N) Organizing
						VI.2-1-4 Support girls club.	Creation of awareness of female students / Increasing female education participation	Ongoing	XXX	XXX	XXX	(N) School management skill

## Approaches, Strategies, Programs and Projects of Aregoba Woreda

Aregoba - 11

18-19 Nov. 2008, 17-18 Feb. 2009 and 26-27 Nov. 2010

Approach	Strategy / Priority	Final Priority	Program	Project	Description / Components	Project Status	Priority by Agro-Climatic Zone (XXX=Top, XX=Medium, X=Lower)			Expertise (A)=Already have (N)=Need to get				
							Dega	Wolna Dega	Kolla					
VII. People of Aregoba have enough cash. (23/291: 7.9%) 2 yrs ago (45 / 539: 8.3%)	VII.1 People get enough access to jobs.	1	VII.1-1 People get enough alternative income generating activities.	VII.1-1-1 Constructing training institution. (line FTC) - social skill training center.	The community gets to have skill / enough skill.	New Idea	X	XX	XXX	(N) Design, construction				
				VII.1-1-2 Design financial management on administration system.	Community developed saving experience by control their income & expenditure.	New Idea	XXX	XXX	XXX	(A) Promotion / coach / training, financial management / promotion				
				VII.1-1-3 Training provision on IGA increased.	Increased their income.	Ongoing	XXX	XXX	XXX					
				VII.1-1-4 Shaping precious stones for ornamental purpose like; gypsum and opal.	Delivering machinery	New Idea	XX	XX	XXX	(N) Precious stone shaping skill				
				VII.1-1-5 Strengthening different social cooperatives.	Provide training	New Idea	XXX	XXX	XXX	(N) Cooperatives organizing skill				
				VII.2 Production of market oriented crops increased.	2	1	VII.2-1 People get enough market access.	VII.2-1-1 Establish, forming different institutions / line cooperatives / micro finance institutions.	Community gets loans & advanced services. Improved their cash / income, revenue.	Ongoing	XXX	XXX	XXX	(A) Promotion / forming, establish
								VII.2-1-2 Construct market, cooperative offices, warehouse and stores for cooperatives.	Improved market services / facilities. Using everlasting or long period for the products.	Ongoing	XXX	XXX	XXX	(N) Design, construction
								VII.2-1-3 Study, research on community social & economical background and benefit.	In order to have effective organization in the community.	Ongoing	XX	XXX	XXX	(A) Study, research
								VII.2-1-4 Constructing micro-finance institution like ACSI	Provides loan and advance Promote saving	New Idea	XXX	XXX	XXX	(N) Design, construction
										New Idea	XXX	XXX	XXX	
										New Idea	XXX	XXX	XXX	
										New Idea	XXX	XXX	XXX	
										New Idea	XXX	XXX	XXX	

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***F-1: Agricultural Promotion Component***

***F-2: Natural Resource Management Component***

***F-3: Livelihood Improvement Component***

***F-4: Activity Sheet of the Verification Project***

***F-5: Results of Final Participatory Evaluation***

***F-6: Relations of the Woreda Development Plan and Verification Project***

***F-1: Agricultural Promotion Component***

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## CHAPTER 1 Introduction

The verification activities for agricultural promotion (APVAs) under the Verification Project of the Study (the Development Study on the Improvement of Livelihood through Integrated Watershed Management in Amhara Region) were carried out in 2 years from 2009 to 2010 in the target 8 watershed (micro-watershed) of 8 food insecure woredas, Ebinate & Simada in the South Gonder Zone and Bugena, Gidan & kobo in the North Wollo Zone and Mekedela, Legambo & Aregoba in the South Wollo Zone. The verification activities under the Project are composed of 3 components of: i) agricultural promotion component, ii) natural resource management component and iii) livelihood improvement component.

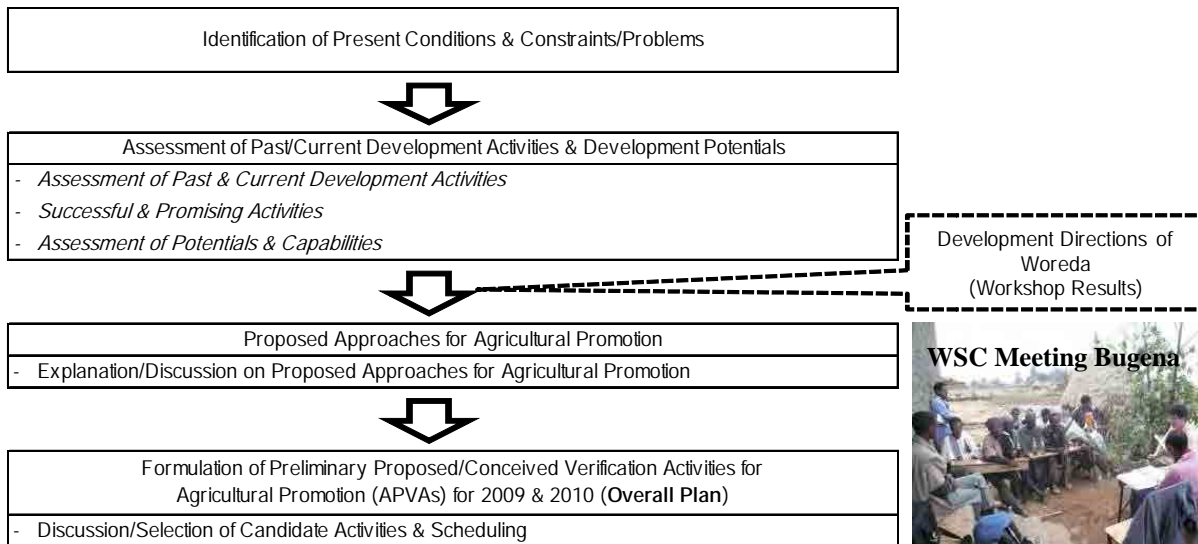
*The verification activities for agricultural promotion (APVAs) were planned and implemented: i) to verify the adoptability of the proposed approaches for agricultural promotion in the food insecure woredas introduced in the present Study as discussed in Chapter 2 of Appendix C-1 and C-2 (this report), ii) to assess the capabilities of WAOs and DAs for implementing APVAs and iii) to evaluate performances, results and findings of individual verification activities for agricultural promotion (APVAs) in the target watersheds and to extract lessons learned from the implementation of APVAs.*

		
Barley demonstration/Ebinate	Maize demonstration/Simada	Wheat Demonstration/Gidan
		
Roller compaction/teff/Bugena	Fruit planting/Bugena	Joint field guidance/Kobo
		
Field pea/simple trial/Mekedela	Barley/simple trial/Legambo	Demonstration single harness/Simada

## CHAPTER 2 Approaches for Formulation of Agricultural Verification Activities

### 2.1 Formulation of Overall Plan

The process employed for the formulation of verification activities for agricultural promotion (APVAs) for the study period (2009 & 2010) in the target watersheds are illustrated as follows;



**Figure 2.1.1 Process for Formulation of APVAs**

The formulation of the preliminary proposed/conceived verification activities for agricultural promotion was made through the participatory approach of stake holders, WAO, DAs, WS community & JICA Study Team. The proposed approaches for agricultural promotion in the target watersheds applied for the formulation is shown in Figure 2.1.2. In the formulation, the APVAs conceived and proposed by the Study Team include: **1) demonstration/verification plots, 2) simple adaptive trial, 3) fruit production and 4) forage development.** The participants and activities involved in the formulation processes are as below.



**Table 2.1.1 Land Holding Size in the Study Area (2001/02)**

Processes/Activities	Participants 1/
1. Preliminary discussion & data collection (at WAO) - Information on the target watershed (by WAO) - Information on present agriculture in watershed etc. - Preliminary Discussion - Basic concepts for APVAs under JALIMPS - Promising/required development interventions - Candidate/promising APVAs under JALIMPS	- WAO experts - Watershed DAs & supervisor - JICA Study Team
2. Field visit & site survey (at watershed & other sites) - Joint visit to target watershed - Field survey at sites for candidate/promising APVAs - Visit to reference sites (if any, ex. successful activities)	- WAO experts/JICA Study Team - Watershed DAs & supervisor - Watershed committee - Kebele administrator
3. Field Discussion for APVAs Formulation (at watershed) - Field discussion among stakeholders on APVAs - Constraints/problems in watershed - Candidate/promising/proposed APVAs under JALIMPS	- WAO experts/JICA Study Team - Watershed DAs & supervisor - Watershed committee - Kebele administrator
4. Preliminary APVAs Formulation (at WAO) - Candidate/promising APVAs under JALIMPS - Implementation arrangement (participants, team, group etc.) - Preliminary scheduling of APVAs (2009 to 2010, overall plan)	- WAO experts - Watershed DAs & supervisor - JICA Study Team

1/: Participants differed depending on woreda

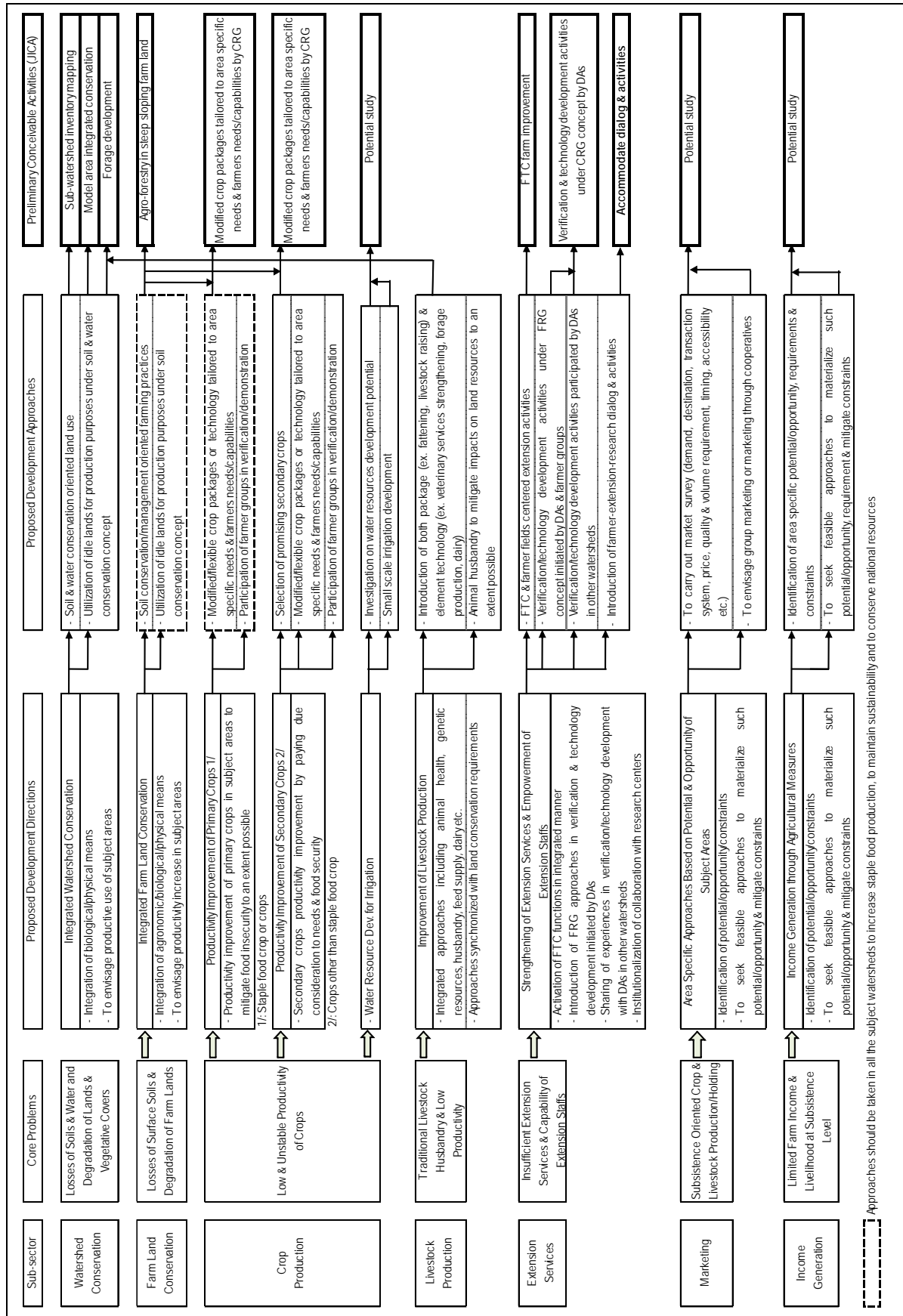


Figure 2.1.2 Proposed Approaches for Agricultural Promotion in the Target Watersheds

The preliminary plans have been scrutinized by the JICA Study Team based on technical practicability, capabilities of WAO/DAs, timing & assignment schedules of the Team, budget availability and other factors and the overall plans for the agricultural verification activities



in 2009 & 2010 have been formulated as the Overall Proposed &



Conceived Verification Activities for Agricultural Promotion (APVAs) in 2009 & 2010 (overall plan; formulated in February/March 2009 and reported in the Interim Report April 2009). A sample of the overall plan of APVAs formulated accordingly is presented in Table 2.2.1.

## 2.2 Formulation of Seasonal Plans

### (1) APVAs for Meher Season 2009

The meher season activities for 2009 planned in the overall plan (**Overall Proposed & Conceived Verification Activities for Agricultural Promotion in 2009 & 2010**) were selected as the APVAs for the meher season 2009. The APVAs implemented in the season are composed of 12 different activities and the total number of activities was 48.



### (2) APVAs for Belg Season 2009/10

The agricultural verification activities for the belg season 2009/10 were formulated through the formulation discussion held with the Technical Committee (TC) for JALIMPS in October/November, 2009. The formulation was made on the basis of the said **Proposed & Conceived Verification Activities in 2009 & 2010 (overall plan)**.



In the formulation, findings and results of the meher season 2009 activities and comments and requests of WS communities involved in the verification activities have been taken into account to an extent possible. The planned agricultural verification activities (APVAs) for the belg season 2009/10 were rather limited in number because the season is minor cropping season in the target woredas and composed of 11 different activities, 6 new activities and 5 activities introduced in the meher season 2009. The total number of the planned activities was 16.



**Table 2.2.1 Sample of Overall Proposed/Conceived APVAs**

Activities	2009												2010											
	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.			
	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd		
<b>FTC Farm Improvement</b>	Extension Service Strengthening Activity: Target Site: FTC: Activity Components: FTC farm land improvement for demonstration & trial activities, provision of farm tools etc.; Implementation: WAQIDA																							
Target Groups/Site: Activity Components: Implementation Arrangement etc.																								
<b>Demonstration/Verification Plot: Primary Crops</b>	cereals relay cropping (legume)																							
Target Groups/Site: Activity Components: Implementation Arrangement etc.	Extension Service Strengthening Technology Development Activity: Target Group & Site: CRG (Community Research Group) & farmers field: Implementation: CRG/DA supported by WAQOTST (Technical Support Team): Activity Components: Demonstration of integration of improved farming practices, cropping pattern (relay cropping), farm land conservation, soil management, forage production etc. & Farmer Field Days (FFD): Candidate Crops: cereals - wheat, teff, barley, legumes - vetch, cow pea, alfalfa; Site: Farmer's field																							
<b>Demonstration/Verification Plot: Secondary Crops</b>																								
<b>Adaptive Trial on Promising Crops &amp; Farming Practices</b>																								
Target Groups/Site: Activity Components: Implementation Arrangement etc.	Technology Development Activity: Target Group & Site: CRG & trial field: Implementation: CRG/DA supported by WAQOTST: Activity Components: Adaptive trial on nonpromising crops & farming practices: FFD: Candidate Crops: teff, upland rice, sweet potato, hitkale, sorghum (stija resistant variety), braga/green manure crops (vetch, alfalfa, cow pea) etc.; Candidate Farming Practices: strip planting, relay cropping, inter cropping, minimum zero tillage, BBM, tie ridger etc.; Site: Farmers field																							
<b>Preliminary Adaptive Trial on Agro-forestry</b>																								
<b>Fruit Production Campaign</b>																								
Target Groups/Site: Activity Components: Implementation Arrangement etc.	Income Generation Activity: Target Site: Home yard; Target Group: individual farmers: Implementation: Individual farmers/DA supported by WAQOTST: Provision of seedlings & farm inputs, technical guidance; Candidate Crops: fruit orange, lemon, mango, papaya, banana																							
<b>Small-scale Poultry Farming Promotion Package (Ex. P.)</b>																								
<b>Modern Bee Hive Package (Ex.)</b>																								
Target Groups/Site: Activity Components: Implementation Arrangement etc.	Income Generation Activity: Target Group: CRG or individual farmers; Implementation: CRG or farmers/DA supported by WAO: Activity Components: Provision of modern beehives with bee colony (under revolving arrangement)																							
<b>Forage Development</b>	trees/grasses seedlings legume seed																							
Target Groups/Site: Activity Components: Implementation Arrangement etc.	Forage Development Activity: Target Site & Group: Farmland, home yard, farm boundary etc. & individual farmers/ farmer group (FG); Implementation: Farmers or FG/DA/WAO: Activity Components: Provision of seedlings, seeds & guidance: Candidate Forage Plants: Bana grass, sesbania, velvet grass, vetch, alfalfa, elephant grass, cow pea, pigeon pea, tree Lucerne, chibena, sembelele etc.																							
<b>Hillside Forage Development</b>	trees/grasses seedlings legume seed																							
<b>Study Tour to Model Area</b>	study potential & practicability																							
<b>Silk Production</b>	Scheduling: Management by beneficiaries																							

1: As of March 18, 2009; Activities for 2010 shall be reviewed based on performances in 2009

(3) APVAS for Meher Season 2010

The formulation of the agricultural verification activities (APVAs) for the meher season 2010 were made in a similar manner with the formulation of the APVAs for the belg season 2009/10 through the discussion with the TC in individual WAOs held in October/November, 2009 and January/February, 2010. The planned VAs for the season consist of 12 different activities, 3 new activities and 9 nine activities introduced in the previous seasons. The total number of the planned activities was 32.

For the meher season 2010, no income generation sub-sector activities were planned because: i) most of such activities conceived in the overall plan for 2009 & 2010 were satisfactory carried out in the meher season 2009, ii) income generation activities are planned in the livelihood improvement component and iii) priority was placed on more agricultural promotion oriented activities within the limited budget allocation for APVAs.

In the season, the implementation of 4 simple trials in 4 woredas and 1 demonstration/verification plot is planned to be carried out by the Agricultural Research Centers (Adet & Sirinka ARCs) under the collaboration with WAOs/DAs, aiming at transferring of trial skills to WAOs/DAs and ensuring quality improvement of the activity. Further the technical guidance & support activities of Bahir Dar Agricultural Mechanization & Food Science Research Center (BAMaFSRC) and Bahir Dar Fishery & Other Aquatic Life Research Center (BAFOALRC) were accommodated in the APVAs in the season.

		
Barley plot by Adet/Ebinate	Barley plot by Sirinka/Legambo	Demonstration by BAMaFSRC
		
Teff plot by Adet/Ebinate	Fish pond, Mekedela	Compaction roller by BAMaFSRC
		
Teff plot by Sirinka/Legambo	FFD by Adet/Ebinate	Demonstration by BAMaFSRC



## CHAPTER 3 Overall Features of Agricultural Verification Activities

As discussed in the preceding chapters, the verification activities for agricultural promotion (APVAs) in the 8 target watersheds in the 8 woredas of Ebinate, Simada, Bugena, Gidan, Kobo, Mekedela, Legambo and Aregoba were implemented in the 3 seasons of 2009 meher season, 2009/10 belg season and 2010 meher season. The APVAs consist of: 1) agricultural promotion activities implemented by WAO, 2) the APVAs of inter-woreda nature and 3) the same carried out by the agricultural research centers. The overall features of the APVAs implemented under the Verification Project are summarized in the followings.

