

Research Component

Agricultural productivity is one of the focus areas of SO 16. It advocates an integrated approach, among others, through adoption of new technologies and improved agricultural practices and resource management. Intermediate Result (IR) 3 of SO 16, Natural Resources Management and Agricultural Productivity Improved, states that innovative partnership between research and extension systems is required to ensure the accelerated adoption of improved agricultural technologies and practices. This IR of the new strategy is by and large related to the IR4 of the former RHPP SO 7 (IR4) Food, agricultural and environmental research systems in target areas strengthened, on which the Research component of the AMAREW project is based.

Target woredas

In the past, USAID/AMAREW support provided to ARARI was and continues to be directed to strengthening on-farm research activities in targeted food insecure woredas covered by ARARI research centers located in different parts of the region, namely, Adet, Sirinka, Debre Birhan, and Sekota. The Project has been operating so far in low potential woredas, which are drought prone and food insecure. The AMAREW Project restructuring directives of USAID/Ethiopia, however, encourages coverage of both low and high potential areas. It is believed that by focusing on selected high potential areas, which can serve as growth poles, the strategy will contribute to accelerating the growth of new options (on and off-farm jobs) for the rural poor.

AMAREW has planned to include in 2005 and subsequent years two high potential woredas in the ANRS, in addition to the targeted five low potential woredas, to support on-farm research (Table 3). These selected high potential woredas are Ankober and Ensarona Wayu. Ankober is a high potential woreda for such crops as potato and barley, while Ensarona Wayu is for Dega cereals (wheat and barley), pulses (faba bean and lentil) and livestock (dairy). On-farm research is also planned for the two pilot watersheds (Yeku in Sekota, and Lenche Dima in Gubalfto woreda) by the respective research centers in the integration of extension and watershed management activities. The on-going on-farm research projects in Ger Keya, Efratana Gidem, Lalomama, and Angolela (the mandate of Debre Birhan RC), and Simada (Adet RC) will continue receiving USAID/AMAREW support.

Objectives of the research component

The overall objective of the on-farm research support is to improve agricultural production and productivity and ensure food security at the smallholder household level in the target woredas of the ANRS through the development and introduction of new technologies. The assistance of AMAREW project to ARARI in 2005 will place emphasis on the following major activity areas:

- Carrying out on-farm research in the proposed seven target woredas
- Upgrading researcher skills through short-term training

As stipulated in the ARARI Master Plan and the 3-year Strategic Plan, the research categories of the institute include soil and water management, forestry, field crops, horticultural crops, crop protection, animal production, feeds and nutrition, dry land farming, animal traction, and post harvest technology. This 2005 Annual Work Plan for the Research Component addresses most of these categories and has been developed jointly with ARARI, AMAREW's institutional partner. Recently a shift in research approach has been instituted by the BoARD instructing ARARI to follow the commodity focused research approach, in which all activities be planned in an interdisciplinary manner around major commodities such as wheat, teff, sorghum, maize, faba bean, field peas, noug, potatoes, dairy, poultry, etc. The natural resources research is also given major emphasis in the new directives by the Bureau.

Table 3. Targeted low (LP) and high potential (HP) woredas for on-farm research in 2005

Zone	Woreda	PA /Watershed	Research Center
Wag Hamra	Sekota (LP)	Hamusit	Sekota
		Tsemera	
		Mahibere Genet	
		Yeku Watershed	
North Wollo	Gubalafto (LP)	Amaye Mecha	Sirinka
		Wanzaye (Gebere Amba)	
		Wudemen	
		Lenche Dima Watershed	
South Wollo	Tehuldere (LP)	05 Kebele	Sirinka
		012 Kebele	
		015 Kebele	

South Gondar	Lay Gayint (LP)	01 Kebele	Adet
		013 Kebele	
		017 Kebele	
North Gondar	East Belessa (LP)	Dengora	Adet
		Deberzana	
		Achikan	
North Showa	Ankober (HP)	(High potential woreda)	Debre Birhan
	Ensarona Wayu (HP)	(High potential woreda)	
	Angolela, Lalomama, Efratana-Gidem, Gera Keya (all LP)	Woredas where on-going trials will be conducted	

Activities and Action Plan

On-farm Research Activities

Adet, Sirinka, Debre Birhan(Sheno), and Sekota are ARARI centers that are involved in the execution of on-farm research activities in the target woredas of the region. The types of on-farm research activities range from adaptation, verification to pre-extension demonstration trials. Continued efforts are also being made to plan for more on-farm research trials in 2005. On-farm research is undertaken in the various disciplines, namely crops, livestock, natural resources, socio-economics and research-extension. USAID/AMAREW provides support in 2005 to the on-going and new research projects in all the targeted drought-prone woredas. This support will also consider new trials in the two newly selected high potential woredas under the mandate of Debre Birhan Research Center.

