

**Farm Productivity Enhancement
Third Annual Report**

USAID Cooperative Agreement
No. FAO-0153-A-00-2054-00

Winrock International Institute for Agricultural Development

Center for Agricultural Cooperation and Development
Center for Agricultural Cooperation and Development
Agricultural Cooperative Development International

October 31, 1995

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WINROCK INTERNATIONAL

November 17, 1995

Ms. Sallie Jones
Office of Private and Voluntary Cooperation
Bureau for Food and Humanitarian Assistance
Agency for International Development
1515, Wilson Boulevard, Room 725
Arlington, VA 22209

Dear Sallie,

On behalf of the OFPEP consortium, I am pleased to submit ten copies of the Third OFPEP Annual Report.

As we indicated during the recent Steering Committee meeting in Washington D.C., this past year witnessed positive developments and expansion of activities within OFPEP. Assessment of impact showed improved food security, adoption of technologies, and more efficient land and soil management within the communities participating in the program. Preliminary work during this reporting period paved the way for expansion of the program into Ethiopia.

The number of partner institutions and farmer groups increased, as well as the number of linkages with other programs or projects. Donor interest increased as well. A contract agreement is presently being finalized with IFAD and WARDA to extend diffusion of rice technologies in four African countries, including Senegal and The Gambia, using the OFPEP approach. Hopefully, this recent development will somewhat compensate for the termination of OFPEP activities, per se, in The Gambia, due to external factors.

Year III was also the year of the untimely death of Cissy Katunze, the program gender specialist in Uganda, who is dearly missed by the farmer communities with which she was working.

As year IV is just starting, there is now reason to believe that OFPEP can make an even larger difference during the next twelve months than during the previous years.

I will be glad to provide you with additional information, if necessary.

Sincerely,

Pierre Ph. Antoine
Program Director, OFPEP

c: members of Steering Committee
OFPEP field offices

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**On-farm Productivity Enhancement Program
Third Annual Report**

**USAID Cooperative Agreement
No. FAO-0158-A-00-2054-00**

Winrock International Institute for Agricultural Development

in cooperation with

**Center for PVO/University Collaboration in Development
Save the Children Federation
Agricultural Cooperative Development International**

October 31, 1995

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Contents

I.	Executive Summary	1
II.	Overall Organization, Management, Staffing.....	6
	A. Winrock International	6
	B. PVO/University Center	6
	C. Global Technical Information Support	7
	D. Lead Organizations and Organization Charts	8
III.	Country Reports.....	10
	SENEGAL.....	10
	Program Overview and Highlights.....	10
	Senegal Country Report.....	16
	Technical Assistance and Training Provided and Reviewed.....	30
	Lessons Learned.....	33
	Recommendations for the Coming Year.....	34
	UGANDA.....	36
	Program Overview and Highlights.....	36
	Uganda Country Report.....	40
	Technical Assistance and Training Provided and Reviewed.....	44
	Lessons Learned.....	44
	Recommendations for the Coming Year.....	44
	KENYA.....	47
	Program Overview and Highlights.....	47
	Kenya Country Report.....	50
	Technical Assistance and Training Provided and Reviewed.....	69
	Lessons Learned.....	70
	Recommendations for the Coming Year.....	71
	THE GAMBIA.....	73
IV.	Financial Report	77

List of Tables

Table O.	Number of implementing partners	2
Senegal		
Table 1.	Geographical Location of Year 3 Interventions.....	11
Table 2.	Organization of Collaborative Program with Christian Children's Fund Techniques.....	17
Table 3.	Organization of Collaborative Program with Peace Corps	18
Table 4.	Seed: improved rice and millet seeds, cassava cuttings.....	22
Table 5.	Results in Soil Conservation: herbicide trials, live fencing, tree planting, and market gardening.....	22
Table 6.	Results in Composting	23
Table 7.	Number of farmers involved in rice demonstrations in 1994-95.....	23
Table 8.	Number of farmers encountered on PC monitoring tours.....	24
Table 9.	Number of demonstration parcels per village	25
Table 10.	Number of farmers trained in composting.....	26
Table 11.	Impact of compost on production	26