### 3.1 APVAs Implemented by WAO

The APVAs implemented by WAO in the target 8 woredas in the 3 seasons of 2009 meher season, 2009/10 belg season and 2010 meher season are as follows;

#### 3.1.1 APVAs Implemented in Ebinate Woreda

The APVAs implemented at the Silasiemesk watershed in Ebinate are 10 different activities and 13 APVAs in total as follows;

**Table 3.1.1 APVAs Implemented in Ebinate Woreda**

Activity	Season			Total
	2009 Meher	2009/10 Belg	2010 Meher	
1. Demonstration/Verification Plot: Primary Crops	○ (2 plots)		○ (3 plots)	2 (5 plots)
2. Simple Trial on Promising Crops & Farming Practices			△	1
3. Fruit Production Campaign	○		○	2
4. Hillside Forage Development	○			1
5. Sheep Breed Improvement	○			1
6. Introduction of AI Service		○		1
7. Inset Processing Training		○		1
8. Women Association Strengthening		○		1
9. Modern Bee Hive Package	○			1
10. FTC Farm Improvement	○	○		2
No. of Activities Implemented	6	4	3	13

○ Activity implemented in the subject woreda

△ Activity carried out in collaboration with Adet ARC

#### 3.1.2 APVAs Implemented in Simada Woreda

The APVAs implemented at the Woiraye watershed in Simada are 9 different activities and 11 APVAs in total as follows;

**Table 3.1.2 APVAs Implemented in Simada Woreda**

Activity	Season			Total
	2009 Meher	2009/10 Belg	2010 Meher	
1. Demonstration/Verification Plot: Primary Crops	○ (3 plots)		○ (4 plots)	2 (7 plots)
2. Simple Trial on Promising Crops & Farming Practices	○			1
3. Fruit Production Campaign	○			1
4. Forage Development (surround of farmland)	○		○	2
5. Hillside Forage Development			○	1
6. Sheep Breed Improvement		○		1
7. WS Community Vegetable Nursery Development		○		1
8. Modern Bee Hive Package 1/	○			1
9. FTC Farm Improvement	○			1
No. of Activities Implemented	6	2	3	11

○ Activity implemented in the subject woreda

1/: Implemented in 2010

### 3.1.3 APVAs Implemented in Bugena Woreda

The APVAs implemented at the Keyberet watershed in Bugena are 11 different activities and 15 APVAs in total as shown in the following table.

**Table 3.1.3 APVAs Implemented in Bugena Woreda**

Activity	Season			Total
	2009 Meher	2009/10 Belg	2010 Meher	
1. Demonstration/Verification Plot Primary Crops	○ (3 plots)		○ (3 plots)	2 (6 plots)
2. Simple Trial on Promising Crops & Farming Practices	○		○	2
3. Fruit Production Campaign			○	1
4. Preliminary Trial on Agro-forestry	○			1
5. Sunflower Production	○			1
6. Forage Development (surround of farmland)	○		○	2
7. Hillside Forage Development			○	1
8. Kebele Veterinary Agent Training		○		1
9. Sheep Fattening	○			1
10. Modern Bee Hive Package	○			1
11. FTC Farm Improvement	○	○		2
No. of Activities Implemented	8	2	5	15

○ Activity implemented in the subject woreda

### 3.1.4 APVAs Implemented in Gidan Woreda

The APVAs implemented at the Tenjo watershed in Gidan are 10 different activities and 14 APVAs in total as follows;

**Table 3.1.4 APVAs Implemented in Gidan Woreda**

Activity	Season			Total
	2009 Meher	2009/10 Belg	2010 Meher	
1. Demonstration/Verification Plot Primary Crops	○ (2 plots)	○ (2 plots)	○ (3 plots)	3 (7 plots)
2. Demonstration/Verification Plot Secondary Crops			○ (1 plot)	1 (1 plot)
3. Simple Trial on Promising Crops & Farming Practices	○		○	2
4. Preliminary Trial on Agro-forestry			○	1
5. Forage Development (surround of farmland)	○			1
6. Hillside Forage Development			○	1
7. Sheep Fattening	○			1
8. Modern Bee Hive Package	○			1
9. Small-scale Poultry Farming Promotion		○		1
10. FTC Farm Improvement	○		○	2
No. of Activities Implemented	6	2	6	14

○ Activity implemented in the subject woreda

### 3.1.5 APVAs Implemented in Kobo Woreda

The APVAs implemented at the Amid watershed in Kobo are 8 different activities and 9 APVAs in total.

**Table 3.1.5 APVAs Implemented in Kobo Woreda**

Activity	Season			Total
	2009 Meher	2009/10 Belg	2010 Meher	
1. Demonstration/Verification Plot Primary Crops 1/	○ (3 plots)		○ (7 plots)	2 (10 plots)
2. Simple Trial on Promising Crops & Farming Practices	○			1
3. Hillside Forage Development	○			1
4. Sheep Breed Improvement 2/	○			1
5. Introduction of AI Service			○	1
6. Modern Bee Hive Package 2/	○			1
7. Small-scale Poultry Farming Promotion		○		1
8. FTC Farm Improvement	○			1
No. of Activities Implemented	6	1	2	9

○ Activity implemented in the subject woreda

1/: Activity in 2010 was implemented in collaboration with Sirinka ARC  
2/: Implemented in 2010 Meher

### 3.1.6 APVAs Implemented in Mekedela Woreda

The APVAs implemented at the Tebi watershed in Mekedela are 8 different activities and 13 APVAs in total as shown in the following table.

**Table 3.1.6 APVAs Implemented in Mekedela Woreda**

Activity	Season			Total
	2009 Meher	2009/10 Belg	2010 Meher	
1. Demonstration/Verification Plot: Primary Crops	○ (2 plots)	○ (8 plots)		2 (10 plots)
2. Simple Trial on Promising Crops & Farming Practices	○	○	△	3
3. Fruit Production Campaign			○	1
4. Forage Development (surround of farmland)	○			1
5. Sheep Breed Improvement	○		○	2
6. Small-scale Fish Farming			○	1
7. Small-scale Poultry Farming Promotion	○			1
8. FTC Farm Improvement	○		○	2
No. of Activities Implemented	6	2	5	13

○ Activity implemented in the subject woreda

△ Activity implemented in collaboration with Sirinka ARC

### 3.1.7 APVAs Implemented in Legambo Woreda

The APVAs implemented at the Assoye watershed in Legambo are 7 different activities and 9 APVAs in total as follows.

**Table 3.1.7 APVAs Implemented in Legambo Woreda**

Activity	Season			Total
	2009 Meher	2009/10 Belg	2010 Meher	
1. Demonstration/Verification Plot: Primary Crops		○ (2 plots)		1 (2 plots)
2. Simple Trial on Promising Crops & Farming Practices	○		△	2
3. Fruit Production Campaign			○	1
4. Forage Development (surround of farmland)	○			1
5. Hillside Forage Development	○			1
6. Sheep Breed Improvement			○	1
7. FTC Farm Improvement	○	○		2
No. of Activities Implemented	4	2	3	9

○ Activity implemented in the subject woreda

△ Activity implemented in collaboration with Sirinka ARC

### 3.1.8 APVAs Implemented in Aregoba Woreda

The APVAs implemented at the Senbo watershed in Aregoba are 7 different activities and 11 APVAs in total as follows.

**Table 3.1.8 APVAs Implemented in Aregoba Woreda**

Activity	Season			Total
	2009 Meher	2009/10 Belg	2010 Meher	
1. Demonstration/Verification Plot: Primary Crops			not implemented	
2. Simple Trial on Promising Crops & Farming Practices	○ (2 sites)		△ (2 sites)	4
3. Preliminary Trial on Agro-forestry	○			1
4. Forage Development (surround of farmland)	○			1
5. Veterinary Service Strengthening		○		1
6. IPM Training			○	1
7. Small-scale Poultry Farming Promotion	○			1
8. FTC Farm Improvement	○		○	2
No. of Activities Implemented	6	1	4	11

○ Activity implemented in the subject woreda

△ Activity implemented in collaboration with Sirinka ARC

### 3.2 Support Activities by Agricultural Research Centers

#### 3.2.1 Inter-woreda APVAs

Aiming at the institutionalization of cooperation of research institutes in the implementation of agricultural verification activities, the technical guidance and training activities of the Adet Agricultural Research Center (ARC) for the target woredas in the western part of the Study Area and the Sirinka ARC for the eastern target woredas are accommodated in the APVAs as the inter-woreda activities in the meher season 2009.



##### (1) Integrated Crop Management (ICM) Training

The ICM Training by the Sirinka ARC for woreda crop experts, crop DAs and supervisors was held at Weldia as shown in the following table.

**Table 3.2.1 ICM Training by Sirinka Research Center**

Subject	Crop management, crop improvement (seed production), pest management
Date & Place	June 30th– July 2 <sup>nd</sup> , 2009 at Weldia
Participants	18 participants (Bugena 3, Gidan 3, Kobo 4, Mekedela 4, Legambo 4)
Topics	Cereal crop production management, pulse & oil crops production management, agronomic management for crop improvement, pest management

##### (2) Field Guidance by Research Centers

The field guidance by the Adet & Sirinka ARC was carried out as follows;

**Table 3.2.2 Field Guidance by Research Center**

Adet RC	Field guidance in Ebinata & Simada WSSs
Sirinka RC	Joint Field Guidance held at Kobo; field guidance in Gidan, Bugena, Kobo, Mekedela & Aregoba WSSs

##### (3) Joint Field Guidance by JICA & Sirinka ARC

The Joint Field Guidance for the eastern 5 woredas on the operation of demonstration /verification plot & simple trial plot was carried out by the JICA Study Team and the Sirinka ARC in WAO Kobo and the Kobo target WS by inviting representatives of 5 woredas as follows;



**Table 3.2.3 Joint Field Guidance**

Objective	Provision of guidance on row/regular planting using marsha, Guidance on monitoring forms on APVAs, Guidance on formulation of APVAs for the next belg season	
Date & Place	June 27th – 28 <sup>th</sup> , 2009 at Kobo WAO & target watershed	
Participants	22 participants (Gidan 4, kobo 5, Mekedela 4, Legambo 4, Aregoba 5)	
Agenda	June 27	Guidance on monitoring forms on APVAs Guidance on formulation of APVAs for the next belg season Updated schedules for APVAs
	June 28	Field practical guidance on row planting (upland rice) & regular planting (field pea)

### 3.2.2 APVAs Implemented by Research Centers

Aiming at the institutionalization of cooperation of research institutes for the implementation of agricultural verification activities and for strengthening the research-extension linkage, the technical guidance and support activities of the agricultural research centers are accommodated in the APVAs for the meher season 2010. The research institutes involved in such support and guidance include: Adet ARC, Sirinka ARC, Bahir Dar Agricultural Mechanization & Food Science Research Center (BAMaFSRC) and Bahir Dar Fishery & Other Aquatic Life Research Center (BAFOALRC). The activities by the research centers are summarized in the following table.

**Table 3.2.4 Support Activities by Agricultural Research Centers in Meher Season, 2010**

ARC	Activity in Meher, 2010
Adet ARC	Implementation: simple trial in collaboration with WAO Ebinate
Sirinka ARC	Implementation: simple trial in collaboration with WAO Mekedela,/Legambo/Aregoba & demonstration plots in Kobo
BAMaFSRC	Preparation & preliminary demonstration on single ox harnessing system at Ebinate & Simada
	Preparation of a compaction roller for teff planting
BAFOALRC	Preliminary survey for small-scale fishery development in Tebi WS of Mekedela Woreda
	Field guidance on small-scale fish farming in Tebi WS

### 3.3 Overall Features of Agricultural Verification Activities

The APVAs implemented in the meher season 2009, belg season 2009/10, meher season 2010 and the overall features are as follows;

**Table 3.3.1 APVAs Implemented by Season & Overall Features**

Activity	No. of APVAs Implemented			
	Season			Total
	2009 Meher	2009/10 Belg	2010 Meher	
1. Demonstration/Verification Plot: Primary Crops	6 (15 plots)	3 (12 plots)	6 (21 plots)	15 (48 plots)
2. Demonstration/Verification Plot: Secondary Crops			1 (1 plot)	1 (1 plot)
3-1. Simple Trial on Promising Crops & Farming Practices	8	1	2	11
3-2. Simple Trial (in collaboration with ARCs)			5	5
4. Fruit Production Campaign	2		4	6
5. Preliminary Trial on Agro-forestry	2		1	3
6. Sunflower Production	1			1
7. Forage Development (surround of farmland)	6		2	8
8. Hillside Forage Development	3		3	6
9. Sheep Breed Improvement	3	1	2	6
10. Small-scale Fish Farming			1	1
11. Introduction of AI Service		1	1	2
12. Veterinary Services Strengthening		1		1
13. Kebele Veterinary Agent Training		1		1
14. Inset Processing Training		1		1
15. IPM Training			1	1
16. WS Community Vegetable Nursery Development		1		1
17. Women Association Strengthening		1		1
18. Sheep Fattening	2			2
19. Modern Bee Hive Package	5			5
20. Small-scale Poultry Farming Promotion	2	2		4
21. FTC Farm Improvement	8	3	3	14
No. of Activities Implemented	48	16	32	96

As shown in the table, the numbers of APVAs implemented by WAO are 48, 16 and 32 activities respectively in the meher season 2009, belg season 2009/10 and meher season 2010. In total, 21 different activities and cumulatively 96 activities for agricultural promotion (APVAs) were implemented by WAO in the 8 target watersheds under the Verification Project.

## CHAPTER 4 Approaches for Formulation of Agricultural Verification Activities

### 4.1 Overall Features

Almost all the agricultural verification activities for the meher season 2009 were carried out as planned although the implementation of almost all of the activities is rescheduled to be carried out or started in July, 2009, specifically from the beginning of July to the middle of July, mainly due to the delay of commencement of rainy season and partly because of the delay in the procurements of planting materials and in the provision of activity funds for WAO. The implementation schedules of the agricultural verification activities are summarized as presented in the following figure.



Woreda/Activity	June			July			August			September			October			November			December			
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	
<b>Ebinate</b>																						
Demonstration/Verification Plot			barley	S	S	teff				barley	H				H	teff						
Fruit Production Campaign						P																
Hillside Forage Development							P															
Sheep Breed Improvement								Pr														
Modern Bee Hive Package									Pr													
<b>Simada</b>																						
Demonstration/Verification Plot			wheat/triticale			S	teff						wheat/triticale	H					H	teff		
Simple Trial on Promising Crops		S			S								H									
Fruit Production Campaign							P															
Forage Development (surround farmland)							P															
Modern Bee Hive Package	carried out in the 2010 meher season.																					
<b>Bugena</b>																						
Demonstration/Verification Plot	barley	S	S	wheat	S	teff				lentil	H		barley	H				wheat	H	teff		
Simple Trial on Promising Crops		lentil	S	S	faba beans/haricot beans							H	H	faba beans/haricot beans								
Preliminary Trial on Agro-forestry						P																
Sunflower Production				S																		
Forage Development (surround farmland)					S																	
Sheep Fattening														Pr								
Modern Bee Hive Package								Pr							H							
<b>Gidan</b>																						
Demonstration/Verification Plot				wheat/barley	S															Jan./Feb.	H	
Simple Trial on Promising Crops					S	wheat/barley/faba beans/lentil										H	wheat/barley					
Forage Development (surround farmland)						P																
Modern Bee Hive Package							Pr															
Sheep Fattening								Pr														
<b>Kobo</b>																						
Demonstration/Verification Plot		sorghum/maize	S		S	teff				maize	H			teff	H			H	sorghum			
Simple Trial on Promising Crops		up. rice	S		S	maize/groundnut								H	maize							
Hillside Forage Development						P																
Sheep Breed Improvement	carried out in the 2010 meher season (June 2010)																					
Modern Bee Hive Package	carried out in the 2010 meher season (May 2010)																					
Farm Input Supply Credit	not implemented (missed planting time)																					
<b>Mekedela</b>																						
Demonstration/Verification Plot		wheat/teff	S																wheat	H	H	teff
Simple Trial on Promising Crops			S	maize/teff/faba beans/field pea/lentil									faba beans	H					others	H		
Forage Development						S																
Sheep Breed Improvement																				Pr		
Small-scale Poultry Farming Promotion							Pr															
Modern Bee Hive Package	not implemented (sheep improvement carried out instead)																					
<b>Legambo</b>																						
Simple Trial on Promising Crops				S	wheat/barley/lentil/faba beans									barley	H	H	faba beans				wheat	
Forage Development (surround farmland)						S																
Hillside Forage Development							P															
<b>Areghoba</b>																						
Simple Trial on Promising Crops	Lower WS			S	sorghum/maize/haricot beans/groundnut/teff									teff	H		maize	H	H	others		
	Upper ES			S	maize/wheat/soybeans																	
Preliminary Trial on Agro-forestry							P															
Forage Development				S																		
Small-scale Poultry Farming Promotion	implemented in July, 2010																					

Figure 4.1.1 Implementation Schedules of Verification Activities, Meher Season 2009

The descriptions of the activities, their implementation schedules and the results/findings of individual verification activities are summarized in the followings.

## 4.2 Ebinate Woreda

In the Ebinate target watershed (WS), all the planned verification activities were carried out from July to October, 2009 except for maize cropping under the Demonstration/Verification Plot and Farm Input Supply Credit, which were cancelled because of missing planting time. The descriptions, schedules and results/findings are as follows;



### (1) FTC Farm Improvement

The procurement of farm tools, other tools & equipment, farm inputs and others of the captioned activity was carried out by both ORDA and WAO.

### (2) Demonstration/Verification Plot: Primary Crops

Establishment of demonstration/verification plots for the productivity improvement of primary crops.

#### 1) Activity Description

Target Group & Site	CRG (Community Research Group) & members fields
Beneficiaries	2 CRGs; 1 CRG (1 leader & 4 members); 2 CRGs x 5 members = 10 members
Target Crop & Plot Size	barley (local) 1 plot 0.18ha & teff (DZ 0196) 1 plot 0.2ha, total 2 plots 0.38ha
Planting Method	barley – broadcasting; teff – broadcasting
Teff Sub-plot	improved practices (seed rate 15kg/ha) & farmers practices (seed 22kg/ha)
Fertilizer	improved practices: DAP 100kg/ha, Urea 50kg/ha

#### 2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Sub-plot	Crop Performance 1/
Barley	July 2	Sep. 15	-	not satisfactory
Teff	July 20	Oct. 28	improved practices	more than satisfactory/farmers practices
			farmers practices	more than satisfactory

1/: Satisfactory – crop performances better to far better than average farmers field; not satisfactory – similar to average farmers fields

#### 3) Results & Findings

- Crop performances of teff were very well in both the sub-plots. However, the growth in the improved practices sub-plot (seeding rate 15kg) was better than the same in the farmers practices (seeding rate 22kg) as expected, which indicate the possibility to reduce seeding rate at least when improved seeds are used.



- Yield data obtained from the crop cut surveys conducted by WAO/DAs are: teff improved practices 1.4 t/ha; teff farmers practices 1.1 t/ha & barley plot 0.6 t/ha. (CACC 2001/02 woreda

yield: teff 0.72t/ha, barley 0.85t/ ha<sup>1</sup>)

- Barley planting was done without DAs guidance; close communication with CRG to be kept.
- Maize demonstration was cancelled because of delay in seed delivery by ORDA.

### (3) Fruit Production Campaign

Provision of fruit seedlings to families in the watershed (priority to food insecure families).

#### 1) Activity Description

Target Group & Site	CRG & members home yards
Beneficiaries	6 CRGs x 5 members = 30 members
Fruit Trees	mango, orange, guava, kashimere, papaya (each 60 seedlings)
No. of Seedlings Provided	10 seedlings per beneficiary 50 seedlings/CRG; 300 seedlings in total

#### 2) Schedule

Provision of Seedlings	July 29, 2009	Planting	July 30, 2009
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#### 3) Status & Findings

- Seedlings other than mango & orange were supplied from the WAO fruit nursery. Mango & orange seedlings were supplied by ORDA.



- Survival rates of fruit trees at about 3 months after planting are estimated at around 60% for all fruit trees (reported by WAO).

### (4) Hillside Forage Development

Provision of forage plant seedlings for promoting forage development in hillside areas in the watershed.

#### 1) Activity Description

Target Site	Hilly areas (non-farmland, communal land, bare land, gully area etc.)
Target Group	WSC (Watershed Community)
Forage Plants	sesbania, <i>Acacia saligna</i> , <i>Cordial africana</i> , vetivel grass
No. of Seedlings Provided	sesbania 21,700, acacia saligna 7,000, cordial 1,000, vetivel 500

#### 2) Schedule

Provision of Seedlings	July 29, 2009	Planting	Aug. 3, 2009
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#### 3) Status & Findings

- Reportedly, the survival rates of forage plants at about 3 months after planting were estimated at 75% for sesbania, 42% for vetivel grass, 75% for *Acacia saligna* & 73% for *Cordia africana*.
- The survival rates of plants were adversely affected by shortage of rainfall after planting and also

<sup>1</sup> Ethiopian Agricultural Sample Enumeration, 2001/02, CACC



by delay in planting time.

#### (5) Sheep Breed Improvement

Provision of improved breed of rams (wasera breed) to beneficiaries; free crossing services provided by beneficiaries to other farmers in the watershed.