In order to integrate research with the watershed management activities the two pilot watersheds, Yeku and Lenche Dima, are included as additional on-farm research sites. It is expected that with the initiation of more on-farm research, the number of farm households participating in on-farm research would increase. Successful technologies from on-farm research will be made ready for demonstration. Moreover, the research-extension linkage at the woreda level will be strengthened in the conduct of trials and monitoring and evaluation activities jointly by researchers and extension staff.

The budget summary for operational, short-term training and other activities is given in Table 4, while the detailed operational requirement and action plan of each center is given in Table 8 (i-iv). Table 7 and 9 show the physical action plan of all ARARI centers for USAID/AMAREW supported activities in 2005.

Adaptation Trials

ARARI centers have been conducting a number of USAID-supported on-farm researches in many trial sites in the food-insecure woredas. Continued attention will be given to adapting existing technologies from Ethiopia and elsewhere to local conditions of the seven target woredas (Lay Gayint, East Belessa, Sekota, Tehuledere and Gubalafto, Ankober, and Ensarona Wayu). The potential sources of technologies for adaptive on-farm research are:

- Successful results of on-station experiments by ARARI centers and other centers elsewhere in Ethiopia;
- New technologies identified by ARARI researchers in many local and international institutions in-country and abroad visited during technology shopping and study tours until 2004;
- Review of international journals and proceedings for new technologies.

Pre-extension demonstration and farm technology verification

Verification trials are conducted on farmers' fields and are managed by the Agricultural Economics and Research-Extension Division of each center in collaboration with the relevant research programs of the center. Technologies that are found successful in on-farm research are recommended for pre-extension demonstration. Demonstration sites will be established through the participation of all stakeholders including ARARI, BoARD and the farm households in planning and management of the plots. The Agricultural Economics and Research-Extension Division of each research center takes the responsibility of pre-extension demonstration of technologies on selected farm households. Training of participating development agents (DAs) and farmers will be also conducted. Annex Tables 5-8 give the list of on-going and new pre-demonstration trials corresponding to Agricultural Economics and Research-Extension category.

Currently there is a new and increasing interest in the Region on sericulture. It is a technology by which silk worms are reared for silk production. The two types of worms that have been adapted by the Melkassa Research Center of EARO are Mulberry silkworm and Eri silkworm, which feed on Mulberry tree leaves and castor bean leaves, respectively. Through its Adet Research Center, ARARI has planned for 2005 the introduction of sericulture technology on two hectares of land and demonstration of the two types of silk worms to potential end users in the region.

Small Grants and Mentorship Program (SGMP)

A few ARARI and BoARD researchers have won and initiated activities under the Small Grants and Mentorship Program (SGMP) during 2004. The main purpose is to link senior researchers in the US CRSP Universities with professionals in ARARI and BoARD. The Virginia Tech Consortium has broad experience and established procedures in administering small research grants. The AMAREW Project has planned SGMP for 2005 also. Call for proposals for 2005 from ARARI and BoARD will be issued again. Funding decision and subsequent implementation will be made after the approval of the Regional Implementation Team (RIT). The contractor's portion of the budget will fund the SGMP.

Upgrading Researcher Skills (Short-term trainings)

There is severe shortage of experienced research staff in all the ARARI research centers in all the disciplines. Since most of the existing ARARI staff is young and inexperienced short-term intensive courses can upgrade the skills of these young researchers. Traveling workshops to the different research centers within ARARI can also help share experiences in the target woredas, which can be organized with the woreda Office of Agriculture and Rural Development. This joint undertaking can at the same time encourage the integration of research and extension. The total budget requirement for short-term training and traveling workshop is given in Table 4, 5 and 6 while the detail is shown in Annex Tables 1 to 4).

Assumptions

The 2005 annual work plan is based on the following assumptions:

- 1) There is no delay in the budget release and distribution by both USAID/Ethiopia and the concerned regional bureaus and woreda administration;
- 2) The staff turnover of ARARI centers improves and the manpower development plan of ARARI becomes stable and consistent;
- 3) The SMS and DAs in the Woreda Office of Agriculture and Rural Development (WoARD) cooperate and closely work with center researchers in the conduct of on-farm trials, and vice versa;
- 4) There is no climatic hazard such as drought and flood affecting field activities during the cropping season;
- 5) ARARI in general continues receiving the necessary support and cooperation from its major partner, the BoARD, and other regional Offices, and vice versa.

Table 4. Summary of USAID/AMAREW funding requested by ARARI for 2005

No.	Category	Birr	Details are given in
1.	Operational budget	816,060	Table 7 and 8 (i-iv)
2.	Short-term trainings and traveling workshop, including Inductive Training Program at Adet RC, and the special trainings given at ARARI level.	481,050	Table 5
3	Basic and Foundation seed multiplication	160,000	
4	Accountant hired for USAID supported activities at ARARI (Salary, computer and printer, travel and per diem)	41,450	
	Total budget	1,498,560	