Table 12.	Effects of the treatment on rice yields in the Senegal River Valley.....	27
Table 13.	Results of rice farmers in Sinthiou Pathé and Ndonne.....	29
Uganda		
Table 14.	Adopters of OFPEP technologies outside the OFPEP groups	39
Table 15.	Activities and Results - Significant Achievements and Impact.....	43
Kenya		
Table 16.	Farmer groups of OFPEP-Kenya	55
Table 17.	Summary of activities by partner	56
Table 18.	Soil contents of organic matter, phosphorus, nitrogen and important plant nutrient bases in some districts in western Kenya	59
Table 19.	Results of laboratory analyses of samples of compost and manure	60
Table 20.	Crop varieties in demonstrations	61
Table 21.	Yields in Kg/24m ² and Kg/ha of varieties in demonstration plots	62
Table 22.	Soil fertility amendments used.....	63
Table 23.	Results of soil fertility demonstrations.....	63
Table 24.	Effect of fertilizer application on germination percentage of some cereal and legume crops in OFPEP districts in western Kenya	64
Table 25.	A summary of farmers trained during OFPEP-Kenya farmers training at the demonstration site between May 31 to July 28, 1995.....	66
Table 26.	Distribution of trainees with collaborators.....	66
Table 27.	A summary of activities in seeds and soil fertility in OFPEP-Kenya in the past year	69
Financial Report		
Table 28.	OFPEP: Summary of Expenditures at the End of Year III.....	78
List of Figures		
Figure O.	Roles and Responsibilities of Implementing Institutions.....	9
Senegal		
Figure 1.	OFPEP/Senegal Activity Sites	12
Figure 2.	Organizational Chart of Winrock International in Senegal	21
Uganda		
Figure 3.	Flow chart.....	41
Figure 4.	Management and Organizational Chart of OFPEP in Uganda	42
Figure 5.	OFPEP-Uganda Activity Sites	45
Kenya		
Figure 6.	Map of OFPEP Kenya Sites	52
Figure 7.	Organization Chart of OFPEP-Kenya	54
Appendices		
Appendix A.	Advisory Council Meeting Minutes - Senegal	
Appendix B.	Consultant Reports - Senegal	
Appendix C.	Monitoring Tools - Senegal	
Appendix D.	OFPEP Brochures - Senegal	
Appendix E.	Uganda Impact Monitoring Tools	
Appendix F.	Baseline Survey Questionnaire - Kenya	
Appendix G.	Results of Soil Analysis and Demonstrations - Kenya	
Appendix H.	Attendees at Training of Trainers Session - Kenya	
Appendix I.	Minutes of TAT Meeting - Kenya	
Appendix J.	Organizations and Institutions Collaborating with OFPEP	
Appendix K.	Report on Survey and Improved Rice Seed and Technology Adoption Rate	

d

I. Executive Summary

This third annual report of the On-Farm Productivity Enhancement Program focuses on field activities that have been implemented from October 1, 1994 to September 30, 1995. As in previous reports, agricultural activities of the current season will be described, but their results will be reported in next year's report.

In the period covered by this report, OFPEP has been operational in Senegal, Uganda, Kenya, and for the first half of the year, The Gambia. The political situation in The Gambia led USAID to withdraw its support from certain activities, including OFPEP. A decision was reached at the U.S. Advisory Council meeting in July to begin limited operations in Ethiopia with resources freed up by the closure of operations in The Gambia. That program was launched in early October and will be reported on in next year's Annual Report.

The saddest news to report for OFPEP in the past year is the loss of the Gender Specialist in East Africa, Ms. Cissy Katunze. Cissy joined Winrock for OFPEP in September 1994, and was already having a great impact on the program, especially the women farmers of Mukono District in Uganda. She fell ill and passed away on July 7, 1995. Cissy is sadly missed by all who knew her, but her spirit lives on in the daily lives of women who now fertilize their gardens from their compost piles, harvest high yields of nutritious beans for their families, and prevent the loss of precious topsoil by practicing soil conservation measures introduced to them by Cissy and carried on through OFPEP's partners.

Without exception, the results of the past year are impressive to anyone who visits the field talks with farmers, or studies the reports prepared by collaborators and lead agencies in each country. The number of partner organizations and community groups working with OFPEP has increased from 24 to 38 (including 10 from The Gambia) and the number of farmers attending training on OFPEP-introduced technologies is over 70,000 in 3 countries. This number is multiplied many times over when combined with villagers who receive training from community trainers specifically prepared for that purpose by OFPEP and its partners. There were more than 410 field workers and lead farmers trained just in the past year.

In each country, at least two Advisory Council Meetings were held which reviewed the progress of the activities and provided technical and programmatic guidance for OFPEP teams. In Washington, DC, the OFPEP Steering Committee held two meetings to review the overall program strategy and progress and to make decisions regarding possible program expansion.

At the beginning of this past year, the results of the participatory Mid-Term Evaluation were discussed at each site, as well as at the management level. Actions were taken at all levels to address many of the recommendations of that report. Monitoring tools have been refined and are being used with more regularity by project partners. In East Africa, the

farmer survey designed by the team in Uganda together with the evaluation consultant has been adapted and is being used in Kenya, and will also be used in Ethiopia. These surveys provide a wealth of data which will enable the project to follow the impact of its activities on farm families over a 2-3 year period. More reports and documentation of project impact are being produced and disseminated in each country. In particular, East Africa has assembled reports of its activities and findings of surveys and soil analyses for distribution throughout the region. In West Africa, a composting brochure is being used extensively in training activities by OFPEP and its partners. This will be made available for wider distribution if appropriate.

The collaborative process is being systematically explored to identify its strengths and weaknesses and how they have contributed to the capacity building of partner organizations. Small group discussions held among members of the technical advisory board in Kenya recently identified participating in the collaborative process as an OFPEP partner as contributing positively to addressing farm productivity by bringing related NGO's and government institutions together. In fact, the growing numbers of collaborators in each country testifies to this fact. Table O presents implementing and research institutions that participate in the OFPEP program.