##### 1) Activity Description

Target Group	10 farmers
Package	1 male of wasera breed (ram) per beneficiary; total 10 rams

##### 2) Schedule

Training	Aug. 12 & 20, 2009	Provision of Ram	Aug. 9 & 16, 2009
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##### 3) Status, Findings & Lesson Learned

- Crossing services started from August, 2009. No. of pregnant ewes are reported to be about 60 as of end of December, 2009.
- *AS of October 2010, 78 lambs were cross-breed. The market price of cross breed lamb was 1.5 times higher than the same of local breed.*
- WAO and DAs have enough experiences for implementing the subject activity as planned.



#### (6) Modern Bee Hive Package

Provision of modern beehives with colony to families in the watershed (priority to food insecure families).

##### 1) Activity Description

Target Group	10 farmers
Package	1 set of modern bee hive with colony

##### 2) Schedule

Training	Aug. 3 - 4, 2009	Provision of Bee Hive	Aug. 11, 2009
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##### 3) Status, Findings & Lesson Learned

- Reportedly, all hives with colonies are kept in good conditions as of end December, 2009.
- WAO and DAs have sufficient experiences for implementing the subject activity as planned.
- Beneficiaries of the activity are those who have traditional bee hives. Measures to disseminate apiculture to farmers who have no bee hives should better be sought.



### 4.3 Simada Woreda

In the Simada target WS (watershed), all the planned verification activities were carried out from June to December, 2009 except for Modern Bee Hive Package which was carried out in the 2010 meher season. The descriptions, schedules and results/findings are as follows;



(1) FTC Farm Improvement

The procurement of farm tools, other tools & equipment, farm inputs and others of the captioned activity was carried out by both ORDA and WAO.

(2) Demonstration/Verification Plot: Primary Crops

Establishment of demonstration/verification plots for the productivity improvement of primary crops.

1) Activity Description[refer to 4.2 (2)]

Target Group & Site	CRG (Community Research Group) & members fields
Beneficiaries	3 CRGs; 3 CRGs x 5 members = 15 members
Target Crop & Plot Size	wheat (HAR 1685) 1 plot 0.15ha, triticale (local) 1 plot 0.17ha, Teff (DZ 0196) 1 plot 0.2ha, total 3 plots 0.52ha
Planting Method	wheat & triticale – row planting/broadcasting; teff – broadcasting
Sub-plot	wheat/triticale: row planting + improved practices; broadcasting + improved practices or farmers practices teff: broadcasting + improved practices or farmers practices
Fertilizer	improved practices: DAP 100kg/ha, Urea 50kg/ha

2) Copping Schedule & Crop Performance

Crop	Sowing	Harvesting	Sub-plot	Crop Performance
Wheat	June 16	Oct. 22	row+improved	satisfactory
			broacast+improved	satisfactory
			farmers practices	satisfactory
Triticale	June 16	Oct. 22	row+improved	satisfactory
			broacast+improved	satisfactory
			farmers practices	satisfactory
Teff	July 13	beg. of Dec.	broacast+improved	more than satisfactory
			broacast+semi-improved 1/	more than satisfactory
			farmers practices	more than satisfactory

1/: volume of fertilizer - 1/2 fertilizers of improved practices

3) Results & Findings

- Demonstrations/verifications of 3 crops were successfully carried out, although it appeared that weeding in wheat & triticale plots was insufficient judging from weed infestation at maturing stage.

- Growth of teff was excellent. WAO/DAs crop cut survey yields of teff: improved practices 200%, semi-improved 170%, farmers practices 100% (reported in proportion (%) because yield figures presented are doubtful).

- Distances between rows prepared by marsha with wooden blade were 30 to 40 cm, minimum + 30 cm. Row preparation by marsha is appropriate for row planting of wider spacing crops such as maize, sorghum, potato & some pluses. However, the recommended row space for cereals (wheat, barley, triticale & upland rice) is + 30 cm. The possibility of row making by a marsha with narrow



wooden blade is to be tested. Improvement of row planting by marsha should be envisaged to attain narrower spacing between rows for the cereals.

- Marsha can be used for earthening-up & weeding practices of wider spacing crops. However, drafting tool (yoke) towed by an ox to be introduced to avoid damages caused to crops by stamping of a pair of oxen (planned as verification activity in the meher season 2010).

### (3) Simple Trial on Promising Crops & Farming Practices

Establishment of a simple trial plot operated by DAs in collaboration with farmer groups.

#### 1) Activity Description

Target Group & Site	CRG (Community Research Group) & members field
Beneficiaries	1 CRG ; 1 CRG x 5 members = 5 members
Target Crop	cereals: malt barley (HB-533, Miscal 21), sorghum (Hormat), upland rice (NERCA 4) pluses: haricot beans (roba 1, awash 1), faba beans (degage), cow pea (ICPC), field pea (Adet 1 & Sefinish), groundnut (NC-4X); tuber crop: potato (zegena)
Planting Method	row planting
Fertilizer	DAP 100kg/ha, Urea 50kg/ha

#### 2) Copping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Barley	June 16	Oct. 8	satisfactory (initial stage wet injury)
Upland rice	June 16	not matured	not adapted
Field pea, haricot beans, potato	June 16	Oct. 8	not satisfactory
Groundnut, faba beans, cow pea	July 15	Oct. 8	not satisfactory
Sorghum	July 16	not matured	poor

#### 3) Results & Findings

- Barley only showed satisfactory crop performances in spite of wet injury occurred in the initial growth stage.
- Upland rice (NERICA 4) & sorghum (Hormat; low to mid land variety) were not adaptable.
- Further trials on other crops required to examine adaptability.
- Weeding was not carried out as scheduled because of delay in disbursement of labor costs.



### (4) Fruit Production Campaign

#### 1) Activity Description[refer to 4.2 (3)]

Target Group & Site	CRG & members home yards
Beneficiaries	6 CRGs x 5 members = 30 members
Fruit Trees	mango, orange, (each 150 seedlings)
No. of Seedlings Provided	9-10 seedlings per beneficiary; 10 seedlings for WAO 300 seedlings in total

#### 2) Schedule

Provision of Seedlings	July 25, 2009	Planting	July 25, 2009
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3) Status & Findings

- Survival rates of fruit trees at about 3 months after planting were estimated at around 80% for orange & 64% for mango (reported by WAO).
- As of October, 2010 (about 14 months after planting), beneficiaries reported that growths of oranges are better than those of mangos.
- Fruit production skills of DAs/Crop Experts to be improved further.



(5) Forage Development (surround of farm land)

Provision of forage plant seedlings for promoting forage development in the watershed.

1) Activity Description

Target Group & Site	15 farmers & surround of their farm lands
Forage Plants	sesbania, tree lucerne, elephant grass
No. of Seedlings Provided	150 seedlings/farmer (50 x 3 forage plants); 2,250 seedlings in total

2) Schedule

Provision of Seedlings	July 25, 2009	Planting	July 25, 2009 ~
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3) Status & Findings

- Survival rates of forage at about 3 months after planting were estimated at 71% for sesbania, 57% for tree lucerne & elephant grass 44% (reported by WAO).
- Higher adaptability of sesbania compared with tree lucerne & elephant grass reported.

(6) Modern Bee Hive Package

1) Activity Description[refer to 4.2 (6)]

Target Group	10 farmers
Package	1 set of modern bee hive with colony

2) Schedule

Training	July 2-6, 2009	Provision of Bee Hive	meher season 2010
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3) Status & Findings

- .The implementation was rescheduled to the meher season 2010 because of difficulty in procurement of bee colony.
- Procurements of beehives and colonies have been entrusted to the beneficiaries. As of October, 2010, 5 beneficiaries procured bee hives.

**4.4 Bugena Woreda**

In the Bugena target WS, all the planned verification activities were carried out from June to November, 2009. The descriptions, schedules and results/findings are as follows;

(1) FTC Farm Improvement

The procurement of farm tools, other tools & equipment, farm inputs



and others of the captioned activity was carried out mostly by ORDA and partly by WAO.

(2) Demonstration/Verification Plot: Primary Crops

1) Activity Description [refer to 4.2 (2)]

Target Group & Site	CRG (Community Research Group) & FTC Farm (elevation 2,553m)
Beneficiaries	3 CRGs; 3 CRGs x 5 members = 15 members
Target Crop & Plot Size	barley (local) 1 plot 0.18ha, wheat (HAR 1685) 1 plot 0.2ha, teff (local) 1 plot 0.24ha, total 0.62ha
Planting Method	barley & wheat – row planting/broadcasting; teff – broadcasting
Sub-plot	barley/wheat: row planting/broadcasting + improved teff: roller compaction+improved practices & improved practices
Fertilizer	improved practices: DAP 100kg/ha, Urea 100kg/ha

2) Copping Schedule & Crop Performance

Crop	Sowing	Harvesting	Sub-plot	Crop Performance
Barley	June 22	Oct. 12	row + improved	satisfactory
			broadcast + improved	satisfactory
Wheat	July 8	Nov. 5	row+improved	more than satisfactory
			broadcast + improved	satisfactory
Teff	July 20	middle Nov.	broacast+roller+mproved	satisfactory
			broadcast + improved	satisfactory

3) Results & Findings

- Crop performances of all crops were satisfactory. Especially, wheat growth in row planting sub-plot was excellent.

- Whole plot yields reported by WAO:



Crop	Whole Plots Yields (by WAO)
Barley	row planting 1.1 t/ha, broadcasting 0.7t/ha (CACC woreda yield 0.99t/ha)
Wheat	row planting 1.3 t/ha, broadcasting 1.0 t/ha (CACC woreda yield 0.77t/ha)
Teff	roller compaction 150%, no roller compaction 100% (yield figures doubtful)

- Teff germination in the roller compaction sub-plot was uniform & excellent (by WAO).

- Dry seeding of barley (broadcasting) by farmers started from the end of June in the watershed.

(3) Simple Trial on Promising Crops & Farming Practices

1) Activity Description[refer to 4.3 (3)]

Target Group & Site	CRG (Community Research Group) & FTC Farm (elevation 2,553m)
Beneficiaries	1 CRG ; 1 CRG x 5 members = 5 members
Target Crop	upland rice (NERCA 4), lentil (alemaya), haricot beans, groundnut (NC-4X), faba beans (degage)
Planting Method	row planting
Fertilizer	DAP 100kg/ha, Urea 50kg/ha

2) Copping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Upland rice	June 22	not matured	not adapted

Lentil	June 22	not matured	poor
Faba beans, haricot beans,	July 8	Oct. 10	satisfactory/more than satisfactory
Groundnut	July 8	end Dec.	not satisfactory

### 3) Results & Findings

- Crop performances of faba beans & haricot beans were satisfactory to more than satisfactory.
- Further trial on lentil & groundnut is required. Upland rice (NERICA 4) was not adaptable to the high altitude target WS (FTC Farm 2,553m).

### (4) Preliminary Adaptive Trial on Agro-forestry

Planting of promising fruits trees in steep sloping farmlands aiming at land use conversion from annual crop farmland into agro-forestry field or orchard in the future.



#### 1) Activity Description

Target Group & Site	20 farmers & members farm land
Fruit Trees	mango (85 plants), orange (85 plants), apple (30 plants)
No. of Seedlings Provided	8-10 seedlings per beneficiary; 57 seedlings for FTC
	200 seedlings in total

#### 2) Schedule

Provision of Seedlings	July 25 ~ beginning Aug.	Planting	end July 25 ~ beginning Aug.
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#### 3) Status & Findings

- As of February, 2010, survival rate of fruit seedlings planted in FTC Farm is over 90% (3 orange seedlings withered, reported by DA).
- Most seedlings planted in & around home yard instead of steep sloping farmlands.



### (5) Sunflower Production

Provision of sunflower seeds to support income generation of farmers.

#### 1) Activity Description

Target Group & Site	30 farmers & teff fields (mixed cropping with teff)
Seed Provided	6 – 9 kg per beneficiary (procured by themselves)

#### 2) Schedule

Provision of Seeds	beginning to middle July	Planting	beginning to middle July
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Sunflower seeds were mixed cropped with teff as commonly practiced in the WS so as to get additional cash income from teff fields.

### (6) Forage Development (surround of farm land)

#### 1) Activity Description[refer to 4.3 (5)]

Target Group & Site	12 farmers & surround of their farm lands
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Forage Plants	vetch for farmers; FTC vetch, pigeon pea, cow pea, alfalfa, dismodium
Volume of Seeds Provided	farmers: 6kg/farmer, 71kg in total; FTC 52kg in total

2) Schedule

Provision of Seedlings	middle July, 2009	Planting	middle July, 2009
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3) Findings & Others

- Good to very good germination of vetch, cow pea & pigeon pea and very poor germination of alfalfa & dismodium reported.
- Survival rates about 3 months after sowing: vetch 90% & pigeon pea 70% (WAO).
- Only vetch appears to have adapted; growth of cow pea & pigeon pea after germination was poor.

(7) Sheep Fattening

Provision of local breed of sheep & forage seeds to beneficiaries for income generation

1) Activity Description

Target Group	5 farmers
Package	1 pair of local breed of sheep & forage seeds
Forage Seeds Provided	Vetch 12kg & pigeon pea 3.1kg/beneficiary; 76kg in total

2) Schedule

Provision of Sheep	Oct. 20	Provision of Seeds	middle July, 2009	Planting	middle July, 2009
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One beneficiary reported that a fattened sheep was sold at 700 Birr compared with a procurement cost of it at Birr 400.

(8) Modern Bee Hive Package

1) Activity Description[refer to 4.2 (6)]

Target Group	10 farmers
Package	1 set of modern bee hive with colony

2) Schedule

Training	beginning of Aug, 2009	Provision of Bee Hive	beginning of Aug, 2009
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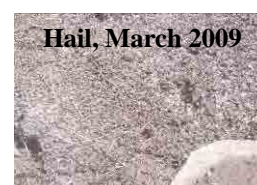
3) Status & Findings

- Honey harvesting was carried out in 6 hives out of 10 in October, 2009. Total honey production from 6 hives was 45kg (average 7.5kg/hive).
- All hives are kept in good conditions (as of October, 2009).



**4.5 Gidan Woreda**

In the Gidan target WS, all the planned verification activities were carried out from July, 2009 to February, 2010 (harvesting). The descriptions, schedules and results/findings are as follows;



(1) FTC Farm Improvement

The procurement of farm tools, other tools & equipment, farm inputs and others of the captioned activity was carried out mostly by ORDA and partly by WAO.

(2) Demonstration/Verification Plot: Primary Crops (meher season)

1) Activity Description [refer to 4.2 (2)]

Target Group & Site	CRG (Community Research Group) & FTC Farm (elevation 3,380m)
Beneficiaries	2 CRGs; 2 CRGs x 5 members = 10 members
Target Crop & Plot Size	barley (local) 1 plot 0.1ha, wheat (HAR 1685) 1 plot 0.1ha,
Planting Method	barley & wheat – row planting/broadcasting
Sub-plot	barley/wheat: row planting/broadcasting + improved practices
Fertilizer	improved practices: DAP 100kg/ha, Urea 50kg/ha

2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Sub-plot	Crop Performance
Barley	July 21	Middle February	row + improved	not satisfactory (poor germination)
			broadcast + improved	not satisfactory (poor germination)
Wheat	July 21	January 6	row+improved	satisfactory to more than satisfactory
			broadcast + improved	not satisfactory (poor germination)

3) Results & Findings

- Crop performances in the 3 sub-plots were not satisfactory. Reportedly, repeated plowing after sowing resulted in poor germination in the sub-plots. Practical skills of DAs should be improved to avoid such poor results of demonstration activities.



- On the other hand, wheat growth in a row planting sub-plot was good to excellent as shown above.

- Yield of wheat plot was reported to be 3.5t/ha (row planting 5 t/ha & broadcasting 2t/ha, too high)

(3) Simple Trial on Promising Crops & Farming Practices (meher season)

1) Activity Description[refer to 4.3 (3)]

Target Group & Site	CRG (Community Research Group) & members field
Beneficiaries	1 CRG ; 1 CRG x 5 members = 5 members
Target Crop	wheat (HAR 1685), barley (local), lentil (alemaya), faba beans (degage), haricot beans (awasi 1), onion, carrot
Planting Method	row planting
Fertilizer	DAP 100kg/ha, Urea 50kg/ha

2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance (by WAO)
Barley, wheat	July 21	middle of Nov.	satisfactory (barley late planting)
Faba beans, haricot beans	July 21	beg. – middle November	more than satisfactory
Onion, carrot	July 18	-	damaged by hail



### 3) Results & Findings

- Crop performances of pulses except lentil are reported to have been well to excellent. Next steps will be the operation of demonstration/verification plots of pulses.
- Lentil damaged by frost and onion damaged by hail and faba beans attacked by rat because of late sowing.

### (4) Forage Development (surround of farm land)

#### 1) Activity Description[refer to 4.3 (5)]

Target Group & Site	20 farmers & surround of their farm lands
Forage Plants	tree lucerne, vetch, oat
Volume of Seedlings/Seeds Provided	tree lucerne 500 plants/beneficiary; 10,000 plants in total vetch 5kg & oat 5kg/beneficiary; 200kg in total

#### 2) Schedule

Provision of Seedlings/Seeds	end July, 2009	Planting	Beginning Aug, 2009
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### 3) Results & Findings

- Reportedly, growth performances of both oat & vetch were well & will be harvested in the end of February, 2010.



### (5) Sheep Fattening

#### 1) Activity Description[refer to 4.4 (7)]

### (6) Modern Bee Hive Package

#### 1) Activity Description[refer to 4.2 (6)]

Target Group	12 farmers
Package	1 set of modern bee hive with colony

#### 2) Schedule

Training	July 16-18, 2009	Provision of Bee Hive	July 16-18, 2009
Provision of Bee Wax	middle Aug., 2009	Provision of Colony	middle - end Aug., 2009

### 3) Status & Findings

- Apiculture on-going with 12 new hives (as of January, 2010). Harvesting of honey delayed due to late transfer of colonies.
- Beneficiaries reported that harvests of honey improved substantially in 2010 compared with the last year.

## 4.6 Kobo Woreda

In the Kobo target WS, all the field verification activities were carried out from June to November, 2009. However, the implementation of 2 activities; Sheep Breed Improvement and Modern Bee Hive Package was postponed to 2010 and Farm Input Supply Credit; was cancelled. The descriptions, schedules and



results/findings are as follows;

(1) FTC Farm Improvement

The procurement of farm tools, other tools & equipment, farm inputs and others of the captioned activity was carried out mostly by ORDA and partly by WAO.

(2) Demonstration/Verification Plot: Primary Crops

1) Activity Description[refer to 4.2 (2)]

Target Group & Site	CRG (Community Research Group) & farmers fields
Beneficiaries	2 CRGs; 2 CRGs x 5 members = 10 members
Target Crop & Plot Size	sorghum (hormat) 1 plot 0.18ha, maize (katamani) 1 plot 0.08ha, teff (DZ Cross 37) 1 plot 0.2ha
Planting Method	sorghum/maize – row planting/broadcasting; teff – broadcasting
Sub-plot	sorghum/maize: row planting/broadcasting + improved practices
Fertilizer	improved practices: DAP 100kg/ha, Urea 50kg/ha

2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Sub-plot	Crop Performance
Sorghum	July 7-8	beginning Nov.	row + improved	not satisfactory (drought)
			broadcast + improved	not satisfactory (drought)
Maize	July 8	Sep. 25	row+improved	not satisfactory (drought)
			broadcast + improved	not satisfactory (drought)
Teff	July 22	Oct. 16	broadcast + improved	not satisfactory (drought)

3) Results & Findings

- Crop performances were not satisfactory, due to drought, reportedly.
- Involvement of DAs in the activity was limited. Involvement of CRGs was also limited because of poor arrangement.



(3) Simple Trial on Promising Crops & Farming Practices

1) Activity Description[refer to 4.3 (3)]

Target Group & Site	CRG (Community Research Group) & members field
Beneficiaries	1 CRG ; 1 CRG x 5 members = 5 members
Target Crop	maize (Merkasa 4), groundnut (NC-4X), upland rice (NERICA 4)
Planting Method	row planting
Fertilizer	DAP 100kg/ha, Urea 50kg/ha

2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Maize, groundnut	July 13	-	not satisfactory (drought)
Upland rice	June 28	not grown	not adapted (?)

3) Results & Findings

- Initial growth of maize was good. However, growth from middle to later stage was poor suffered from drought. Further trial will be required.



- Upland rice did not grow in spite of the altitude of sub-plot (1,600m). It was partly affected by drought. However, actual reasons yet to be identified.

#### (4) Hillside Forage Development

##### 1) Activity Description[refer to 4.2 (4)]

Target Site	Hilly areas (non-farmland, communal land, bare land, gully area etc.)
Target Group	WSC (Watershed Community)
Forage Plants	<i>Acacia saligna</i> , vetch, alfalfa, rodess grass
No. of Seedlings Provided	<i>Acacia saligna</i> 3,000 seedlings
Volume of Seeds Provided	vetch 40kg, alfalfa 24kg, rodess grass 10kg; 74kg in total

##### 2) Schedule

Provision of Seedlings	beginning Aug, 2009	Planting	beginning Aug, 2009
Provision of Seeds	July 25, 2009	Planting	Aug. 2, 2009

##### 3) Findings

- Taking root of *Acacia saligna* was badly affected by shortage of rainfall after planting.