Table 5. Short-term training budget requirement for ARARI centers

No.	Activity	ARARI HQ Level	Research Centers Level
1	Short-term in-service training		
1.1	Upgrading researcher skills <ul style="list-style-type: none"> - Research Centers level short-term training - ARARI-wide short-term training 	30,000 (Table 6)	111,350 (Annex Table 1-4)
1.2	Researchers giving skill training to extension workers and farmers		99,700
1.3	Traveling workshop for ARARI researchers and woreda extension staff to Adet and Sirinka RCs (ARARI HQ level budget)	40,000	
1.4	Inductive Training Program at Adet RC catering to all RCs	200,000	
	Sub-Total	270,000	211,050
	Total (ARARI HQ Level + Center Level)		481,050

Table 6. ARARI-wide Headquarters level short-term training to researchers

	Activity	Budget
1	Quality analysis and orientation to international quality standards of exportable crops	10,000
2	Chemical and physiological (agronomic) analysis of crops	13,000
3	Individual in-service animal training	7000
	Total	30,000

Table 7. USAID/AMAREW operational budget of ARARI Research Centers, 2005

Budget line	Adet	Debre Birhan	Sirinka	Sekota	Total (Birr)
Wages (Enumerators + Laborers) and Per diem	49800	18500	95600	40660	204560
Supplies, seed purchase	27700	15000	23100	28360	94160
Trial site establishment	50050	6500	20000	10700	87250
Fuel, lubricant and maintenance	28350	16500	49500	22700	117050
Sample analysis (plant and soil)	15600	25000	37000	8000	85600
Seminar and field days	45850	35500	1000	12500	94850
Annual Evaluation & Planning Workshop	25000	25000	25000	25,000	100,000
Other admin. Costs, telephone, fax, etc.	7890	12000	5700	7000	32590
Total	250,240	154,000	256,900	154,920	
Grand Total					816,060

Table 8. USAID/AMAREW funding of the four ARARI Centers for 2005**i) Debre Birhan Research Center funding for 2005**

Budget title	Quarter				Total (Birr)
	I	II	III	IV	
Wage and Per diem	2500	4500	6500	5000	18500
Supplies, seed purchase	10000	3000	0	2000	15000
Trial site selection and establishment	0	4500	2000	0	6500
Fuel, lubricant and maintenance	3000	3500	5000	5000	16500
Sample analysis (plant and soil)	0	0	15000	10000	25000
Seminar and field days	0	10000	10500	15000	35500
Annual Evaluation and Planning Workshop	0	0	0	25000	25000
Other administrative costs (Fax, Tele, etc)	2000	3000	3000	4000	12000
TOTAL	17,500	28,500	42,000	66,000	154,000

ii) Adet Research Center funding for 2005

Wage and Per diem	10150	11950	14450	13250	49800
Supplies, seed purchase	8500	10900	4300	4000	27700
Trial site establishment	41300	8000	750	0	50050
Fuel, lubricant and maintenance	2000	8100	15250	3000	28350
Sample analysis (plant and soil)	0	0	10800	4800	15600
Seminar and field days	0	15550	15000	15300	45850
Annual Evaluation and Planning workshop	0	0	0	25000	25000
Other administrative costs (Fax, Telephone, etc)	1890	2000	2000	2000	7890
TOTAL	63,840	56,500	62,550	67,350	250,240

Table 8 (Continued). USAID/AMAREW funding of the four ARARI Centers for 2005**iii) Sirinka Research Center funding for 2005**

Wage and Per diem	19500	28100	27500	20500	95600
Supplies, seed purchase	3000	11900	5100	3100	23100
Trial site establishment	13000	2000	2000	3000	20000
Fuel, lubricant and maintenance	10500	12000	14000	13000	49500
Sample analysis (plant and soil)	0	12000	3500	21500	37000
Seminar, field days and workshop	0	0	0	1000	1000
Annual Evaluation and Planning workshop	0	0	0	25000	25000
Other administrative costs (Fax, Tele, etc)	3450	950	750	550	5700
TOTAL	49,450	66,950	52,850	87,650	256,900

iv) Sekota Research Center funding for 2005

Wage (Enumerators + Laborers) and Per diem	6400	9420	13920	10920	40660
Supplies, seed purchase	22500	5860	0	0	28360
Trial site establishment	1500	7700	1500	0	10700
Fuel, lubricant and maintenance	5200	5500	6500	5500	22700
Sample analysis (plant and soil)	4500	1500	2000	0	8000
Seminar and field days	4250	1000	4500	2750	12500
Annual Evaluation and Planning workshop	-	-	0	25000	25,000
Other administrative costs, bank charge, telephone, fax etc.	-	-	0	7000	7000
TOTAL	44,350	30,980	28,420	51,170	154,920

Table 9. Physical action plan of all ARARI Centers for USAID/AMAREW supported activities in 2005

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Site and farmer selection and establishment				←————→								
Planting material preparation				←————→								
Planting				←————→								
Construction of physical structures for NRM research				←————→								
Trials monitoring & Evaluation					←————→							
Harvesting & threshing										←————→		
Data compilation, analysis and reporting					←————→							
Field days for stakeholders										←————→		
Traveling workshop for researchers and woreda extension agents										←————→		
Annual Evaluation and Planning Workshop											←————→	