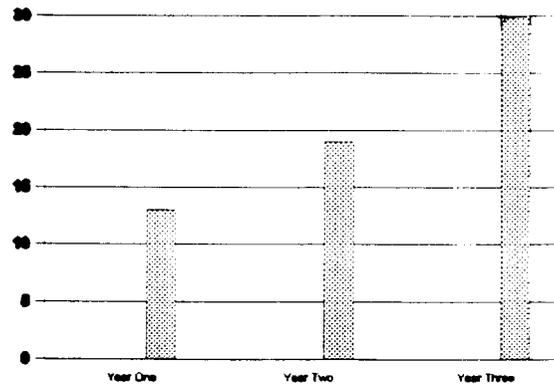


Table O: Number of Implementing Partners

Country Highlights

The Gambia

In only six months of operation the Save the Children/OFPEP team undertook several important activities which were designed to contribute to the sustainability of its efforts to increase farm productivity. In addition to field visits with their counterparts in Senegal and a major conference on agriculture and natural resources which brought together farmers and field staff from all over West Africa., the OFPEP team conducted a training needs assessment among its partners so that collaboration would continue as far as possible even with the official closure of the OFPEP program. This institutionalization of the collaborative process with a discrete technical message supports the argument for implementing an OFPEP-type approach by a lead agency that is an operational community development organization with a long-term commitment to a community/country. In this way, the other development activities of the lead agency can support, augment, and incorporate the OFPEP-type interventions being proposed. It also means, that when

official project activities/funding ends, the established networks can continue with the lead agency still providing leadership and technical assistance because it was involved in such activities even before the introduction of the external project/funding.

An example of this is the technical adoption and impact assessment carried out by Save the Children with its own funds after the closure of OFPEP. The major findings were that food security has increased rapidly over the two year period since the baseline survey. Thirty-one percent of farmers have produced enough rice to last between 7-12 months compared to 15 percent in the baseline. They also found that many people beyond the impact area have adopted improved varieties. This represents a 35-fold increase in improved variety plantings over the span of two years.

Senegal

With improved monitoring of the diverse OFPEP activities in Senegal, some interesting findings were revealed. The dissemination of improved rice varieties and the techniques associated with them has increased far beyond the scope and range of OFPEP staff and collaborators. In one region alone, from a first year ratio of 1:1, the ratio is now 1:3, meaning that for every village OFPEP reaches, three more are reached by traditional means of communication among farmers themselves. The same is true in the southern half of the country where 10 villages with improved varieties became 15 in one year's time through traditional dissemination methods.

Soil conservation methods are having impact far beyond the soils they protect. Of 20 farmers in Baback combining soil conservation with cassava planting, the following chart reveals what they have done with the increased income earned:

School fees and health care costs	18%
Reimbursement of debts	6%
Purchased food	36%
Purchased agricultural inputs	10%
House construction	12%
Purchases of livestock	18%

In the same way, composting is proving to be a valuable technology for millet farmers in the CCF zone. The percentage of farmers actually building compost pits after receiving training ranges from 19% to 250%! The millet yields associated with the use of this compost showed increases over fields without compost of between 60 and 285%. The rapid dissemination of this technology should be enhanced through such means as the farmer-initiated exchange forums like the one that took place in Baback and was attended by 70 men and 22 women, OFPEP staff, and their partners from USAID and NRBAR. Among the central themes of farmer's recommendations were:

- the importance of women's work in the farming system and recommendations for income-generating activities specifically for women;

- the necessity for farmers to return to certain traditional practices that conserve soil fertility (such as the use of manure);
- the importance of investing more labor time in the fields.

Uganda

In East Africa, activities have really taken off, particularly in Uganda even though some staff changes and losses have occurred. Nine new partners have been added which has greatly increased the number of farmers that can be reached with OFPEP technologies. ACIDI/OFPEP is active in 3 districts with a population of 2.3 million people. We have steadily increased our coverage of these districts and now reach 43 of the 97 sub-counties. More than 225 demoplots are scattered throughout this area with an average of 15 farmers being trained to use the new technology and share it at each site. In an attempt to quantify the extent to which one or more aspects of OFPEP-promoted technologies were being adopted, extension agents examined seed sales records of adopting farmers, seed distribution lists from lead farmers, reports from NGO partners, and information gathered by the farmer monitoring form to come up with numbers of adopters for improved seeds, selection and storage of between 986 and 16,108. For soil fertility/conservation measures, the number of adopters ranged from 237 to 2580. While these numbers are hard to pin down, they are an indication of the widespread importance of these new technologies. They also can indicate the presence of severe constraints with some of the technologies. These warrant working more closely with farmers to better understand these constraints and to look for ways to ameliorate them, or improve/adapt the technology to the local conditions.