#### (5) Sheep Breed Improvement

##### 1) Activity Description [refer to 4.2 (5)]

Target Group	5 farmers
Package	1 male of awasi breed (ram) per beneficiary

##### 2) Schedule

Training	May 15 – 21, 2010	Provision of Ram	June 14, 2010
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##### 3) Present Status & Findings

- The implementation of the activity was postponed to the 2010 meher season.
- Rams were procured from the Sirinka ARC and distributed to beneficiaries on June 14, 2010.
- Crossing services not yet started as of November, 2010.

#### (6) Modern Bee Hive Package

##### 1) Activity Description[refer to 4.2 (6)]

Target Group	10 farmers
Package	1 set of modern bee hive with colony

##### 2) Schedule

Training	May 15-24, 2010	Provision of Bee Hive	May, 2010
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##### 3) Status & Findings

- The implementation of the activity was postponed to the meher season 2010. Bee hives provided by WAO and colonies procured by beneficiaries. However, as of November 2010, beneficiaries did not have access to colonies. Procurement of colonies is expected to be in May, 2011 (by WAO).
- The beneficiaries formed an association and apiculture will be carried out by the association.
- A shed for placing bee hives was constructed at the communal land in the watershed.

## 4.7 Mekedela Woreda

In the Mekedela target WS, all the field verification activities except for Modern Bee Hive Package were carried out within the period of June to December, 2009. Sheep Breed Improvement was implemented instead of the Bee Hive Package. The descriptions, schedules and results/findings are as follows;



### (1) FTC Farm Improvement

The procurement of farm tools, other tools & equipment, farm inputs etc. was carried out by WAO.

### (2) Demonstration/Verification Plot: Primary Crops

#### 1) Activity Description[refer to 4.2 (2)]

Target Group & Site	CRG (Community Research Group) & FTC Farm (elevation 2,739m)
Beneficiaries	1 CRG x 5 members = 5 members
Target Crop & Plot Size	wheat (local/degora) 1 plot 0.1ha, teff (local/bursa) 1 plot 0.1ha,
Planting Method	wheat – row planting/broadcasting; teff – broadcasting
Sub-plot	wheat: row planting/broadcasting + improved practices
Fertilizer	improved practices: DAP 100kg/ha, Urea 50kg/ha

#### 2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Sub-plot	Crop Performance
Wheat	July 10	November 13	row + improved	satisfactory (uneven growth)
			broadcast + improved	satisfactory (uneven growth)
Teff	July 10	December 12	broadcast + improved	satisfactory

### 3) Results & Findings

- Crop performances were well although practical skills yet to be improved to attain uniform growth.

- WAO/WSC positively evaluated crop demonstration and requested the expansion of similar activities.

- Whole plot yields are reported as: teff (local) 2.5t/ha (?) (CACC woreda yield data: teff 0.8t/ha).



### (3) Simple Trial on Promising Crops & Farming Practices

#### 1) Activity Description[refer to 4.3 (3)]

Target Group & Site	CRG (Community Research Group) & FTC Farm (elevation 2,739m)
Beneficiaries	1 CRG x 5 members = 5 members
Target Crop	teff (DZ 0196), maize (merkasa 4), upland rice (NERICA 4) lentil (alemaya), faba beans (degage), field pea, alfalfa, dismodium
Planting Method	row planting
Fertilizer	DAP 100kg/ha, Urea 50kg/ha

## 2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Teff, lentil	July 10	December 12.	satisfactory – more than satisfactory
Field pea, faba beans	July 10	December 18.	satisfactory – more than satisfactory
Maize	July 7	-	not satisfactory (water shortage)
Upland Rice	July 12	not matured	not adapted
Alfalfa, dismodium	July 20	-	Poor

## 3) Results & Findings

- The activity was well performed and performances of most crops were excellent and attracted keen attention of the WS communities. They requested to provide harvested seeds for their next cropping. In the meher season 2010, FTC provided about 250kg of DZ 0196 seeds to 80 farmers (3kg/farmer) in the WS.
- Whole plot yields are reported as: teff 2.1t/ha (?); lentil 0.84t/ha; faba beans 1.4t/ha; field pea 1.5t/ha & 1.1t/ha (CACC woreda yield data: teff 0.8t/ha).
- Next steps will be demonstration/verification plots of pulses.
- WAO/WSC positively evaluated trial and requested the continuation of similar activities.



## (4) Forage Development (surround of farm land)

### 1) Activity Description[refer to 4.3 (5)]

Target Group & Site	30 farmers & surround of their farm lands
Forage Plants	vetch
Volume of Seeds Provided	3-6kg/farmer, 150kg in total

### 2) Schedule

Provision of Seeds	middle Aug., 2009	Planting	middle Aug., 2009
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### 3) Results & Findings

- Growth of vetch was satisfactory and the activity in the WS was performed well.
- Forage development in unused land such as gully bank, roadside & farm boundary should better be promoted.



## (5) Small-scale Poultry Farming Promotion Package

Provision of a set of cock & hens to (food insecure) families in the watershed.

### 1) Activity Description

Target Group	30 farmers
Package	2 months old (1 cock + 5 hens)/beneficiary; 180 birds in total

2) Schedule

Training	July 16-17, 2009	Provision of Poultry	end Aug., 2009
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3) Status & Findings

- Birds started laying eggs from the end of October, 2009.
- However, 12 birds died because of no adequate poultry sheds were available (as of January, 2010).



(6) Sheep Breed Improvement

1) Activity Description[refer to 4.2 (5)]

Target Group	11 farmers
Package	1 male of awasi breed (ram) per beneficiary

2) Schedule

Training	Nov. 15, 2009	Provision of Ram	Nov. 16-20, 2009
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3) Status & Findings

- Crossing services started & 10 rams alive out of 11 heads provided (as of Jan. 2010).

#### 4.8 Legambo Woreda

In the Legambo target WS, all the field verification activities were carried out during July to December, 2009. The descriptions, schedules and results/findings are as follows;

(1) FTC Farm Improvement

The procurement of farm tools, other tools & equipment, farm inputs and others of the captioned activity was carried out mostly by ORDA and partly by WAO.

(2) Simple Trial on Promising Crops & Farming Practices

1) Activity Description [refer to 4.3 (3)]

Target Group & Site	CRG (Community Research Group) & FTC Farm (elevation 2,969m)
Beneficiaries	1 CRG x 5 members = 5 members
Target Crop	wheat (HAR 604), malt barley (miskal 21, sefinish) lentil (alemaya), faba beans (degage)
Planting Method	row planting
Fertilizer	DAP 100kg/ha, Urea 50kg/ha

2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Wheat	July 14	December 24	poor (improper sowing, poor soil conditions, poor germination)
Malt barley	July 19	end October	
Faba beans	July 14	November 10	not satisfactory (delay in sowing)
Lentil	July 14	-	not adapted

3) Results & Findings

- By WAO/DAs, poor crop performances are attributed to poor soil conditions, excessive wetness in sowing, delay of seed delivery & late sowing. However, insufficient practical skills of them

appear to be one reason for poor crop performances.

(3) Forage Development (surround of farm land)

1) Activity Description [refer to 4.3 (5)]

Target Group & Site	20 farmers & surround of their farm lands
Forage Plants	vetch, cow pea, lablab, dismodium
Volume of Seeds Provided	vetch 1kg, cow pea 1kg, lablab 0.5kg, dismodium 0.2kg/farmer (total 54kg)

2) Schedule

Provision of Seeds	July 27, 2009	Planting	August 2, 2009
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3) Results & Findings

- Growth of vetch was satisfactory, however, growth of other forage crops were rather poor. Trials on area specific promising forages should be conducted.



(4) Hillside Forage Development

1) Activity Description [refer to 4.2 (4)]

Target Site	Hilly areas (non-farmland, communal land, bare land, gully area etc.)
Target Group	WSC (Watershed Community)
Forage Plants & No of Seedlings	tree lucerne; 28,500 seedlings

2) Schedule

Provision of Seedlings	July 12-19, 2009	Planting	July 12-19, 2009
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3) Status & Findings

- Survival rate of tree lucerne was estimated at about 80% as of Dec. 2009 by a WAO sample survey.
- The activity was carried out in combined manner with NR Management.
- Reported that indigenous plants regenerated in the target closed areas.



#### 4.9 Aregoba Woreda

In the Aregoba target WS, all the field verification activities except for Small-scale Poultry Farming Promotion were carried out during July to November, 2009. The poultry promotion was implemented in the meher season 2010. The descriptions, schedules and results/findings are as follows;



(1) FTC Farm Improvement

The procurement of farm tools, other tools & equipment, farm inputs and others of the captioned activity was carried out mostly by ORDA and partly by WAO. However, the delivery of commodities procured by ORDA delayed because of poor road conditions and limited accessibility to WAO.

(2) Simple Trial on Promising Crops & Farming Practices (Lower Watershed)

1) Activity Description [refer to 4.3 (3)]

Target Group & Site	CRG (Community Research Group) & farmers fields
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Beneficiaries	1 CRG x 5 members = 5 members
Target Crop	sorghum (hormat, abshir, goby), maize (katomani), teff (local/bursa)
	haricot beans (awasi 1), groundnut (local)
Planting Method	row planting
Fertilizer	DAP 100kg/ha, Urea 50kg/ha

## 2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Sorghum	July 17	end November	satisfactory – more than satisfactory
Maize	July 17	mid. November	satisfactory
Teff	end July	end October	satisfactory
Haricot beans	July 17	beg. October	satisfactory – more than satisfactory
Groundnut	July 17	beg. December	not satisfactory

## 3) Results & Findings

- Growth of all crops except groundnut were good to excellent, especially, crop performances of sorghum (Hormat variety) and haricot beans were very well.
- Next steps to be taken are demonstration/verification activities of promising crops/varieties.



## (3) Simple Trial on Promising Crops & Farming Practices (Upper Watershed)

### 1) Activity Description [refer to 4.3 (3)]

Target Group & Site	CRG (Community Research Group) & farmers fields
Beneficiaries	1 CRG x 5 members = 5 members
Target Crop	sorghum (abshir), maize (katomani), wheat (dinkesh)
Planting Method	row planting
Fertilizer	DAP 100kg/ha, Urea 50kg/ha

## 2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Sorghum/maize/wheat	mid July	mid November	satisfactory – not satisfactory (not uniform)

## 3) Results & Findings

- Uneven growth of crops was observed and crop growth differed from good to poor within a sub-plot.
- Further improvement of practical skills of DAs is essential for successful operation of demonstration and trial.



## (4) Preliminary Adaptive Trial on Agro-forestry (Lower Watershed)

### 1) Activity Description [refer to 4.4 (4)]

Target Group & Site	15 farmers & members farm land
Fruit Trees	mango (111 plants), orange (34 plants), coffee (653), avocado (5), guava 88), banana (35 plants), lemon (10 plants); 936 seedlings in total
No. of Seedlings Provided	62 seedlings/beneficiary on average



2) Schedule

Provision of Seedlings	middle of August	Planting	middle of August
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(5) Preliminary Adaptive Trial on Agro-forestry (Upper Watershed)

1) Activity Description [refer to 4.4 (4)]

Target Group & Site	10 farmers & members farm land
Fruit Trees	apple (34 plants), plum (50 plants), pome (50 plants), coffee (50), others (16 plants); 200 seedlings in total
No. of Seedlings Provided	20 seedlings/beneficiary

2) Schedule

Provision/Planting of Seedlings	middle of August
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(6) Forage Development (surround of farm land)

1) Activity Description [refer to 4.3 (5)]

Target Group & Site	12 farmers & surround of their farm lands
Forage Plants	elephant grass, pigeon pea, vetch, cow pea, sesbania, licinia
No. of Seedlings Provided	elephant grass: 250 seedlings/beneficiary; 3,000 seedlings in total
Volume of Seeds Provided	4kg/beneficiary; 49kg in total

2) Schedule

Provision/Planting of Seeds/Seedlings	early July, 2009
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(7) Small-scale Poultry Farming Promotion Package

1) Activity Description [refer to 4.7 (5)]

Target Group	30 farmers
Package	2 months old (1 cock + 5 hens)/beneficiary; 180 birds in total

2) Schedule

Training	end June, 2010	Provision of Poultry	beginning July, 2010
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3) Status & Findings

- The implementation was rescheduled to 2010 due to WAO internal reason. Training and provision of packages were carried out in June and July, 2010, respectively.

**4.10 Inter-woreda Activities**

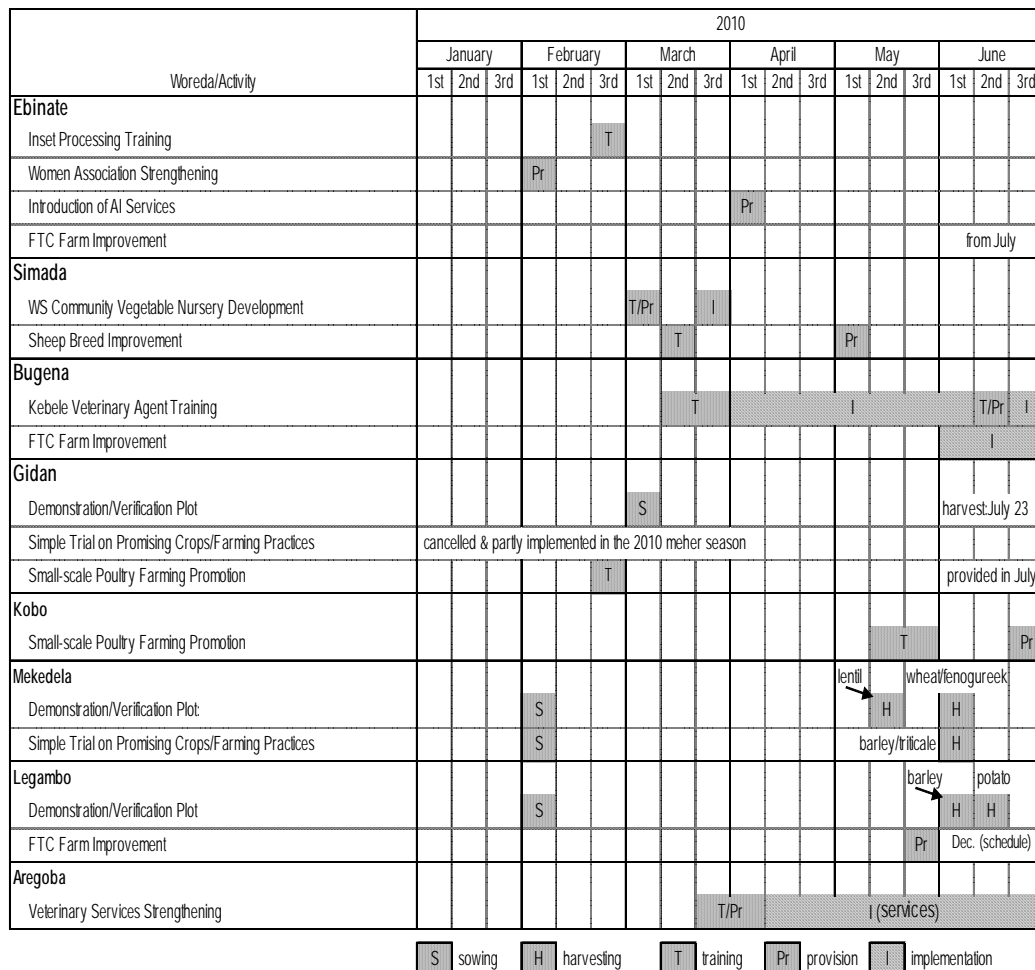
Aiming at the institutionalization of cooperation of research institutes in the implementation of agricultural verification activities, the technical guidance and training activities of the Adet Agriculture Research Center (ARC) for the target woredas in the western part of the Study Area and the Sirinka Agriculture Research Center (ARC) for the eastern target woredas are accommodated in the verification activities (APVAs) as the inter-woreda activities. The activities include: i) Integrated Crop Management (ICM) Training by the Sirinka ARC, ii) field guidance by the Adet & Sirinka ARC and iii) Joint Field Guidance by the Study Team and the Sirinka ARC as discussed in the section 3.2.1.



## CHAPTER 5 Agricultural Verification Activities in Belg Season, 2009/10

### 5.1 Overall Features

The number of agricultural verification activities implemented for the belg season 2009/10 was rather limited because the season is off-cropping season and the activities were carried out from the beginning of February to July, 2010. The implementation schedules of the agricultural verification activities are summarized as presented in the following figure.



**Figure 5.1.1 Implementation Schedules of Verification Activities, Belg Season 2009/10**

The descriptions of the activities, their implementation schedules and the results/findings of individual verification activities are reported in the followings.

### 5.2 Ebinate Woreda

In the Ebinate target WS (watershed), four (4) verification activities were implemented. The activity descriptions, their implementation schedules and the results/findings are as follows;

#### (1) Inset Processing Training

Inset processing training targeted to inset growers & DAs/WAO experts in the woreda.

##### 1) Activity Description/Schedule

Target Group/Beneficiaries	20 inset growers, 5 DAs, 2 WAO Crop Experts, 1 Zone Expert, total 27
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Training Period/ Trainers	Period: 5 days; trainers: BoARD horticulture expert
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## 2) Schedule

Training	Feb. 18 to 22, 2010 at ORDA office; WAO nursery
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## 3) Results & Findings

- The training curriculum was 2 days training in class and 3 days field practical training. The training subjects cover seedling production, cultivation, harvesting, fermentation & food preparation. The training was well arranged and successfully carried out by WAO and a trainer of BoARD. Participants showed their keen interests on inset cultivation & processing.
- All the farmers participated in the training expressed strong intention to cultivate perennial crops such as enset and fruits.



## (2) Women Association Strengthening

Strengthening of a women association engaged in vegetable production in group in the target WS through the provision of farm inputs & tools.

### 1) Activity Description

Target Group/Site	Women association (Michena Women Association Working Group) & its field
Beneficiaries	10 members
Provision	Watering cans, farm tools (vegetable seeds/pedal pumps provided by WAO)

### 2) Schedule

Provision (farm tools)	beg. February, 2010	Provision (seeds/pump)	Dec., 2009
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### 3) Results & Findings

- The association cultivated vegetables such as shallot and tomato in fields along the river in the watershed.



## (3) Introduction of AI Services

To support AI services introduction plan of WAO by providing necessary facility and tools for the services.

### 1) Activity Description/Schedule

Target Group	WAO (veterinary experts)
Equipment/Tools Provided	Installation of cattle crush etc.
Installation of cattle crush	beg. April



AI services to 4 cows were carried out in the target watershed in May, 2010.

## (4) FTC Farm Improvement

To support a new FTC farm establishment in the target kebele.



1) Activity Description/Schedule

Target Site	New FTC in Michena kebele
Works	Establishment of FTC Farm
Implementation	July, 2010 -

**5.3 Simada Woreda**

In the Simada target WS (watershed), two (2) verification activities were implemented. The activity descriptions, their implementation schedules and the results/findings are as follows;

(1) WS Community Vegetable Nursery Development

Establishment of irrigated community vegetable nursery for the production of vegetable seedlings & supply of seedlings to interested farmers in the WS.

1) Activity Description

Target Group & Site	CRG (Community Research Group) & members field
Beneficiaries	1 CRG; 1 leader & 9 members, total 10 members
Provision	Water pump set, vegetable seeds, fuel cost, nursery establishment cost
Training of CRG	3 days

2) Schedule

Training	end March	Provision	beg. Feb., 2010	Establishment Nursery	end March, 2010
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3) Results & Findings

- Farmers interested to buy vegetable seedlings were rather limited. Measures to operate the nursery under PSN and provide seedlings free to farmers should be worked out.



(2) Sheep Breed Improvement

Provision of an improved breed of ram (wasera breed) and forage seeds to beneficiaries; free crossing services provided by beneficiaries to other farmers in the watershed.



1) Activity Description

Target Group	8 farmers
Package	1 male of wasera breed (ram) & forage seeds 5kg per beneficiary
Training of Beneficiaries	3 days

2) Schedule

Training	March 12-14	Provision of Ram	May 5, 2010	Provision of Seeds	end March
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3) Status & Findings

- AS of October 2010, all rams provided are in good conditions and crossing services started from September/October, 2010.