The improved varieties of soybeans, maize, millet, and sorghum are being diffused throughout the districts from farmer to farmer through traditional and non-traditional methods. In one group of 10 farmers, individuals sold soybean seeds in quantities ranging from between 80-550 kilos. Millet, traditionally a food crop, is now being sold in small quantities. One farmer, who planted 5 kilos of improved seed, harvested an entire granary full. He shared some seeds with 4 neighbors, and sold enough to purchase a cow, worth about \$300.

One of the OFPEP partners, CCF, bought 400 kilos to distribute to other farmers in their projects, and another partner, Multi-Purpose Training and Employment Association, took 2 tons of the improved seeds and planting technology to a district in the north of Uganda. This shows the importance of the collaborative process for the extension of much needed and valuable technologies.

This process, involving OFPEP, partner PVO/NGOs, and farmers, is having an impact in other ways. OFPEP staff assisted two local partner organizations to develop proposals for funding from other donors that will enable them to enhance their institutional ability to disseminate OFPEP-promoted technologies. One of these proposals is to promote the high humidity rooting chamber technology for rapid multiplication of mosaic-resistant cassava plant material. This was a technology identified and brought to farmers by OFPEP from

the Namulonge Research Institute to deal with the need for disease resistant plant material. It has since been adapted by farmers using less costly, locally available materials. Widespread dissemination of this technology will enable the farmers to continue to plant this crop which plays such an important role in the household diet, particularly in the hungry season.

Kenya

The Kenya program, in its first full year with OFPEP, continues to grow also. Additional field staff have enabled four more partners to be added and one more district to be covered. Demonstrations with improved varieties planted alongside local varieties were held in the first rainy season of 1995. To insure the quality of seeds that are saved from one season to the next, a series of demonstrations of different storage methods were set up in farmers's compounds to enable them to evaluate the best methods for storing different types of seeds. In at least one case, farmer's indigenous knowledge, and innovative spirit encouraged them to add some additional, traditional treatments to the storage methods being tried.

To further intensify the efforts of the OFPEP staff and its partners a training of trainers workshop was held for 25 participants from government ministries and NGO's. This was in addition to the 28 training sessions for farmers in which a total of 493 women, 434 men and 797 youth were trained. Extensive baseline surveys were conducted this year on soil fertility and soil conservation in addition to the soil analyses performed by the Kenya Agricultural Research Institute. Findings from these surveys were presented at the meeting of the Advisory Council meeting in Kisumu and used to plan appropriate interventions. It was at this meeting that OFPEP partners credited the program with the following as the benefits they had received from the OFPEP collaborative process:

- creating an environment for sharing experiences
- giving farmers wider choices among existing technologies
- improving technical capacity of the extension staff involved in the program
- sharing of human resources and other inputs as may be required by the farmers for demonstration or trials
- access to information such as soil fertility data, demonstration results
- coordination of NGOs for experience sharing
- trainings for trainers and for farmers
- networking of NGOS' and government of Kenya institutions
- availability of demonstration materials

Format

This document follows the format used in previous reports, with each country report beginning with a brief review and highlights of the year's activities, followed by a detailed country report. In the appendix can be found copies of reports, forms, newsletters mentioned in the larger document.

II. Overall Organization, Management, Staffing

A. Winrock International

The OFPEP program director, Dr. Pierre Antoine, located at the Winrock headquarters in Arkansas, provides overall leadership, administrative supervision, and technical direction to the program. Throughout the year, he kept in daily communication with all partners in the field and in the U.S.A., and made frequent visits to project sites. He organized two Steering Committee meetings in Washington, D.C. In August, he initiated contacts and conversations with potential interested partners and donors, thus paving the way for the expansion of the OFPEP into that country in October 1995. Dr. Antoine also was instrumental in leveraging additional funds in support of the program (FICAH in Kenya, Monsanto in Senegal). Also at Winrock Headquarters, Ms. Johnnie Frueauff provides administrative support to the Program Director and Winrock staff in the field.

Two regional coordinators, appointed by Winrock, Mr. Alphonse Faye in West Africa and Dr. Moses Onim in East Africa, provide technical leadership for program activities taking place, or to develop, in these regions, in addition to being team leaders of OFPEP in Senegal and Kenya, respectively.

As an implementing institution, Winrock is the lead agency in Senegal and in Western Kenya (through a partnership with Lagrotech Consultants in Kenya. Winrock program personnel also participates in program activities in The Gambia and Uganda, in support of the OFPEP lead agencies in these countries. Ms. Cissy Katunze, Gender Specialist, was based in Uganda until her death in September 1994.

B. PVO/University Center

As a core member of the OFPEP consortium, the Center for PVO/University Collaboration in Development (the Center) through its Program Coordinator, Ms. Mary Lou Surgi, provided overall coordination and information dissemination about project activities. Ms. Surgi provides technical assistance in program planning, training, and project monitoring. She also coordinates the provision of technical assistance through a network of the Center members, recruits consultants and is responsible for overseeing the OFPEP newsletter. She coordinates administrative and financial management support for the Center staff and technical consultants.

Also at the Center, a part-time Information/Communication Specialist, produces the OFPEP newsletter, "Of Soils and Seeds." He is responsible for its lay-out, production, and distribution and for the production of other project-related documents. He also handles the gathering and forwarding of technical information and other documents of interest to project partners and helps to identify sources of technical information, and maintains a referral system for project participants and technical specialists.

During the third year of the project, the Center also continued to provide the Process and Linkages Specialist. Ms. Lisa Washington-Sow joined the project team in Dakar in this capacity in March 1995, replacing Dr. Sarah Workman who returned to the U.S. Ms. Washington-Sow, a socioeconomist, assists OFPEP partners in the areas of resource and needs assessment, data collection, monitoring and evaluation, forming linkages with government and nongovernment institutions, and the dissemination of information about project processes and results.

Other Personnel Support (Match) Dr. Robert Gurevich, Executive Secretary of the Center, and Mr. Ralph Montee, Program Director for the Center, provide programmatic backup and administrative support.

C. Global Technical Information Support

Technical Resource Bank The Center has established an informal technical resource bank comprised of specialists in such fields as agroforestry, tropical soils, credit analysis, agronomy, etc. At the present time, there are twenty scientists from seven universities plus NifTAL, who have shown their support of OFPEP by agreeing to provide technical information as needed without incurring costs to the program. The Center contacts them by FAX, telephone, or E-mail whenever it receives requests from the field. The Center also has access to library and research facilities to provide backstopping for information needs.

Technical Communication to OFPEP Staff. The Center handles technical requests for specific project information, materials, equipment, reference sources, etc., that concern project-related issues ranging from specifics on species of vetiver grass to where to buy equipment for rhizobium production.

Technical Consultants. The Center has recruited consultants, either in-country or from outside, who provided expertise in gender analysis, information systems, economic impact of selected project activities and monitoring and evaluation. In the third year of the project 7 consultants identified and recruited by either the Center, Winrock Headquarters, or the field have provided input either on a professional or volunteer basis to the project in Senegal and Uganda.

Newsletter Two issues of the OFPEP newsletter, "*Of Soils and Seeds*," were published in French and English editions. The newsletter has a worldwide circulation of over 1000 subscribers in English, and 250 in French. Aimed at the field level agricultural worker, it is designed to be a forum for exchange of ideas among the various collaborators in the four countries that make up the OFPEP program, and others interested in the same issues. The newsletter issued in January 1995 is presented in **Appendix D**.

D. Lead Organizations And Organization Charts

The relationship among OFPEP implementing institutions is presented on the following page (**Figure O**). Details regarding in-country organization and management will be covered under each country report along with their organizational charts (**Section III**).