**5.4 Bugena Woreda**

In the Bugena target WS, two (2) verification activities were implemented. The activity descriptions,

their implementation schedules and the results/findings are as follows;

(1) Kebele Veterinary Agent (KVA) Training

Training of selected farmers on simple veterinary treatments and recruiting them as Kebele Veterinary Agents (KVAs) who provide veterinary services in the WS.

1) Activity Description

Target Group	6 farmers from 6 kebeles
Training	1 <sup>st</sup> training: 15 days & 2 <sup>nd</sup> training (follow-up training) 6 days
Provision	Equipment, tools & drug

2) Schedule

1 <sup>st</sup> Training	middle March	2 <sup>nd</sup> Training	June 14-19	Provision	June 14-19
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3) Results & Findings

- The provision of veterinary services in the target watershed by KVAs started after the 1st training (from the beginning of April, 2010).

(2) FTC Farm Improvement

Improvement of FTC Farm field alignments.

1) Activity Description Schedules

Target Site	FTC in Burko kebele
Works	Realignment of FTC Farm
Implementation	June, 2010 -



## 5.5 Gidan Woreda

In the Gidan target WS, two (2) verification activities were implemented and implementation of one activity was rescheduled to the meher season 2010. The activity descriptions, their implementation schedules and the results/findings are as follows;

(1) Demonstration/Verification Plot: Primary Crops (belg season)

1) Activity Description

Target Group & Site	CRG (Community Research Group) & FTC Farm
Beneficiaries	2 CRGs; 2 CRGs x 5 members = 10 members
Target Crop & Plot Size	barley (Estaysh) 1 plot 0.1ha, wheat (HAR 1685) 1 plot 0.1ha, total 2 plots
Planting Method	row planting & broadcasting
Sub-plot	row planting/broadcasting + improved practices
Fertilizer	improved practices: DAP 100kg/ha, Urea 50kg/ha

2) Cropping Schedule & Crop Growth

Crop	Sowing	Harvesting	Sub-plot	Crop Performance
Barley	March 5	July 23	row + improved	initial growth satisfactory, suffered from shortage of rain later
			broadcast + improved	
Wheat	March 5	-	row + improved	initial growth satisfactory, damaged by hail (Aug. 29)
			broadcast + improved	

3) Results & Findings

- Growths of barley & wheat in row planting sub-plots were far better than those in broadcasting

sub-plots.

- In the later growth stage, both the plots suffered from shortage of rain.
- Yields of barley were 380kg/ha in row planting and 240kg/ha in broadcasting.
- Wheat was completely damaged by hail occurred on August 29.



(2) Simple Trial on Promising Crops & Farming Practices (belg season)

Implementation of the trial was cancelled because of failure in budgetary arrangement and parts of activities were rescheduled to be carried out in the 2010 meher season.

(3) Small-scale Poultry Farming Promotion Package

Provision of a set of cook & hens to (food insecure) families in the watershed.

1) Activity Description

Target Group	11 farmers (2 FGs formed)
Package	2 months old (1 cock + 5 hens)/beneficiary
Training	2 days

2) Schedule (plan)

Training	end February, 2010	Provision of Poultry	July 22, 2010
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3) Results & Findings

- The provision of packages was postponed to the meher season 2010 because of difficulties in procurement of chicks. Laying eggs started from September, 2010.

## 5.6 Kobo Woreda

In the Kobo target WS, only one (1) verification activity was implemented. The activity description, its implementation schedule and the results/findings are as follows;

(1) Small-scale Poultry Farming Promotion Package

Provision of a set of cook & hens to (food insecure) families in the watershed.

1) Activity Description

Target Group	10 farmers, poultry farming youth association formed
Package	2 months old (1 cocks + 9 hens)/beneficiary; 100 birds/association
Training	10 days

2) Schedule

Training	May 15 - 24, 2010	Provision of Poultry	end May, 2010
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### 3) Results & Findings

- Group poultry farming was introduced by forming beneficiaries into a poultry farming youth association. A group poultry shed was constructed in the communal land of the target watershed.



- However, because of low survival rate of chicks (only 13 birds surviving out of 100 as of November) provided due to chilly rainy season after the delivery, chicks were supplied to individuals later.

- Birds were provided under credit & revolving arrangement is employed.

- 1 day chicks were raised for 2 months before delivery in the poultry nursery of WAO.

## 5.7 Mekedela Woreda

In the Mekedela target WS, two (2) field verification activities under irrigation were carried out as planned. The activity descriptions, their implementation schedules and the results/findings are as followings.

### (1) Demonstration/Verification Plot: Primary Crops (belg season)

#### 1) Activity Description

Target Group & Site	2 CRGs (Community Research Group) & farmers irrigated fields ( $\pm 2,700\text{m}$ )
Beneficiaries	2 CRGs x 5 members = 10 members
Target Crop/Plot Size	wheat (HAR 1685): 2 plots x 0.1ha = 0.2ha; seed production
	lentil (Alemaya): 2 plots x 0.1ha = 0.2ha; fenugreek (local): 2 plots x 0.1ha = 0.2ha
	vegetables, 2 plots x 0.1ha = 0.2ha; in total of 0.8ha
Planting Method	row planting under furrow irrigation
Fertilizer	improved practices: DAP 100kg/ha, Urea 50kg/ha

#### 2) Cropping Schedule & Crop Growth

Crop	Sowing	Harvesting	Crop Performance
Wheat	Feb. 4	mid. June	satisfactory; fallow irrigation not practiced
Lentil	Feb.3	mid. May	not satisfactory/satisfactory, fallow irrigation not practiced
Fenugreek	Feb.3 & 4	mid. June	satisfactory; fallow irrigation not practiced
Vegetables	Feb. 6	end May	not satisfactory

### 3) Results & Findings

- Furrow irrigation was not practiced as planned except for vegetable plots in spite of the objective of the activity. Lack of practical skills of DAs and insufficient guidance to beneficiaries might be attributed to such failures.



- Improvement in furrow preparation is essential for introduction of furrow irrigation.



- Improvement in water distribution facilities &

water management method is to be envisaged.

(2) Simple Trial on Promising Crops & Farming Practices

1) Activity Description

Target Group & Site	CRG (5 members) & farmers field (m)
Target Crop	barley (estaysh), triticale (local), garlic (local)
Planting Method/Fertilizer	row planting under furrow irrigation, DAP 100kg/ha, Urea 50kg/ha

2) Cropping Schedule & Crop Growth

Crop	Sowing	Harvesting	Crop Performance
Barley	Feb. 4	-	satisfactory, serious damage by birds
Triticale	Feb. 4	-	satisfactory, serious damage by birds
Garlic	Feb. 6	end June	less satisfactory (water shortage)



3) Results & Findings

- Furrow preparation was carried out satisfactory and demonstration effect was expected.
- In barley & triticale plots, seedbeds of 70cm width were prepared and seeds were drilled in 2 lines on ridges. Study on furrow width is necessary based on study on moisture distribution in root zones after irrigation and crop growth.



**5.8 Legambo Woreda**

In the Legambo target WS, two (2) verification activities were carried out. The activity descriptions, their implementation schedules and the results/findings are as follows;

(1) Demonstration/Verification Plot: Primary Crops (belg season)

1) Activity Description

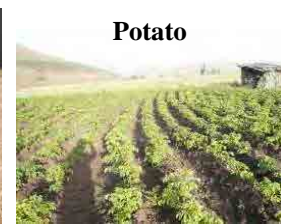
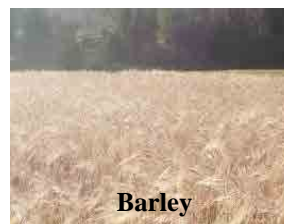
Target Group & Site	2 CRGs (Community Research Group) & school farm ( $\pm$ 2,950m)
Beneficiaries	2 CRGs x 5 members = 10 members
Target Crop/Plot Size	barley (Estaysh): 1 plot x 0.1ha = 0.1ha potato, 1 plot x 0.1ha = 0.1ha; in total of 0.2ha
Planting Method	row planting under furrow irrigation
Fertilizer	improved practices: DAP 100kg/ha, Urea 50kg/ha

2) Cropping Schedule & Crop Growth

Crop	Sowing	Harvesting	Crop Performance
Barley (Estaysh)	Feb. 5	June 10	satisfactory; fallow irrigation not practiced
Potato	Feb. 12	June 20	satisfactory; many missing hills

3) Results & Findings

- In barley plot, furrow making of 50cm width was done after broadcasting of seeds. Study on furrow width is necessary based on crop growth. However, furrow irrigation was not practiced because of improper preparation of





furrows.

- Planting & furrow making in potato plot was carried out properly and furrow irrigation was practiced as planned.

(2) FTC Farm Improvement

Establishment of drip irrigation system in the FTC Farm for demonstration purpose.

1) Activity Description/Schedule

Target Site	FTC in Burko kebele		
Equipment/Tools Provided	Drip irrigation set		
Procurement of Equipment/Tools	End May	Installation of System	December (schedule)

The installation of drip irrigation set was postponed to December waiting for irrigation water supply in the belg season 2010/11.

### 5.9 Aregoba Woreda

In the Aregoba target WS, only one (1) verification activity was implemented. The activity description, its implementation schedule and the results/findings are as follow;

(1) Strengthening of Veterinary Services

Training of DAs animals & farmers and provision of equipment/tools/drugs for the strengthening of veterinary services.



1) Activity Description/Schedules

Target Group	7 DAs & 12 farmers		
Training	7 days (March 24 to April 4)	Provision of Equipment/Drug	beg. of April

2) Results & Findings

- The training certificate was presented to the participants and the provision of services started from the middle of April, 2010.

## CHAPTER 6 Agricultural Verification Activities in Meher Season, 2010

### 6.1 Overall Features

Almost all the agricultural verification activities for the meher season 2010 were carried out as planned. In the western woreda, Ebinate and Simada, field verification activities such as verification/demonstration and simple trial



were carried out from May/June. While, in the eastern woredas, the implementation of such field activities was rescheduled and carried in July, mainly due to the delay of commencement of rainy season. The implementation schedules of the agricultural verification activities are summarized as presented in the following figure.

Woreda/Activity	2010																								
	May			June			July			August			September			October			November			Dec.			
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd				
<b>Ebinate</b>				barley/wheat						teff			barley			wheat								teff	
Demonstration/Verification Plot				S						S			H			H								H	
Simple Trial on Promising Crops				barley/wheat/field pea		S			S	teff			barley		H		H		wheat					H	teff
Fruit Production Campaign										P															
Demonstration of Farm Implements & Tools				I																					
<b>Simada</b>				maize/trical			wheat			teff						maize/ tricalc/wheat									
Demonstration/Verification Plot				S			S			S						H								H	teff
Fruit Production Campaign	postponed to the 2011 meher season because NGO failed to supply seedlings																								
Forage Development									P																
Hillside Forage Development									P																
Demonstration of Farm Implements & Tools				I																					
<b>Bugena</b>				barley/wheat/faba beans			teff									barley/faba beans			wheat						
Demonstration/Verification Plot				S			S									H			H					H	teff
Simple Trial on Promising Crops				barley/wheat/maize/faba beans					S				barley/faba beans		H		H							H	wheat
Fruit Production Campaign									P																
Forage Development									P																
Hillside Forage Development									P																
Demonstration of Farm Implements & Tools				I																					
<b>Gidan</b>				barley/wheat																				barley/wheat	H
Demonstration/Verification: Primary Crops							S																		
Demonstration/Verification: Secondary Crops				faba beans			S																	faba beans	H
Simple Trial on Promising Crops				barley/wheat/maize/faba beans					S															barley/wheat/faba beans	H
Preliminary Adaptive Trial on Agro-forestry							P																		
Hillside Forage Development									P/S																
FTC Farm Improvement				Pr			(procurement)												(installation)					I	
<b>Kobo</b>				sorghum/maize			S	S		teff/groundnut						maize/teff								sorghum/groundnut	H
Demonstration/Verification Plot																H									
Introduction of AI Services			C																						
<b>Mekedela</b>										teff															
Teff (DZ 0196) supplied by FTC										S															H
Simple Trial on Promising Crops				wheat			S			S	teff													wheat/teff	H
Fruit Production Campaign										P															
Sheep Breed Improvement																								T/Pr	
Small-scale Fish Farming							C									stocking fingerings								I (release & fish culture)	
FTC Farm Improvement																									C
<b>Legambo</b>				wheat/field pea			S	S		barley									wheat/barley/field pea						H
Simple Trial on Promising Crops										P															
Fruit Production Campaign																									
Forage Development	rescheduled to coming belg season																								
Sheep Breed Improvement				Pr		T																			crossing services
<b>Aregoba</b>				not implemented						sorghum/teff														teff	sorghum
Demonstration/Verification: Lower & Upper WS										S														H	H
Simple Trial on Promising Crops: Lower WS										S															
Simple Trial on Promising Crops: Upper WS							sorghum			S	S	wheat							wheat					H	H
IPM Training												T												sorghum	
FTC Farm Improvement																									Pr

S sowing P planting Pr provision T training C construction I implementation

Figure 6.1.1 Implementation Schedules of Verification Activities, Meher Season 2010

The descriptions of the activities, their implementation schedules and the results/findings of individual verification activities are summarized in the followings.

## 6.2 Ebinate Woreda



In the Ebinate target watershed (WS), all the planned verification activities were carried out from June to November, 2010. In the woreda, an expanded FFD (Farmers Field Day) was held on all the verification activities carried out in the meher season 2010 under JALIMPS by inviting over



90 participants consisting of woreda staffs, DAs and watershed communities on August 5, 2010. The activity descriptions, their implementation schedules and the results/findings are as follows;

### (1) Demonstration/Verification Plot: Primary Crops

Establishment of demonstration/verification plots for productivity improvement of primary crops and agronomic soil conservation measures in the watershed.

#### 1) Activity Description

Target Group & Site	CRG (Community Research Group) & members fields
Beneficiaries	3 CRGs; 1 CRG (1 leader & 4 members); 3 CRGs x 5 = 15 members
Target Crop & Plot Size	barley (local) 1 plot 0.10ha, wheat (HAR 1685) 1 plot 0.10ha & teff (DZ Cross 37) 1 plot 0.1ha; total 3 plots 0.3ha
Planting Method	barley/wheat – row planting & broadcasting; teff – broadcasting
Teff Sub-plot	seeding rate: improved practices 15kg/ha; farmers practices 25kg/ha
Fertilizer	improved : DAP 100kg/ha, Urea 50kg/ha; farmers practices: 1/2 of improved

#### 2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Sub-plot	Crop Performance 1/
Barley	June 17	Sep. 2-3	row planting	satisfactory
			broadcasting	satisfactory
Wheat	June 18	Oct. 13	row planting	more than satisfactory
			broadcasting	satisfactory
Teff	July 14	Nov.	improved practices	satisfactory – more than satisfactory
			farmers practices	satisfactory

1/: Satisfactory – crop performances better to far better than average farmers field; not satisfactory – similar to average farmers fields

#### 3) Results & Findings

- The verification/demonstration activities in the meher season 2010 were successfully operated except for maize plot which was cancelled because of missing timing for sowing.



- Expanded FFD was held on August 5th in the target sites of agricultural and natural resources management activities by inviting woreda staffs, DAs and watershed communities (> 90 participants).
- FFD in the verification/demonstration plots was held on September 24 at the same time with FFD in the simple trial plots.
- Crop performances of a wheat row planting sub-plot were excellent. Yield level was roughly measured at 400kg/0.1ha (too high) by a demonstrator.



## (2) Simple Trial

Establishment of simple trial plots by the Adet Agricultural Research Center in collaboration with WAO/DAs/farmers.

### 1) Activity Description

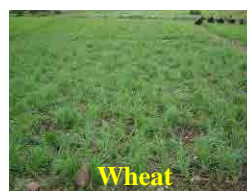
Target Group & Site	4 beneficiary farmers; farmers fields
Target Crop & Plot Size	barley (3 varieties) 1 plot, wheat (4 varieties) 1 plot, field pea (3 varieties) 1 plot, teff (4 varieties) 1 plot; total 4 plots, size: 10m x 10m/sub-plot/variety
Planting Method	barley/wheat/field pea – row planting; teff – broadcasting
Seeding Rate	barley: 85kg/ha, wheat: 150kg/ha, field pea: 75kg/ha, teff: 25kg/ha
Fertilizer	DAP/Urea: barley 50/80; wheat: 100/161; pea: 100/0; teff: 130/36

### 2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance 1/
Barley	June 23	Sept. 29	satisfactory
Wheat	June 23	Oct. 13	satisfactory – more than satisfactory
Field pea	June 23		failed (damaged by birds)
Teff	July 27	Oct. 28 & Nov. 5	satisfactory

### 3) Results & Findings

- The simple trial activity in the season was successfully operated by the Adet ARC in collaboration with WAO/DAs/beneficiary farmers.
- FFD was held on September 24 by inviting woreda staffs, DAs and watershed communities (in total of participants).



about 65

- Crop performances of barley, wheat & teff were satisfactory to more than satisfactory. Field pea was damaged by birds after germination.

- Preferences of farming communities for varieties' are as follows;

Crop	Farmers Preference Order			
	1st	2nd	3rd	4th
Barley	Setegn	Shedaho	Biftu	-
Wheat	HAR 3730	HAR 3646	HAR 2029	HAR 604
Teff	Kuncho	Cross-37	Simada	Etsub



- The ARC will provide seeds of improved varieties showed good performances in the trial to WAO for their further field extension activities.

- Fertilizer rates appear to be too high and beyond capabilities of farmers; due attention to the doses is considered to be necessary.

### (3) Fruit Production Campaign

Provision of fruit seedlings to families in the watershed (priority to food insecure families).



#### 1) Activity Description

Target Group & Site	48 beneficiary farmers; farmers home yards/fields
Fruit Trees	mango, orange (each 250 seedlings)
Variety	mango (Kent, Apple Mango, Tommy etc.); orange (Washington Navel, Cambell Valencia, Fair Child etc.)
No. of Seedlings Provided	10 seedlings per beneficiary; JICA plot 20 seedlings; total 500 seedlings

#### 2) Schedule

Provision of Seedlings	Aug. 3	Planting	Aug. 6
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#### 3) Results & Findings

- Field guidance in a JICA plot at a sloping field was carried out on July 8 prior to planting.
- Planting of seedlings was carried out on August 6 after field guidance given by a WAO horticulture expert.
- Fruit seedlings are generally properly taking care of by fencing around trees and watering.
- Fruit planting in this season was carried out under the guidance of WAO expert and DAs and fruit establishment after planting are better than the same of the last year.



## 6.3 Simada Woreda

In the Simada target watershed (WS), all the planned verification activities except for fruit production campaign were carried out from the middle of May to November, 2010. The fruit production campaign was rescheduled to the meher season 2011. The activity descriptions, their implementation schedules and the results/findings are as follows;

### (1) Demonstration/Verification Plot: Primary Crops

#### 1) Activity Description [refer to 6.2 (1)]

Target Group & Site	CRG & members fields
Beneficiaries	4 CRGs; 1 CRG (1 leader & 4 members); 4 CRGs x 5 = 20 members
Target Crop & Plot Size	wheat (HAR 1685) 1 plot 0.10ha, triticale (local) 1 plot 0.2ha, maize (Awasi 511) 1 plot 0.1ha, teff (DZ 354) 1 plot 0.1ha; total 4 plots 0.40ha
Planting Method	wheat/triticale/maize – row planting & broadcasting; teff – broadcasting
Teff Sub-plot	seeding rate: improved practices 15kg/ha; farmers practices 30kg/ha
Fertilizer	improved : DAP 100kg/ha, Urea 50kg/ha

## 2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Sub-plot	Crop Performance 1/
Maize	May 11	Oct. 20	row planting	more than satisfactory
			broadcasting	satisfactory
Triticale	May 18	Oct. 18	row planting	more than satisfactory
			broadcasting	satisfactory
Wheat	June 22	Oct. 20	row planting	not satisfactory (ununiform germination)
			broadcasting	not satisfactory (ununiform germination)
Teff	July 13	-	improved practices	more than satisfactory
			farmers practices	more than satisfactory

1/: Satisfactory – crop performances better to far better than average farmers field; not satisfactory – similar to average farmers fields

## 3) Results & Findings

- Crop performances of all crops except wheat were satisfactory to more than satisfactory. Crop growths in row planting sub-plots of maize & triticale were far better than those in broadcasting sub-plots.



- No clear differences observed in two seeding rate sub-plots of teff and crop performances were excellent in both the sub-plots.

- Failure in wheat plot is attributed to late planting and poor field management (report by DA.)