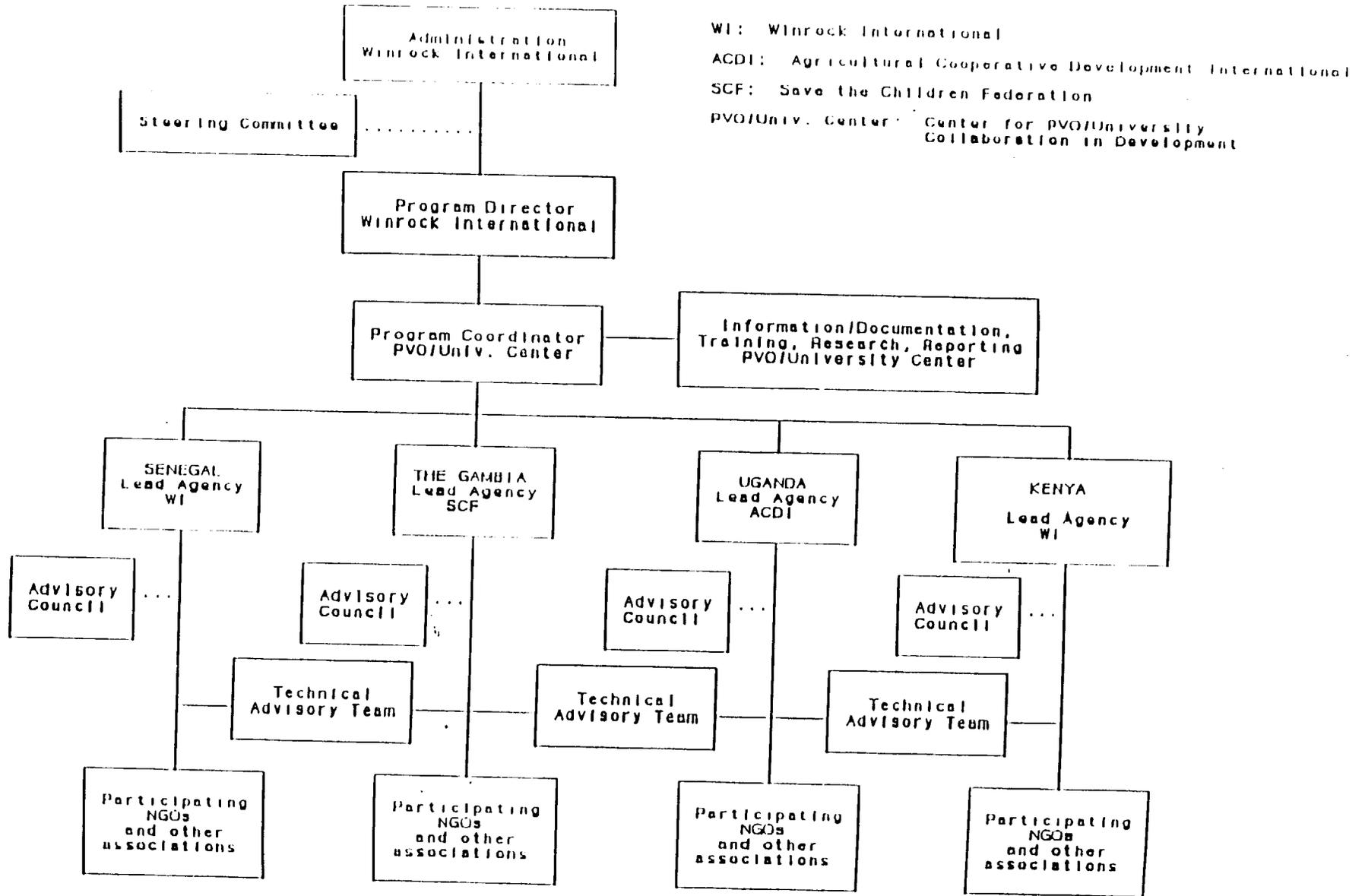


Figure 0: Roles and responsibilities of implementing institutions of the On-Farm Productivity Enhancement Program (OFPEP) during year 3.

III. Country Reports

Presented in this section are the country reports, their organizational charts, and details regarding in-country organization and management.

SENEGAL

Program Overview And Highlights Of The Past Year

Seeds And Soil Management

Seeds. A rationale for this project arises from estimates by Mississippi State University (MSU), a world authority on agricultural seeds, that more than 90% of the crops in developing countries are sown from seed stocks selected and saved by farmers. Thus it is vitally important that these selected seeds be of the highest quality as possible. Often, these improved varieties have been developed on research stations, but distribution and testing with farmers is limited. Reduced rainfall in recent years has necessitated a switch to earlier-maturing crop varieties. In light of mounting pressures on food supplies and the need to generate income, such problems cannot be ignored.

Soil. Poor soil fertility is one of the principal limiting factors to agricultural production in Senegal. It is linked to population pressure on the land, the lack of short and long term fallow periods, and intensive agriculture without adequate fertilization. During the last few years agricultural research has pointed to the importance of rebuilding and regenerating degraded soils by restoring their organic material.

In 1994-95, Winrock/OFPEP continued its program on compost in collaboration with the ISRA Soil Fertility team and with additional funding from the USAID/NRBAR project. In this program research findings concerning organic and mineral fertilizers are disseminated to farmers. Particular attention has been given to composting techniques that use locally available crop residues and manure.

Conservation and Protection of Soils. Soil degradation is another challenge for agricultural extension. Farmers are confronted by drought, reduced rainfall, and wind and water erosion. In addition, pressure on the land has forced farmers to abandon traditional fallow systems and has promoted tremendous losses in soil fertility. The pilot program for the protection and conservation of soil in the village of Baback (District of Thiès) has been extended to other villages.

The program started in July 1993 based on providing individual incentives for farmer families to put up live fences of *euphorbia* around their cassava fields. Live fencing is an indigenous technology in Senegal for soil restoration that has reappeared in recent years. In order to create more incentive for farmers, OFPEP provided cassava cuttings for

farmers to increase the surface area of live fencing with the condition that these farmers produce and distribute cuttings to different farmers next year. The live fencing program also involves tree-planting as part of the effort to restore degraded soils. The integrated approach of this program creates the following effects:

- The live fencing protects the soil from wind and water erosion, evapo-transpiration and protects the cassava and crop residues from animals.
- Fruit and forestry tree species raised by farmers in their own village nurseries are planted and protected by the live fencing.
- The cassava permits the farmer to increase his income since it is a valuable cash crop in Senegal. Cassava is a food crop consumed particularly during the hungry season. Cassava leaves are a crop residue that increase soil humus.

Partnerships And Linkages

The tables below and the map that follows (**figure 1**) situate OFPEP partners and activities by geographical location.