- Forage seeds (sesbania & tree lucerne) planted along farm boundaries



## (2) Fruit Production Campaign

### 1) Activity Description [refer to 6.2 (3)]

Target Group & Site	50 beneficiary farmers; farmers home yards/fields
Fruit Trees	mango, orange (each 250 seedlings)
No. of Seedlings Provided	10 seedlings per beneficiary; total 500 seedlings

### 2) Schedule

Provision of Seedlings	2011 meher season	Planting	2011 meher season
------------------------	-------------------	----------	-------------------

### 3) Present Status

- Fruit planting was rescheduled to the meher season 2011 because a sub-contractor failed to deliver seedlings due to the clasp of a bridge on the road leading to the woreda.

## (3) Forage Development (surround of farm land)

Provision of forage plant seedlings for promoting forage development in the watershed.

### 1) Activity Description

Target Group & Site	20 farmers & surround of their farm lands
Forage Plants	sesbania, tree lucerne

No. of Seedlings Provided	90 seedlings/farmer in average; sesbania 1,000 & tree lucerne 800, 1,800 seedlings in total:
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## 2) Schedule

Provision of Seedlings	July 9, 2010	Planting	July 9-10, 2010
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## 3) Present Status & Findings

- Both the forage trees took roots well after planting. Beneficiaries prefer to plant forage trees in their home yards rather than farm boundaries.
- Forage seeds were not provided because WAO failed to obtain seeds.



## (4) Hillside Forage Development

Provision of forage plant seedlings (& seeds) for promoting forage development in hillside areas in the watershed.

### 1) Activity Description

Target Site	hilly areas (non-farmland, communal land, bare land, gully area etc.)
Target Group	WSC (Watershed Community)
Forage Plants	sesbania, tree lucerne
No. of Seedlings/Seeds Provided	seedling: 4,050 seedlings (sesbania 3,700 & tree lucerne 350)

### 2) Schedule

Provision of Seedlings/Seeds	July 9, 2010	Planting	July 9-10, 2010
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### 3) Present Status & Findings

- Both the forage trees took roots well after planting.
- Forage seeds were not provided because WAO failed to procure seeds.



## 6.4 Bugena Woreda

In the Bugena target watershed (WS), all the planned verification activities were carried out from the early of July to November, 2010. The activity descriptions, their implementation schedules and the results/findings are as follows;

### (1) Demonstration/Verification Plot: Primary Crops

#### 1) Activity Description [refer to 6.2 (1)]

Target Group & Site	CRG & members fields
Beneficiaries	4 CRGs; 1 CRG (1 leader & 4 members); 4 CRGs x 5 = 20 members
Target Crop & Plot Size	barley (local) 1 plot 0.1ha, wheat (HAR 1685) 1 plot 0.10ha, faba beans (Degaga) 1 plot 0.1ha, teff (DZ 0196) 1 plot 0.1ha; total 4 plots 0.40ha
Planting Method	barley/wheat/faba beans – row planting & broadcasting; teff – broadcasting
Fertilizer	improved : DAP 100kg/ha, Urea 50kg/ha; faba beans: DAP 100kg/ha

#### 2) Cropping Schedule & Crop Performance

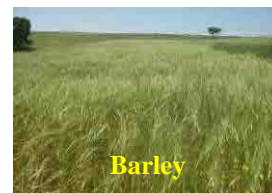
Crop	Sowing	Harvesting	Sub-plot	Crop Performance 1/
Barley	July 7	Oct. 8, 2010	row planting	more than satisfactory
			broadcasting	satisfactory
Wheat	July 7	end Oct., 2010	row planting	more than satisfactory

			broadcasting	more than satisfactory
Faba Beans	July 7	Oct. 18, 2010	row planting	not satisfactory (disease)
			broadcasting	not satisfactory (disease)
Teff	July 13	Nov./Dec. (schedule)	farmers practices	not satisfactory

1/: Satisfactory – crop performances better to far better than average farmers field; not satisfactory – similar to average farmers fields

### 3) Results & Findings

- Crop performances of barley and wheat were well to very well. In barley plot, crop growths in the sub-plot row planting were better than those in the broadcasting sub-plot.



- Initial growths of faba beans were reported to be well by a CRG member, however, crops infested with disease in the middle growth stage. Harvests were very limited due to the disease (root rot). In the target kebele, the infestation of the disease was serious and spread in the entire village and many faba beans fields were seriously affected by the disease.



- Poor performance of faba beans in the verification/demonstration plot compared with the excellent growth in the faba beans trial plot in FTC Farm is attributed to use of seeds procured from a local market and poor land preparation (report by a DA).



- Teff plot planted without guidance of DAs and no treatment was introduced for the demonstration. Insufficient weeding in the plot was also reported by DA.

***- In this meher season, WAO supplied 7 tons of HAR 1685 (wheat) and 100kg of DZ 0196 (teff) to famers in the target kebele, partly attributed to the successful demonstration of the two varieties at the FTC Farm in the meher season2009 under the verification activity.***

### (2) Simple Trial

Establishment of simple trial plots operated by DAs in collaboration with farmer groups.

#### 1) Activity Description

Target Group & Site	CRG: 5 members, FTC Farm (elevation 2,533m)
Target Crop & Plot Size	Barley (Terit), wheat (Tossa), maize, faba beans (Degaga); plot size: 0.2ha
Planting Method	row planting (R) & broadcasting (B)
Seeding Rate	barley:R 90 & B 110kg/ha, wheat:R.100 & B 120kg/ha, maize:R 25 & 35kg/ha, faba beans: 180 & 250kg/ha
Fertilizer	cereals: DAP 100kg/ha, Urea 50kg/ha; faba beans: DAP 100kg/ha

#### 2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Barley	July 26	Oct. 15	more than satisfactory
Wheat	July 26	Nov.	not satisfactory
Maize	July 28	-	failed, not harvested (late planting & drought in later stage)
Faba Beans	July 21	Oct. 18	more than satisfactory



### 3) Results & Findings

- Crop performances of barley and faba beans were well to very well and many farmers requested to have seeds for their next cropping.
- Wheat growths were not so well compared with the crop in the demonstration plot. It is not clear whether it is because of adaptability of Tossa or any other reasons. Crop growths in the sub-plot row planting were better than those in the broadcasting sub-plot.
- Late planting and shortage of rain in the middle to late growth stage are attributed to failure of maize by DAs. Infestation of striga in sorghum fields were observed in the watershed, further trials on maize and striga resistant varieties of sorghum (available at the Sirinka ARC) should better be carried out.



### (3) Fruit Production Campaign

#### 1) Activity Description [refer to 6.2 (3)]

Target Group & Site	30 beneficiary farmers; farmers home yards/fields
Fruit Trees	mango, orange, apple (each 100 seedlings)
Variety	mango (Kent, Apple Mango, Tommy etc.); orange (Washington Nael, Fair Child, Pineapple), apple (Anna, CP 92)
No. of Seedlings Provided	10 seedlings per beneficiary; total 300 seedlings

#### 2) Schedule

Provision of Seedlings	July 8	Planting	July 10
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### 3) Results & Findings

- Most beneficiaries are selected from irrigated areas from mountain streams because of watering difficulty in other areas.
- Survival rate of 100% reported as of Nov., 2010)



### (4) Forage Development (surround of farm land)

#### 1) Activity Description [refer to 6.3 (3)]

Target Group & Site	20 farmers & surround of their farm lands
Forage Plants	sesbania, vetch, pigeon pea
No. of Seedlings/Seeds Provided	seed (vetch 162kg, pigeon pea 10kg): total 172kg, avg. 8.6kg/farmer sesbania: depending on farmers

#### 2) Schedule

Provision of Seedlings/Seeds	July 21, 2010	Planting	July 21, 2010
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### 3) Present Status & Findings

- Reportedly, all forage plants introduced grew satisfactory. Vetches were already harvested for animal feed (as of Nov. 1, 2010).
- At the final evaluation workshop, a beneficiary expressed that the forage cultivation is a new experience for him and his intention to continue to grow forage crops surround farmland or home yard.

(5) Hillside Forage Development

1) Activity Description [refer to 6.3 (4)]

Target Site	hilly areas (closed communal land)
Target Group	WSC (Watershed Community)
Forage Plants	sesbania, vetch, pigeon pea
No. of Seedlings Provided	sesbania seedlings: 52,881 seedlings (including for NR component) vetch 2.5kg, pigeon pea 35kg

2) Schedule

Provision of Seedlings/Seeds	July 21, 2010	Planting	July 21, 2010
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3) Present Status & Findings

- Seedlings and seeds were planted in the closed areas in the watershed. The target site is the same for the last year NR component activity.



- In this season, both the hillside forage development activity and NR component activity were carried out in the same site. Reportedly, all forage plants introduced grew satisfactory.

**6.5 Gidan Woreda**

In the Gidan target watershed (WS), all the planned verification activities were carried out starting from the middle of July and the final harvests are scheduled to be December/January, 2010. The activity descriptions, their implementation schedules and the results/findings are as follows;

(1) Demonstration/Verification Plot: Primary Crops

1) Activity Description [refer to 6.2 (1)]

Target Group & Site	CRG & members fields
Beneficiaries	2 CRGs; 1 CRG (1 leader & 4 members); 2 CRGs x 5 = 10 members
Target Crop & Plot Size	barley (Shedaho, local) 1 plot 0.1ha, wheat (HAR 1685) 1 plot 0.1ha; total 2 plots 0.2ha
Planting Method	row planting & broadcasting
Fertilizer	DAP 100kg/ha, Urea 50kg/ha

2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Sub-plot	Crop Performance 1/
Barley	July 16	Dec./Jan (schedule)	row planting	satisfactory
			broadcasting	satisfactory
Wheat	July 16	Dec./Jan (schedule)	row planting	satisfactory to more than satisfactory
			broadcasting	satisfactory

3) Present Status & Findings

- Crop growths of wheat plot are well to very well. The growths in the sub-plot row planting are better than those in the sub-plot broadcasting (as of October, 29, 2010).



- Crop performances of barley are reported to be satisfactory by DAs & beneficiaries.

(2) Demonstration/Verification Plot: Secondary Crops

Establishment of a demonstration/verification plot for productivity improvement of secondary crops and agronomic soil conservation measures in the watershed.

1) Activity Description

Target Group & Site	CRG & members fields
Beneficiaries	1 CRGs; 1 CRG (1 leader & 4 members); 1 CRG x 5 = 5 members
Target Crop & Plot Size	faba beans (Degaga, local) 1 plot 0.1ha
Planting Method	row planting & broadcasting
Fertilizer	DAP 100kg/ha

2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Sub-plot	Crop Performance
Faba Beans	July 16	Dec.(schedule)	row planting	satisfactory; damaged by frost/hail
			broadcasting	satisfactory; damaged by frost/hail

3) Results & Findings

- Crop performances are reported to be satisfactory by DAs. However, crops were seriously damaged by frost at flowering stage on December 3.



(3) Simple Trial

1) Activity Description [refer to 6.4 (2)]

Target Group & Site	CRG: 5 members, FTC Farm (elevation 3,380m)
Target Crop & Plot Size	Barley (Selah), wheat (HAR 1685), faba beans (Lalo); plot size: 0.2ha
Seeding Rate	barley:R 90 & B 110kg/ha, wheat:R.100 & B 120kg/ha, faba beans: 180 & 250kg/ha
Fertilizer	cereals: DAP 100kg/ha, Urea 50kg/ha; faba beans:

2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Barley	July 27	Dec./Jan.(schedule)	satisfactory,
Wheat	July 27	Dec./Jan.(schedule)	satisfactory
Faba Beans	July 27	Dec.(schedule)	satisfactory, damaged by frost (December 3)

3) Results & Findings

- Performances of all crops were well and satisfactory. Growths in the sub-plot row plantings are better than those in the sub-plot broadcastings (as of October, 29, 2010).
- However, the row distances in the barley and wheat sub-plot row plantings are wider than 30cm. Row planting practices by marsha yet to be improved so as to perform row distance of 30cm.
- Faba beans seriously damaged by frost on December 3.



(4) Preliminary Adaptive Trial on Agro-forestry

Planting of promising fruits trees in steep sloping farm lands aiming at land use conversion from annual crop farmland into agro-forestry field or orchard in the future.

1) Activity Description

Target Group & Site	53 farmers & members farm land; FTC
Fruit Trees	apple (Crispi 330, Anna 57, total 387 plants)
No. of Seedlings Provided	± 7 seedlings per beneficiary; 361 seedlings in total; FTC 26 seedlings

2) Schedule

Provision of Seedlings	July 19	Planting	July 20
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3) Present Status & Findings

- 23 seedlings planted in FTC Farm. 361 seedlings provided to 53 farmers (about 7 seedlings/farmer).
- Insufficient guidance to beneficiaries was reported at the evaluation workshop. The recruitment of temperate fruit experts and the provision of practical training to DAs by the experts are considered essential for the fruit development in the woreda.



(5) Hillside Forage Development

1) Activity Description [refer to 6.3 (4)]

Target Site	hilly areas (closed communal land)
Target Group	WSC (Watershed Community)
Forage Plants	rodes grass, falaris grass, chebeha, yenib kasem, vetch, oat
Inanity/No. of Seeds/Seedlings Provided	falaris grass 3.5kg, rodess grass 2kg, vetch 1.50kg, oat 18kg, yenib kasem 40kg; 213.5kg in total; chbeha 41 seedlings

2) Schedule

Provision of Seedlings/Seeds	July 20	Planting	July 20-25
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3) Present Status & Findings

- Vetch and oat planted in FTC Farm & hilly areas grow well. However, germination of rodess grass and falaris grass was very poor. Simple adaptive trials on forage crops are considered essential.
- Farmers expressed their intensions to grow vetch & oat at home yard & farm boundary.



(6) FTC Farm Improvement

Installation of solar panel for electrification and water pipe for water supply in FTC. The installation of solar panel is scheduled to be in November, 2010 and the installation of water pipe is planned to be in November/December.

**6.6 Kobo Woreda**

In the Kobo target watershed (WS), all the planned verification activities were carried out from May to November, 2010. The activity descriptions, their implementation schedules and the results/findings are as follows;

(1) Demonstration/Verification Plot: Primary Crops

Establishment of demonstration/verification plots by WAO/DAs/farmers in collaboration with and

under the guidance of .the Sirinka Agricultural Research Center.

### 1) Activity Description

Target Group & Site	7 beneficiary farmers; farmers fields
Target Crop & Plot Size	sorghum (4 varieties; Hormat, Girana, Raya, local) x 1 plot, maize (3 varieties; Katumani, Melkasa 4, local)) x 2 plots , teff (4 varieties; Lakech, Kuncho, Zobel, local) x 2 plots, groundnut (4 varieties; Sedi, Shulamize, Loti, local) x 2 plots; 7 plots in total; in total 7 farmers; sub-plot size: 10x10m
Planting Method	sorghum/wheat/groundnut: row planting; teff: broadcasting

### 2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Sorghum	July 15	end Nov.	not satisfactory
Maize	July 15 & 22	Nove. 8	not satisfactory
Teff	July 20 & 22	early Nov.	satisfactory
Groundnut	July 21	end Nov.	satisfactory & not satisfactory, shortage of rain in later stage

### 3) Results & Findings

- Beneficiary farmers reported poor crop growths of improved varieties of maize, sorghum and groundnut tested in the plops compared with the growths of local varieties. However, a WAO crop expert reported satisfactory growths of sorghum, groundnut and teff.
- Growths of groundnut in one plot were rather satisfactory up to flowering stage, however, crops suffered from shortage of rain after the stage.
- Guidance activities of the Sirinka ARC were insufficient and technical guidance by the center was rather limited than expected.



### (2) Introduction of AI Services

To support AI services introduction plan of WAO by providing necessary facility and tools for the services.

#### 1) Activity Description/Schedul

Target Group	WAO (veterinary experts)
Equipment/Tools Provided	Installation of cattle crush etc.
Installation of cattle crash	May 23, 2010

AI services to 6 cows were carried out in the target watershed in June, 2010. 2) Cropping Schedule & Crop Growth

### 6.7 Mekedela Woreda

In the Mekedela target watershed (WS), most of the planned verification activities except were carried out from the middle of July to December, 2010. However, the demonstration/verification plots planned were not implemented. The activity descriptions, their implementation schedules and the results/findings are as follows;

(1) Demonstration/Verification Plot: Primary Crops

The planned demonstration/verification plots (wheat, teff & faba beans) were not implemented because WAO failed to procure seeds for the plots in time. Instead, DAs provided seeds of teff (DZ 0196) to 85 farmers in the watershed (3kg/farmer). The seeds are the harvests of the simple trial in the last meher season, in which the variety showed excellent growth and many farmers requested to supply the seeds for their croppings.



(2) Simple Trial

Establishment of simple trial plots by WAO/DAs/farmers in collaboration with and under the guidance of the Sirinka Agricultural Research Center.

1) Activity Description

Target Group & Site	2 beneficiary farmers & farmers fields
Target Crop & Plot Size	wheat (3 varieties; Tossa, HAR 1685, Warkaya) x 1 plot, teff (4 varieties; Kuncho, Mechare, Zobel, local) x 1 plot; 2 plots in total; 2 farmers; sub-plot size: 10x10m
Planting Method	wheat: row preparation after broadcasting; teff: broadcasting

2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Wheat	July 1 & 25	Dec. (schedule)	not satisfactory (late planting), un-uniform growth
Teff	July 28	Dec. (schedule)	satisfactory

3) Results & Findings

- The soils in the plot are vertisols and wheat was first broadcasted and rows were made by BBM (Broad Bed Maker) after broadcasting because of wet soil condition. The rows were neatly prepared by use of BBM as shown in the photo. However, the distances between rows are mostly more than 40cm.
- The crop performances in the teff plot were satisfactory. Farmers preferences for the varieties introduced are Kuncho followed by Mechare.
- Wheat growths were not satisfactory because of late planting, reportedly.



(3) Fruit Production Campaign

1) Activity Description [refer to 6.2 (3)]

Target Group & Site	21 beneficiary farmers; farmers home yards/fields
Fruit Trees	apple ( Anna 300 seedlings & CP 92 50 seedlings; 350 seedlings in total)
No. of Seedlings Provided	avg. 17 seedling. Farmer; total 350 seedlings

2) Schedule

Provision of Seedlings	July 20	Planting	July 25
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3) Present Status & Findings

- Most apple seedlings were planted in irrigated fields as shown in the photo. Field guidance was

carried out by DAs at the time of seedling delivery, however, it appeared to be insufficient. The proper guidance by WAO experts is necessary.



#### (4) Sheep Breed Improvement

revision of improved breed of rams (Wasera breed) (& forage seeds) to beneficiaries; free crossing services provided by beneficiaries to other farmers in the watershed.

##### 1) Activity Description

Target Group	70 farmers
Package	1 male of Wasera breed (ram), forage seeds not provided

##### 2) Schedule

Training	Oct. 22	Provision of Ram	Oct. 23, 2010
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##### 3) Present Status & Findings

- No. of beneficiaries increased to 70 from the planned 20. The rams procured at the Adet animal market. However, forage seeds were not provided.
- Farming communities expressed their preference to Awasi breed (provided in the meher season 2009 activity) because of its adaptability to climatic conditions of the watershed. However, Awasi breed is more costive compared with Wasera breed.



#### (5) Small-scale Fish Farming

Introduction of trial base small-scale fish farming aiming at income generation & improving nutritional status in the target woreda.

##### 1) Activity Description

Target Group & Site	Water Users Association of Tebi Irrigation Scheme, land owned by the Association located close to the Tebi Reservoir
Size of Fish Pond	10 x 10 x 1.25m; 125m <sup>3</sup>
Fish Species & No. of Fishes	tilapia ( <i>Oreochromis niloticus</i> ); ±200 fingerings (size ±10cm, caught at the Lake Hike in Jati)

##### 2) Schedule

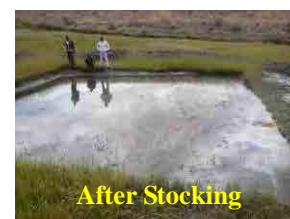
Pond Construction	beg. July	Field Guidance	Oct. 20	Stocking of Fingering	Oct. 20
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##### 3) Present Status & Findings

- Stocking of tilapia fingerings (about 200 fishes) were carried out by the Fishery Research Center on October 20. The sizes of the fingerings were about 10cm.
- No sufficient field guidance was provided to WAO/DAs and the beneficiaries because of the miss communication between the Center and WAO. Further field guidance to the stakeholders is considered essential.



- Reportedly, several fishes died after stocking and birds habited in the Tebi reservoir come to catch fishes. The pond surface was covered with branches and grasses to prevent the bird attack under the guidance of the Center.



(6) FTC Farm Improvement

Renovation of a water harvesting pond in FTC Farm. The procurement materials were in the middle of August and the renovation is scheduled to be in November/December, 2010.