Table 1: Geographical Location of Year 3 Interventions

Seeds

Partner	Activity	District
Christian Children's Fund	improved millet	Thiès/Mbour (6 sites)
Peace Corps	improved rice	Kolda (26 sites), Tambacounda(10 sites), Nioro (8 sites) Foudiougne (10 sites)
COMI	improved rice	Tambacounda (2 sites)

Soil Fertility/Soil Conservation

Christian Children' Fund	compost, live fencing-cassava- re-forestation	Thies (2 sites), Mbour (4 sites)
Diapante/ISRA St Louis	Roundup-Dry	Senegal River Valley (6 sites)
SODAGRI *	Roundup Dry	Velingara
ISRA/NRBAR	Agro-forestry, market gardening	Kaolack (2 sites)

OFPEP Senegal

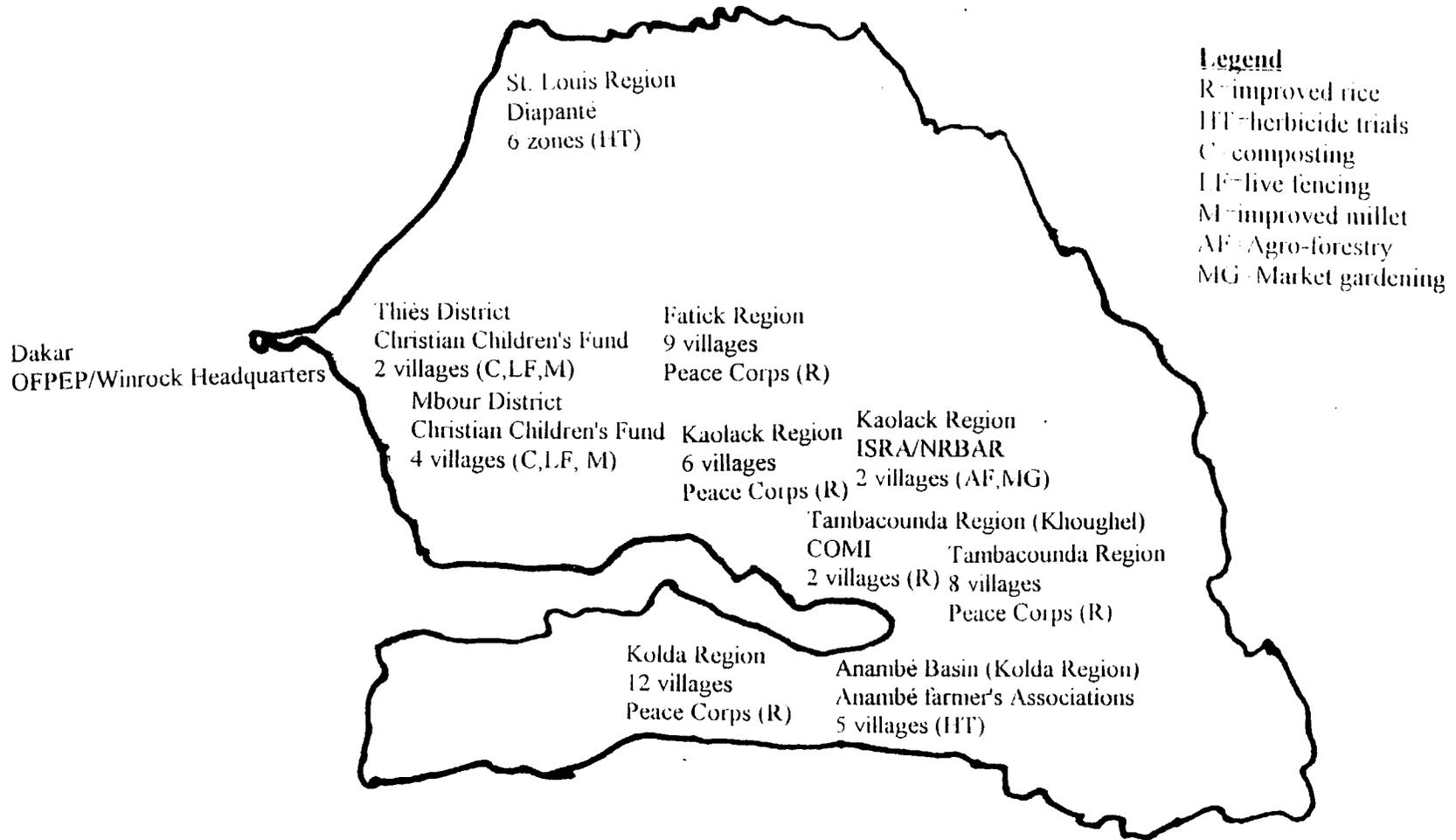


Figure 1: OFPEP/Senegal Activity Sites

Technical Assistance provided to OFPEP:

- Biochemistry Division DRCSP/ISRA Bambey
- Seed Division DRCSP/ISRA Bambey
- DRPF/ISRA Kaolack SCS
- ISRA /DRCSI/PGRNSP
- Weed science Division ISRA Djibelor/DRCSP
- Agro-Industrial development agency based in the Anambé basin

OFPEP maintains contact with organizations involved in seed production and soil fertility improvement and with governmental and non-governmental institutions in Senegal.