### 6.8 Legambo Woreda

In the Legambo target watershed (WS), all the planned verification activities except a forage development (surround farmland) activity were carried out from the middle of July to December, 2010. The activity descriptions, their implementation schedules and the results/findings are as follows;

(1) Simple Trial

1) Activity Description [refer to 6.7 (2)]

Target Group & Site	3 beneficiary farmers; FTC Farm
Target Crop & Plot Size	wheat ( 3 varieties, Tossa, Warkya, HAR 1685) x 1 plot, barley (3 varieties, Estaysh, Shedaho, Agenchu ) x 1 plot, field pea (3 varieties, Aday, Agreeet, Sendek) x 1 plot; 3 plots in total; 1 farmer/crop; plot size: 10x10m
Planting Method	broadcasting

2) Cropping Schedule & Crop Performance

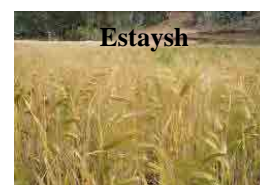
Crop	Sowing	Harvesting	Crop Performance
Wheat	July 23	December (schedule)	satisfactory
Barley	July 16	December (schedule)	satisfactory – more than satisfactory
Field Pea	July 14	December (schedule)	satisfactory

3) Results & Findings

- Crop performances of all the varieties of 3 crops were satisfactory to more than satisfactory except for HAR 1685 (wheat) and the performances of the trial were highly assessed by operators and farming communities.



- The field guidance of the Sirinka ARC was limited to once. No. of plots was reduced to 2 from planned 6 and row planting was not practiced as planned.



- According to a DA, the adaptabilities of varieties were assessed as follows;

Crop	Most Promising	2 <sup>nd</sup> Most Promising	3 <sup>rd</sup> Most Promising
Wheat	Tossa	Warkya	HAR 1685
Barley	Estaysh	Agrenchu	Shedaho
Field Pea	Aday	Agreet	Sendek



(2) Fruit Production Campaign

1) Activity Description [refer to 6.2 (3)]

Target Group & Site	33 beneficiary farmers; farmers home yards/fields
Fruit Trees	apple (Anna 340 & CP 92 60, total 400 seedlings)
No. of Seedlings Provided	10- 12 seedlings per beneficiary;1 model farmer 20 seedlings

2) Schedule

Provision of Seedlings	July 18	Planting	July 19
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3) Present Status & Findings

- Most apple seedlings were planted in irrigated fields of beneficiary farmers. Field guidance was provided at the time of the provision of seedlings.
- Survival rate as of November, 2010 is estimated at 95%.



(3) Forage Development (surround of farm land)

1) Activity Description [refer to 6.3 (3)]

Target Group & Site	50 farmers & surround of their farm lands
Forage Plants	vetch, falaris grass, alfalfa
No. of Seeds Provided	vetch 150kg, falaris grass 9kg, alfalfa 2kg in total

2) Schedule

Provision of Seeds	Aug. 30	Sowing	sowed in belg season
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3) Present Status

- Forage seeds provided will be sown surround of irrigated fields in the coming belg season because the provision of seeds was late for meher season planting.

(4) Sheep Breed Improvement

Provision of improved breed of rams (Awasi breed) to beneficiaries; free crossing services provided by beneficiaries to other farmers in the watershed.

1) Activity Description

Target Group	7 farmers
Package	1 male of Awasi breed (ram, cross breed of Awasi & local breed)

2) Schedule

Provision of Ram	Aug. 1 <sup>st</sup> week, 2010	Provision of Seed	not provided
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3) Results & Findings

- Training was made before the provision of rams. Cross breeds of Awasi & local breed were provided (not 100% Awasi).
- Crossing services started by 3 rams provided (as of Nov. 21, 2010).

## 6.9 Aregoba Woreda

In the Aregoba target watershed (WS), the planned demonstration/verification plots in the lower and

upper watersheds were not implemented due to administrative problems for the activity implementation. However, other activities were carried out as planned from the middle of July to December, 2010. The activity descriptions, their implementation schedules and the results/findings are as follows;

(1) Demonstration/Verification Plot: Primary Crops (Lower & Upper Watershed)

The implementation of 3 demonstration/verification plots (sorghum, maize cow pea) were planned in the lower watershed and 3 demonstration/verification plots (sorghum, maize wheat) were similarly planned in the upper watershed, however, the activities were not implemented because the WAO failed to supply necessary farm inputs (seed & fertilizer).

(2) Simple Trial

1) Activity Description [refer to 6.7 (2)]

Target Group & Fields	5 beneficiary farmers; farmers fields
Target Site, Crop & Plot Size	lower WS: sorghum (2 varieties) x 1 plots, teff 1 plot upper WS: wheat (3 varieties) x 2 plots, sorghum (2 varieties) x 1 plots,
Planting Method	wheat/sorghum: row planting; teff: broadcasting

2) Cropping Schedule & Crop Performance

Crop	Sowing	Harvesting	Crop Performance
Upper Watershed			
Wheat	July 26	Nov. 17	variety (Tossa): not satisfactory
		Nov. (schedule)	variety (Dinkesh): not satisfactory-satisfactory
Sorghum	July 18	Dec. (schedule)	not satisfactory, heavy rain after germination
Lower Watershed			
Sorghum	July 13	Dec. (schedule)	not satisfactory
Teff	July 18	Nov. 15	not satisfactory

3) Results & Findings

- Crop performances were disappointingly poor than expected except for wheat (dinkesh). No clear reasonings were provided by the Sirinka ARC & WAO.
- No field guidance was provided by the Sirinka ARC. Field guidance by WAO was also limited to once at planting times.
- Monitoring activities of DAs were also limited and no monitoring data recorded.



(3) IPM Training

Training on IPM (Integrated Pest Management) for famers in the watershed and DAs/woreda experts.

1) Activity Description

Target Groups	42 beneficiary farmers (upper WS 21 & lower WS 21), 3 WAO staff , 5 DAs
Training Period/Trainer	period: 7 days; trainer: WAO crop experts
Schedule/Place	Aug. 6 to 12, 2010; training in class at Harubu, field training in the watershed
	Training in class: 5 days, field practices: 2 days
Provision of Farm Tool	7 hand sprayers to WAO/FTC

## 2) Results & Findings

- No. of beneficiaries was increased to 50 from the planned 24 farmers. The number of participants was too large for providing effective training.

### (4) FTC Farm Improvement

Provision of 3 bicycles to FTCs to support field activities of DAs. Bicycles are scheduled to be delivered to WAO in December by ORDA.

## 6.10 Supporting Activities by Agricultural Research Centers

Aiming at the institutionalization of cooperation of research institutes in the implementation of agricultural verification activities and the promotion of research-extension linkage, the technical guidance and supports of regional agricultural research centers are accommodated in APVAs. The participating ARCs include; by the Adet Agricultural Research Center (Adet ARC), Sirinka Agricultural Research Center (Sirinka ARC), Bahir Dar Agricultural Mechanization & Food Science Research Center (Mechanization Center/BAMaFSRC) and Bahir Dar Fishery & Other Aquatic Life Research Center (BAFOALRC). The activities of the ARCs are as follows;

**Table 6.10.1 Support Activities of ARCs in 2010 Meher Season**

Research Center	Activities
Adet ARC	Implementation of simple trial in collaboration with WAO/DAs in Ebinate
Sirinka ARC	Implementation of simple trial in collaboration with WAO/DAs in Mekedela, Legambo, Aregoba & demonstration/verification in Kobo
BAMaFSRC	Preparation & demonstration of single ox harnessing system & simple farm tools/instruments Preparation of a compaction roller for teff planting
BAFOALRC	Preliminary survey for fishery development potential in Tebi reservoir & technical guidance on small-scale fish farming in Mekedela

The guidance and support activities carried out by the ARCs were as follows;

### (1) Adet Agricultural Research Center

The guidance and support activities by Adet ARC were carried out through the implementation of a simple trial in collaboration with WAO/DAs in Ebinate as follow;

Target Group & Site	4 beneficiary farmers; farmers fields (4 plots)
Target Crop	barley, wheat, field pea, teff
Planting Method	barley/wheat/field pea – row planting; teff – broadcasting

The simple trial activity was successfully operated and crop performances of barley, wheat & teff were satisfactory to more than satisfactory. However, field pea was damaged by birds after germination. FFD was held on September 24 by inviting woreda staffs, DAs and watershed communities. The Adet ARC will provide seeds of improved varieties showed good performances in the trial to WAO for their further field extension activities. The details of the simple trial are reported in the progress reporting on APVAs in Ebinate (Section 6.2).



### (2) Sirinka Agricultural Research Center

The guidance and support activities by Sirinka ARC were carried out through the implementation of

simple trials in Mekedela, Legambo and Aregoba or a demonstration/verification plot in Kobo carried out in collaboration with WAO/DAs as follow;

Item	Kobo 1/	Mekedela	Legambo	Aregoba
Target Group	7 farmers	2 farmers	3 farmers	5 farmers
No. of Plots	7 plots	2 plots	3 plots	5 plots
Target Crop	4 crops (maize, teff, sorghum, groundnut)	2 crops (wheat, teff)	3 crops (barley, wheat, field pea)	3 crops (wheat, teff, sorghum)

*1/: demonstration/verification activity*

The crop performances in the trial and demonstration plots were rather not satisfactory. Only 3 crops (barley, wheat & field pea) in Legambo and teff in Kobo & Mekedela performed satisfactory to more than satisfactory. However, the same of others were poor than expected. The details of simple trials and a demonstration/verification plot are reported in the progress reporting on APVAs of subject woredas (Section 6.6, 6.7, 6.8, 6.9).



(3) BAMaFSRC (Demonstration of Single Ox Harnessing System & Simple Farm Tools)

The demonstrations of single ox harnessing system and simple farm tools by the RC were carried out in the target watersheds of Ebinata and Simada as follows;

Woreda	Date	Guidance/Support Activities
Ebinata	June 18	Demonstration & guidance on single harnessing system & farm tools
Simada	June 16 - 17	Demonstration & guidance on single harnessing system & farm tools

The demonstrations on plowing by a single ox harnessing system were carried out successfully in the presence of a number of farmers. Although minor modifications of the system appear to be necessary, the demonstration and the system were highly assessed by participants in both the woredas. Further, a modified compaction roller for teff planting was prepared by the RC.



#### (4) BAFOALRC

The field survey for fishery development potential in the Tebi reservoir in the target watershed of Mekedela was carried out by BAFOALRC from May 14 to 15, 2010. The field guidance on a small-scale fish farming in the watershed was made on October 20th at the time of the stocking of fingerlings in the fish pond as follows;



Target Group & Site	Water Users Association of Tebi Irrigation Scheme, land owned by the Association located close to the Tebi Reservoir
Size of Fish Pond	10 x 10 x 1.25m; 125m <sup>3</sup>
Fish Species & No. of Fishes	Tilapia ( <i>Oreochromis niloticus</i> ); ±200 fingerlings (size ±10cm, caught at the Lake Hike in Jati)
Stocking of Fingering	Oct. 20, 2010

The details are reported in the progress reporting on APVAs in Mekedela (Section 6.7).

## CHAPTER 7 Lessons Learned and Conclusions

### 7.1 Lessons Learned and Recommendations

Major lessons learned obtained from the introduction of the proposed approaches for agricultural promotion (discussed in Interim Report, April 2009 and in Chapter 2 of this Appendix F) and extracted through the implementation of verification activities for agricultural promotion for 3 cropping seasons of the meher season 2009, belg season 2009/19 and meher season 2010 in the target watershed are enumerated together with recommendations to the lessons learned by categorizing into approaches, institutional issues, administrative issues, individual activities and other issues and in the followings;

#### (1) Proposed Approaches for Agricultural Promotion

The proposed approaches for agricultural promotion have been employed in the formulation of the proposed/conceivable verification activities in 2009 & 2010 (overall plan) and seasonal & annual plans in the target watershed as reported in the Interim Report and in Chapter 2. The processes applied in the formulation include: i) identification of present conditions & constraints/problems, ii) assessment of past/current development activities & development potentials, iii) explanation on proposed approaches for agricultural promotion, iv) formulation of preliminary proposed/conceived verification activities for agricultural promotion (overall plan) and v) formulation of seasonal and annual plans. The formulation was made through the participatory approach of stakeholders, WAO, DAs, watershed community and JICA Study Team.

The experiences in the formulation under the present study proved that as basic approaches for agricultural promotion in micro-watersheds, the said proposed approaches could be applied. However, following issues should be improved or taken into account for the introduction of the approaches and in the formulation of annual or long term agricultural promotion activities.

- Basically, WAOs and DAs have capabilities and experiences to carry out planned verification activities for agricultural promotion activities (APVAs). However, their capabilities and experiences to formulate effective APVAs well tailored to the problems/constraints and potentials in target areas and to capabilities, intensions & wishes of target communities are yet to be strengthened.
- Improvement of participants' practical knowledge & capability for introducing the approaches through intensive guidance/training and repeated practices of the adoption of the approaches in fields (OJT).
- Before their attainment of such knowledge & capability, the participation of external experts will be essential for the formulation.
- Ownership of woreda staffs for verification activities was rather limited, possibly, because of high turnover rate of DAs, delay of assignment & replacement of focal person/coordinator & experts assigned and limited budget availability. Further, ownership of participated farmers (CRG members) for field activities as verification/demonstration & simple trial was also limited. The investigation on reasons for limited ownership and the introduction of counter measures or

solutions to such situations will be essential for the expansion and sustainability of the activities.

- Identification of present conditions & constraints/problems, needs, intention & capabilities of WS communities should be performed basically as routine activities of DAs and findings should be reported to WAOs periodically as area specific basic information to be considered in the formulation of annual or seasonal agricultural promotion activities.
- (2) Institutional Issues
- Turnover rates of the DAs in the target watersheds were very high. Among the DAs (crop, livestock, natural resources) who participated in the VAs in the meher season 2009, only those in 2 woredas (Gidan & Legambo) were still posted in the watersheds, while all DAs in 6 woredas were transferred (except livestock DA in Kobo; as of February, 2010). High turnover rates of focal person/coordinator and woreda experts have also been a serious headache to the Study Team. Necessary arrangements to avoid such high turnover rate are considered essential for the successful project implementation.
- (3) Administrative Issues
- Monitoring, evaluation & feedback system from the field level to the WAO authority should be institutionalized in any WAO activities. Results, findings and lessons learned identified through monitoring of the activities should duly be assessed and accommodated in the following activities in the feedback system. A simple system at the initial stage and then to upgrade the system.
  - In the current procurement system of commodities, the procurement costs of limited quantities of necessities & goods become very high. The procurement costs should be lowered by procuring the necessities & goods in a combined manner with other WAO activities.
- (4) Verification/Demonstration Activity
- There are substantial rooms for the enhancement of technical skills on farming practices (practical skills) of DAs & crop experts as many DAs and crop experts have limited experiences in operating field activities such as demonstration, verification and trial. Activities to enhance such skills should better be accommodated in the capacity building OJT programs for extension personnel. Relevant activities for such purposes include demonstration, verification and simple trial activities as introduced under JALIMPS.
  - In the establishment and operation of verification/demonstration plot, there exist substantial rooms for improvement in site selection, selection of target groups (farmers), plot designing, selection of target crops/varieties and farming practices to be introduced.
  - One constraint encountered in the demonstration/verification & trial activities was difficulty in procurement of seeds required for field extension activities. Further, WAOs and DAs have difficulty to obtain information on promising varieties/seeds to their subject areas. Their accessibility to the same is further constrained. The strengthening of research-extension linkage should be institutionalized in the extension strategy. To this effect, the collaborative implementation of simple trial activities by research centers and WAO/DAs as envisioned under

JALIMPS should better be accommodated in the extension activities.

- The involvements of CRG members other than operators of the plots appeared to be limited. Measures to promote the positive participation of members should better be worked out as stated earlier. Further, measures to promote farmer to farmer extension should be introduced.
- Crop performances observed in the verification/demonstration activities verified that crop productivities in the target woredas will be improved substantially when proper or appropriate farming practices (extension package farming practices or else) are properly adapted or introduced. Next steps to be taken will be how to disseminate such farming practices to farming communities as envisaged in the extension policy in Ethiopia. Conceivable next steps will be large scale demonstration activities under proper & intensive field guidance and with the provision of seeds and fertilizer under credit.
- Proper practices to be introduced should be appropriate practices which could be adapted without any substantial additional inputs or with additional inputs affordable by farming communities.
- Experimental & demonstration activities of research institutes are generally directed to the introduction of new varieties. The introduction of trial/verification/demonstration activities of improved or appropriate farming practices and farm tools should be envisaged by the extension agencies (BOARD & WAO) under the collaboration with research institutes. To this effect, the strengthening of research-extension linkage should be sought.
- WS farming communities, especially CRG members, showed strong interests in varieties/crops successively cultivated in demonstration/verification or simple trial plots and requested to DAs to provide such seeds for their cultivation in a next cropping season. There exist chances to improve crop productivity through the introduction of such field activities. Further expanded activities will be the operation of large scale demonstration farm & area with the similar concept or modified concept (in which seeds & fertilizer provided under credit) as stated earlier.
- Collection of reliable or accurate yield data on similar activities should be envisaged. To this effect, WAOs and other agricultural agencies should better make it routine to collect yield data on such activities and even on farmers levels.

(5) Simple (Adaptive) Trial Activity

- Crop performances in trial plots differed substantially among woredas. It appears that crop performances were well in woredas or watersheds where well experienced DAs, supervisors or crop experts involved in demonstration/trial activities. There are substantial rooms for the enhancement of technical skills on farming practices (practical skills) of DAs & crop experts as stated earlier.
- In several trial plots, layouts of plot were rather arbitrary and precise measurements of plot sizes appeared impossible. Basic skills for trial operation should be acquired by all WAO extension staffs. Aiming at transferring of such basic skills for trial, the involvement of agricultural research centers in trial activities should better be accommodated in APVAs until the WAO staffs attain



such skills.

- The research-extension linkage is poorly established in the target woredas and the accessibility of WAOs to research findings is limited. For example, WAOs have rather limited knowledge on promising varieties or even on crops and have almost no access to seeds of such varieties or crops. The involvement of research centers in the trial activities will mitigate the said constraints to some extent.
- Farming communities usually have limited knowledge, information and access to improved farming practices and promising crops/varieties. Dissemination of such should be attempted through the simple trial activities. Many farmers showed keen interests in crops/varieties successfully grown in demonstration and trial plots and farm implement demonstrated in the verification activities.
- Some simple but important trial topics (other than adaptive test on crops/varieties carried out under APVAs) could be carried out by DAs/CRGs under the guidance of crop experts include: seeding rate, number of seeds/hill, planting distance/density, seeding depth, effect of thinning out, row planting by marsha, weeding & earthening-up by marsha in row planting etc.

#### (6) Fruit Production Activities

- Some WS communities expressed keen interest on fruit production. The successful introduction of fruit production in the target watersheds will present sustainable income generation opportunities to WS communities. However, there still substantial rooms for DAs/crop experts to improve their practical skills in fruit production.
- However, almost all target places for fruit planting under the project fruit production activities are home yard gardens and farmlands close to houses where watering to fruit plants can easily be carried out. Technical possibility to grow fruits or perennial cash crops under rainfed conditions in remote areas from housings should be examined in order to develop sustainable income generation opportunities to all WS communities and to introduce fruits or perennial crops cultivation as a promising watershed conservation measure.
- For the realization of development potentials of temperate fruits in highland areas, the formulation and implementation of temperate fruit development project is recommended. (A project proposal for the purpose is drafted under the present Study).

#### (7) Forage Development Activities

- Forage development is inevitable development intervention for sustainable livestock production in all the target watersheds. Some beneficiary farmers of forage development activity expressed strong interests on forage production. However, growth or adaptability of forage crops/plants introduced under the activities differs among plants and watersheds. It appears essential to carry out extensively field trials on forage crops/plants in order to select area specific promising forage crops/plants and then to carry out field demonstrations of such promising crops/ plants.

(8) Extension Services

- FTC Farm is to be established as a central place for agricultural extension activities and DAs are key players of the activities at kebele level. However, the establishment of FTCs in the target watersheds appears to be rather poor compared with the envisioned role. Improvement of the Farms is considered essential for the strengthening of extension activities and to better working conditions of DAs.
- Development & introduction of improved simple farm tools & installments should seriously be envisaged. The regional mechanization institutes have already developed some simple farm tools & installments. Field tests of such improved tools & implements should better be carried out intensively as attempted in the coming meher season under JALIMPS.
- The onset processing training implemented in Ebinata woreda was well arranged and successfully carried out by WAO and a trainer of BoARD and participants showed their deep satisfaction. In training activities, transfer of practical knowledge/skills and experiences to farming communities should be envisaged by well experienced trainers with sufficient practical skills.

(9) Income Generation Activities

- It appears that WAOs/DAs have enough experiences to carry out income generation activities introduced under the present project. .
- Beneficiaries of the income generation activities under the present project were selected from advanced farmers in target WSs in some cases because of limited capabilities of food insecure families (target groups of the activities) to carry out such activities, especially Modern Bee Hive Package (because of availability of bee colony) & Sheep Breed Improvement (because of availability of feeds). The selection of proper target groups and necessary supports for them to carry out such activities should be sought.

## **7.2 Lessons Learned and Recommendations**

As stated earlier in Chapter 2, the verification activities for agricultural promotion (APVAs) were planned and implemented: i) to verify the adoptability of the proposed approaches for agricultural promotion in the food insecure woredas formulated in the present Study and ii) to assess the capabilities of WAOs and DAs for implementing APVAs in addition to evaluate performances, results and findings of individual verification activities and to extract lessons learned from the implementation of APVAs.

The adoptability of the proposed approaches for agricultural promotion in the food insecure woredas has been verified through the results, findings and lessons learned from the implementation of APVAs for 3 cropping seasons of the meher season 2009, belg season 2009/10 and the meher season 2010 and the results of the final evaluation workshops in the target watersheds and woredas. Although there are rooms for revising/updating the approaches based on the lessons learned from the implementation as proposed in the Technical Guideline discussed later.

Further, the strengthening of the capabilities of WAOs and DAs through the intensified

guidance/training prior to the implementation of agricultural promotion activities and through the OJT on the same will be vital for the successful operation of the activities in the target areas and for addressing the agricultural core problems indicated in Figure F.2.

The key issues for future agricultural promotion projects in the food insecure woredas will be;

- *Establishment of project implementation unit posted with permanent staff to ensure project ownership by the implementation agency (WAO),*
- *Target areas of the project should be kebeles as the project should better be operated through FTC, and*
- *Promotion activities should be formulated based on in depth study on agricultural problems & constraints, capabilities/intensions of target farming communities and development potentials in the target kebeles.*

Envisaging the continuation and expansion of agricultural promotion activities in the food insecure woredas and highland areas, the following project proposals and a technical guideline were prepared as further development actions to be taken for the agricultural promotion/development in the areas.

- *Integrated Agricultural Promotion Project in Food Insecure Woredas in Amhara Region*
- *Temperate Fruit Development Project in Ethiopian Highlands*
- *Technical Guideline for Integrated Agricultural Promotion Activities (APAs) in the Food Insecure Woredas in Amhara Region (guideline for the Integrated Agricultural Promotion Project; prepared as separate volume)*

The project proposals are presented in Appendix C2.

***F-2: Natural Resource Management Component***

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## 1. Basic Information of the 8 watersheds

**Table 1.1 Basic Information of the 8 Watersheds 1/4**

Basic Information of Silasiemesk Watershed, Ebinate Woreda			Basic Information of Woiraye Watershed, Simada Woreda		
Area	773.8	ha	Area	2221.1	ha
Land Class			Land Class		
	Area (ha)	% of LandClass Area		Area (ha)	% of LandClass Area
Background		0%	Background		0%
Afro-alpine		0%	Afro-alpine		0%
Bareland	0.2	0%	Bareland	72.0	3%
Cultivation	244.6	32%	Cultivation	1272.3	57%
Grassland	193.1	25%	Grassland	790.2	36%
Natural Forest		0%	Natural Forest		0%
Shrubland	334.4	43%	Shrubland	85.1	4%
Urban		0%	Urban		0%
Water		0%	Water		0%
Woodland	1.2	0%	Woodland		0%
Total	773.5	100%	Total	2219.6	100%
Slope			Slope		
Slope (percent rise)	Area (ha)	% of Slope Area	Slope (percent rise)	Area (ha)	% of Slope Area
0-3	83.5	11%	0-3	19.3	1%
3-7	190.2	25%	3-7	134.1	6%
7-15	199.1	26%	7-15	486.4	22%
15-30	177.4	23%	15-30	1025.1	46%
30-45	84.3	11%	30-45	538.6	24%
Over 45	39.3	5%	Over 45	17.7	1%
Total	773.8	100%	Total	2221.1	100%
Elevation			Elevation		
Min	1965.0	m	Min	2171.0	m
Max	2463.0	m	Max	2800.0	m
Mean	2088.0	m	Mean	2493.6	m
Water Yield			Water Yield		
Minimum:	28.5	mm/mon	Minimum:	37.3	mm/mon
Maximum:	42.6	mm/mon	Maximum:	65.3	mm/mon
Mean:	37.7	mm/mon	Mean:	50.8	mm/mon
High Water Yield	Over 42.6	mm/mon	High Water Yield	> 60	mm/mon
Water Yield (middle)	40.0 - 42.6	mm/mon	Water Yield (middle)	60 - 50	mm/mon
Soilloss			Soilloss		
Minimum:	0.0	ton/month	Minimum:	0.0	ton/ha
Maximum:	2.2	ton/month	Maximum:	3.9	ton/ha
Mean:	0.7	ton/month	Mean:	0.9	ton/ha
Soilloss Hazard	Over 1.5	ton/month	Soilloss Hazard	> 2.0	ton/month
Soilloss Middle	1.0-1.5	ton/month	Soilloss Middle	1.0-2.0	ton/month

**Table 1.2 Basic Information of the 8 Watersheds 2/4**

Basic Information of Tejno Watershed, Gidan Woreda			Basic Information of Keyberet Watershed, Bugena Woreda		
Area	1028.3	ha	Area	1119.8	ha
Land Class			Land Class		
	Area (ha)	% of LandClass Area		Area (ha)	% of LandClass Area
Background		0%	Background		0%
Afro-alpine	26.2	3%	Afro-alpine		0%
Bareland	4.2	0%	Bareland	1.7	0%
Cultivation	689.2	67%	Cultivation	614.9	55%
Grassland	67.4	7%	Grassland	272.2	24%
Natural Forest		0%	Natural Forest		0%
Shrubland	237.3	23%	Shrubland	230.6	21%
Urban		0%	Urban		0%
Water		0%	Water		0%
Woodland	2.7	0%	Woodland		0%
Total	1026.9	100%	Total	1119.4	100%
Slope			Slope		
Slope (percent rise)	Area (ha)	% of Slope Area	Slope (percent rise)	Area (ha)	% of Slope Area
0-3	0.0	0%	0-3	42.5	4%
3-7	7.2	1%	3-7	107.6	10%
7-15	28.9	3%	7-15	236.0	21%
15-30	169.4	16%	15-30	425.4	38%
30-45	381.3	37%	30-45	196.7	18%
Over 45	441.5	43%	Over 45	111.6	10%
Total	1028.3	100%	Total	1119.8	100%
Elevation			Elevation		
Min	2570.0	m	Min	2083.0	m
Max	3661.0	m	Max	2565.0	m
Mean	3093.8	m	Mean	2429.2	m
Water Yield			Water Yield		
Minimum:	26.5	mm/mon	Minimum:	26.5	mm/mon
Maximum:	33.7	mm/mon	Maximum:	33.7	mm/mon
Mean:	33.0	mm/mon	Mean:	33.0	mm/mon
High Water Yield	Over 33.5	mm/mon	High Water Yield	Over 33.5	mm/mon
Water Yield (middle)	33.2 - 33.5	mm/mon	Water Yield (middle)	33.3 - 33.5	mm/mon
Soilloss			Soilloss		
Minimum:	0.0	ton/month	Minimum:	0.0	ton/month
Maximum:	0.1	ton/month	Maximum:	0.1	ton/month
Mean:	0.0	ton/month	Mean:	0.1	ton/month
Soilloss Hazard	Over 0.45	ton/month	Soilloss Hazard	Over 0.5	ton/month
Soilloss Middle	0.28-0.45	ton/month	Soilloss Middle	0.3-0.5	ton/month

**Table 1.3 Basic Information of the 8 Watersheds 3/4**

Basic Information of Amid Watershed, Kobo Woreda			Basic Information of Assoye Watershed, Legambo Woreda		
Area	533.0	ha	Area	2849.6	ha
Land Class			Land Class		
	Area (ha)	% of LandClass Area		Area (ha)	% of LandClass Area
Background		0%	Background		0%
Afro-alpine		0%	Afro-alpine	24.9	1%
Bareland		0%	Bareland		0%
Cultivation	260.9	49%	Cultivation	1261.3	52%
Grassland	144.8	27%	Grassland	982.9	40%
Natural Forest		0%	Natural Forest	24.5	1%
Shrubland	125.4	24%	Shrubland	141.3	6%
Urban		0%	Urban		0%
Water		0%	Water		0%
Woodland	1.7	0%	Woodland	3.6	0%
Total	532.7	100%	Total	2438.5	100%
Slope			Slope		
Slope (percent rise)	Area (ha)	% of Slope Area	Slope (percent rise)	Area (ha)	% of Slope Area
0-3	5.6	1%	0-3	57.0	2%
3-7	147.7	28%	3-7	204.7	7%
7-15	139.7	26%	7-15	621.3	22%
15-30	139.7	26%	15-30	1094.1	38%
30-45	72.2	14%	30-45	727.2	26%
Over 45	28.1	5%	Over 45	145.3	5%
Total	533.0	100%	Total	2849.6	100%
Elevation			Elevation		
Min	1530.0	m	Min	2878.0	m
Max	1928.0	m	Max	3552.0	m
Mean	1676.2	m	Mean	3193.4	m
Water Yield			Water Yield		
Minimum:	32.6	mm/mon	Minimum:	352.8	mm/year
Maximum:	42.7	mm/mon	Maximum:	514.9	mm/year
Mean:	35.0	mm/mon	Mean:	423.5	mm/year
High Water Yield	Over 40	mm/mon	High Water Yield	> 500	mm/year
Water Yield (middle)	33 - 40	mm/mon	Water Yield (middle)	450 - 500	mm/year
Soilloss			Soilloss		
Minimum:	0.0	ton/month	Minimum:	0.0	ton/year
Maximum:	1.3	ton/month	Maximum:	9.8	ton/year
Mean:	0.6	ton/month	Mean:	2.3	ton/year
Soilloss Hazard	Over 0.85	ton/month	Soilloss Hazard	> 7.0	ton/year
Soilloss Middle	0.6-0.85	ton/month	Soilloss Middle	6.5-7.0	ton/year



**Table 1.4 Basic Information of the 8 Watersheds 4/4**

Basic Information of Tebi Watershed, Mekedela Woreda			Basic Information of Senbo Watershed, Aregoba Woreda		
Area	1890.4	ha	Area	718.4	ha
Land Class			Land Class		
	Area (ha)	% of LandClass Area		Area (ha)	% of LandClass Area
Background		0%	Background		
Afro-alpine		0%	Afro-alpine		
Bareland		0%	Bareland		
Cultivation	1065.4	56%	Cultivation		
Grassland	783.3	41%	Grassland		
Natural Forest	0.7	0%	Natural Forest		
Shrubland	23.4	1%	Shrubland		
Urban		0%	Urban		
Water	16.9	1%	Water		
Woodland		0%	Woodland		
Total	1889.6	100%	Total		
Slope			Slope		
Slope (percent rise)	Area (ha)	% of Slope Area	Slope (percent rise)	Area (ha)	% of Slope Area
0-3	208.7	11%	0-3	0.8	0%
3-7	337.1	18%	3-7	9.6	1%
7-15	714.4	38%	7-15	64.2	9%
15-30	570.7	30%	15-30	341.1	47%
30-45	39.3	2%	30-45	224.8	31%
Over 45	20.1	1%	Over 45	77.9	11%
Total	1890.4	100%	Total	718.4	100%
Elevation			Elevation		
Min	2082.0	m	Min	1603.0	m
Max	3067.0	m	Max	2373.0	m
Mean	2822.7	m	Mean	1937.2	m
Water Yield			Water Yield		
Minimum:	25.4	mm/mon	Minimum:		mm/mon
Maximum:	32.2	mm/mon	Maximum:		mm/mon
Mean:	28.9	mm/mon	Mean:		mm/mon
High Water Yield	> 30	mm/mon	High Water Yield		mm/mon
Water Yield (middle)	27.5 - 30	mm/mon	Water Yield (middle)		mm/mon
Soilloss			Soilloss		
Minimum:	0.0	ton/ha	Minimum:		ton/year
Maximum:	1.7	ton/ha	Maximum:		ton/year
Mean:	0.7	ton/ha	Mean:		ton/year
Soilloss Hazard	> 1.0	ton/month	Soilloss Hazard		ton/year
Soilloss Middle	0.5-1.0	ton/month	Soilloss Middle		ton/year



Suitable Tree Species in the Target 8 Woredas (2/2)

Amharic Name	Scientific Name	Propagation (xx: Recommended, x: Possible)						Coppicing	Seed Treatment			Other Seed Properties					
		Seedling	Cutting	Slump	Wilding	Sucker	Direct Sowing		Need	No Need	Methhod	Bearing	Storage	Ave. No. per kg (Gross)	Germination Rate (%)	Ave. No. per kg (Net)	
Kerkha	Arundinaria alpina		xx														
Asta	Erica arborea	x			xx												
Amija	Hypericum revolutum	x	xx				xx										
Key bahir zaf	Eucalyptus viminalis	xx															
Kosso	Hagenia abyssinica	xx	xx														
Kega	Rosa abyssinica	xx															
Tree lucem	Chamaecyparissus proliferus	xx															
Tid	Juniperus procera	xx			xx												
Koma	Prunus africana	xx			xx												
Weira	Olea africana	xx			xx												
Lol, Somb, Teselimo	Ekebergia capensis	xx	x		xx												
Ahaya	Salix mucronata	xx	xx		xx												
Bazra gilar	Acacia abyssinica	xx		x	xx												
Yefiyel Gar	Aeschynomene abyssinica																
Mech bahir zaf	Eucalyptus globulus	xx		x													
Zigba	Podocarpus falcatus	xx			xx												
Korch	Erythrina brucei	xx	xx	x													
Shola	Ficus sur	xx	xx		xx												
Shewshewe, Arzelbanos	Casuarina cunninghamiana	xx															
Key bahir zaf	Eucalyptus camaldulensis	xx															
Grevila	Grevillea robsia	xx		x	xx												
Donga, Cheleleqa	Apodytes dimidiata	xx			xx												
Bisana	Croton macrostachyus	xx			xx												
Agam	Carissa edulis	xx			xx												
Cheba, Wile	Acacia lahai	xx			xx												
Gar	Acacia albidia	xx		x	xx												
Dokma	Syzgium guineense	xx			xx												
Saligna bahir zaf	Eucalyptus saligna	xx		x													
Key bahir zaf	Eucalyptus grandis	xx															
Akacha, Mimosa	Acacia decurrens	xx		x													
Sesa	Albizia gummifera	xx															
Birbira	Milletia ferruginea	xx															
Wanza	Cordia africana	xx			xx												
Shilo bahir zaf	Eucalyptus citriodora	xx															
Korch	Erythrina abyssinica	xx	x														
Yergib aler	Cajanus cajan	xx		x													
Akacha saligna	Acacia saligna	xx															
Arzelbanos, Shewshewe	Casuarina equisetifolia	xx	x	x													
Wacha	Acacia seyal	xx		x	xx												
Sesa, Imasa, Sembara	Albizia schimperiana	xx			xx												
Bamba, Shola	Ficus sycomorus		xx														
Girangire	Sesbania sesban				xx												
Dewenti gar	Acacia tortilis	xx		x	xx												
Konfir, Sbansa-gilar	Acacia senegal	xx		x													
Shiferaw	Moringa oleifera	xx	xx														
Lukha	Leucaena leucocephala	xx															
	Jatropha curcas	xx	xx														

### 3. Tree Seedlings Planted in the 8 watersheds (2009)

**Table 3.1 Tree Seedlings Planted in the 8 watersheds (2009)**

Woreda	Watershed	Species	Number	Total
Ebinate	Silasiemesk	<i>Sesbania sesban</i>	21,700	30,200
		<i>Cordia africana</i>	1,000	
		<i>Acacia saligna</i>	7,000	
		Vetiver ( <i>Vetiveria zizanioides</i> )	500	
Simada	Woiraye	<i>Sesbania sesban</i>	15,220	40,447
		<i>Acacia saligna</i>	4,780	
		Vetiver ( <i>Vetiveria zizanioides</i> )	327	
		<i>Acacia saligna</i>	7,720	
		<i>Sesbania sesban</i>	7,550	
		<i>Bana grass</i>	120	
		Rigida	1,200	
		<i>Salix mucronata</i>	2,500	
		<i>Acacia spp. (exotic)</i>	1,030	
Bugena	Keyberet	<i>Acacia saligna</i>	N/A	4,000
		<i>Eucalyptus globulus</i>	N/A	
		<i>Sesbania sesban</i>	N/A	
		Tree lucern ( <i>Chamaecytisus proliferus</i> )	N/A	
		<i>Grevilea robusta</i>	N/A	
Gidan	Tejno	<i>Eucalyptus globulus</i>	12,500	12,500
Kobo	Amid	<i>Acacia saligna</i>	3,000	33,000
		<i>Jatropha curcas</i>	30,000	
Mekedela	Tebi	<i>Jatropha curcas</i>	10,500	26,886
		<i>Acacia saligna</i>	9,791	
		<i>Acacia decarens</i>	5,595	
		Elephant grass ( <i>Pennisetum purpureum</i> )	1,000	
Legambo	Assoye	<i>Eucalyptus globulus</i>	20,000	145,100
		<i>Juniperus robusta</i>	14,000	
		Tree lucern ( <i>Chamaecytisus proliferus</i> )	111,100	
Aregoba	Senbo	N/A	51,600	51,600
Total				343,733

**Table 3.2 Tree Seedlings Planted in the 8 watersheds (2010): 1/2**

Woreda	Watershed	Species	Number	Total
Ebinate	Silasiemesk	<i>Acacia Saligna</i>	8,431	71,308
		<i>Eucalyptus grandis</i>	4,700	9.0Kg
		<i>Grevillea robsta</i>	675	
		<i>Leucaena leucocephala</i>	4,470	
		<i>Sesbania Sesban</i>	15,175	
		<i>Kundoberbere</i>	6,675	
		<i>Vetiver grass</i>	27,565	
		<i>Vana grass</i>	962	
		<i>poplese</i>	895	
		<i>Strawberry</i>	1760	
		<i>Sesbania Sesban</i>	7.5 kg	
		<i>Serk flower</i>	1.5 kg	
Simada	Woiraye	<i>Eucalyptus globules</i>	4,171	22,004
		<i>Acacia Abbysinica</i>	2,225	
		<i>Acacia decurrens</i>	2,781	
		<i>Tree lucern</i>	7,827	
		<i>Susbania susban</i>	5,000	
Bugena	Keyberet	<i>Acacia abyssinica</i>	31000	105,344
		<i>Acacia decurrens</i>	3,700	
		<i>Eucalyptus camaldulensis</i>	32,585	
		<i>Eucalyptus citriodora</i>	20,140	
		<i>Eucalyptus globulus</i>	14,695	
		<i>Grevillea robsta</i>	1,824	
		<i>Casuarina equisetifolia</i>	1,400	
Gidan	Tejno	<i>Eucalyptus globulus</i>	25,000	25,000
Kobo	Amid	<i>Acacia abbysinica</i>	10,500	28,850
		<i>Millettia ferruginea</i>	1,000	
		<i>Sesbania sesban</i>	3,600	
		<i>Acacia Saligna</i>	11,680	
		<i>Cordea africana</i>	2,070	
		<i>Jatropha curcas</i>	75,150	

**Table 3.3 Tree Seedlings Planted in the 8 watersheds (2010): 2/2**

Woreda	Watershed	Species	Number	Total
Mekedela	Tebi	<i>Eucalyptus citriodora</i>	575	25,397
		<i>Acacia Abysinnica</i>	394	
		<i>Acacia Saligna</i>	4,358	
		<i>Eucalyptus camaldulnsis</i>	3,455	
		<i>Acacia deccurens</i>	6,988	
		<i>Juniperus procera</i>	927	
		<i>Eucalyptus globulus</i>	8,700	
Legambo	Assoye	<i>Tree lucern</i>	42,800	166,320
		<i>Eucalyptus globules</i>	15,000	
		<i>Juniperus procera</i>	35,000	
		<i>Elephant grass</i>	3,000	
		<i>Napir grass</i>	520	
		<i>Falaris grass</i>	70,000	
Aregoba	Senbo	<i>Acacia Saligna</i>	4500	205,230
		<i>Cordea africana</i>	7000	
		<i>Eucalyptus camaldulensis/globulus</i>	169,200	
		<i>Grevillea robsta</i>	3200	
		<i>Sesbania sesban</i>	3130	
		<i>Grevillea robsta</i>	7,000	
		<i>Pingean pea</i>	11,200	
Total			649,453	9.0Kg