OFPEP has provided training and technical assistance to Peace Corps volunteers for the rice improved variety extension program in 4 out of 10 regions in Senegal: Tambacounda, Kolda, Kaolack and Fatick. In addition, program staff have provided training for activities such as:

- 1) seed and soil fertility training for extension staff of farmers' associations at Thiadiaye(CCF) for improved millet seed production;
- 2) use of Roundup Dry in the Senegal River Valley (Diapante/ISRA) and Anambé basin (SODAGRI) for weed control in irrigated rice.

The OFPEP staff has developed a strong working relationship with the Senegalese Institute for Agricultural research (ISRA). OFPEP has also been a catalyst for local collaboration between the Peace Corps Sustainable Agriculture Program and ISRA. Collaborative activities in improved millet seed demonstration, composting, agro-forestry, and weed control in irrigated rice fields are undertaken with 5 ISRA Scientists and 2 OFPEP partners.

Two Advisory council meetings were held this year focusing on systems for monitoring and evaluation, on-going activities and future programs. In addition to OFPEP collaborators, international NGOs such as World Vision, national programs such as the National Program for Agricultural Extension (PNVA) and local NGOs such as World Council of Credit Unions (CONACAP) attend these meetings for information exchange and contacts (Appendices A and C).

The collective resources of the program: Winrock International and the Center for PVO/University Collaboration in Development enable the OFPEP staff to provide an important linkage between regional and local groups, and national agricultural research institutions (such as ISRA in Senegal, and international research networks including INTSORMIL and the Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program (SANREM CRSP).

Sustainability and Replicability

Sustainability. OFPEP technologies are conducive to sustainability because they are low-input and rely on resources readily available to farmers while offering them the potential to expand their agricultural production and improve the environment.

Diffusion of improved technologies and seeds in the Peace Corps Rice Initiative has increased from a ratio of 1 to 1 village to 1 to 3 villages since the first year of the program (OFPEP monitoring data 4/95). Farmers appreciate the facility and time-savings that the OFPEP technologies affords them in addition to the increased yields they obtain as a result of these practices.

The number of farmers practicing live fencing with the Christian Children's Fund has gone from 22 in year 1 to 116 in year 3. Each of these farmers are protecting between 0.25 and 3 ha of land.

After 2 years of weed-control trials with Monsanto's Roundup Dry in the Anambé basin and only 1 season in the Senegal River Valley currently underway, the product is so popular amongst farmers in both areas that they are anxious to purchase this product for regular use on their commercial rice fields. Farmers of Anambé have begun to purchase it already and with the training received from OFPEP for this activity, hope to expand their production capacity.

The departure of the Italian field staff of the ex-NGO COMI, based in the Southern Tambacounda (Khounghel) region has not slowed improved rice activities with women farmers in that area. Having produced up to 120 kg each with 2 kg of rice seed last year, the 10 women that used DJ 12519 with improved practices last year, will be joined by 15 women this year.

Replicability. The sustainability of OFPEP technologies makes them replicable. There are several examples of farmer initiated duplication of activities amongst farmers from both the Christian Children's Fund (CCF) and the Peace Corps collaborations. Farmers from Thiadiaye's CCF project visiting Baback where OFPEP has worked with farmers on live-fencing plots with reforestation accompanied by cassava (as a cash-generation activity) appreciated this activity so much that they duplicated it on their own. Twenty five farmers from the 8 different villages that comprise the Thiadiaye project, have created a live fencing reforestation demonstration plot. These farmers are anxious to remedy their sandy soils by surrounding plots with live fencing associated with reforestation. They also appreciate cash generation from cassava cuttings. A plot of 1 ha produces an average of 5 tons of cassava worth about \$180.00.

Farmers who have used composting with the recommended doses have had remarkable production gains. In certain villages the number of compost pits constructed is superior to the number of farmers trained. While CCF accorded funding to a limited number of farmers for constructing cemented compost pits that last for 3 to 5 years, others have not

been discouraged from creating non-cemented pits that need repairs every season but that require only labor and locally available resources. Baback village situated in the Thiès District is a member of an Economic Interest Group (GIE) Diobass, which is a federation of 20 village groups to which the composting technology has already been extended.

Monitoring visits and study of the PC Rice Initiative in Kolda (**Appendix B**) show that diffusion of improved rice seeds and technologies from OFPEP are circulated in informal network in a ratio of 1 village to 4. These channels have spread the benefits of improved seed varieties and practices beyond areas where the Peace Corps and NGOs have been active.

Farmer Innovation

We have observed several farmer-inspired techniques and practices that further OFPEP technologies in the area of seed production. In the Peace Corps zone, some Diola, Mandinka and Fulani rice farmers of the Kolda and Tambacounda regions practice a traditional technique with improved varieties that promotes soil fertility and therefore, increased yields. After having seeded in "pockets" farmers use a traditional tool called *Balankologi*, to turn muddy compact soil over "seed pockets." This technique facilitates the development of the roots of the new rice plants.

PCV Merrill Watson has facilitated the organization of a training team with the help of her "family" of Pethie, in the Department of Foundiougne. This team has successfully convinced the husbands of rice farmers of the importance of helping their wives in the rice fields by seeding on line using animal traction (usually controlled by men) in demonstrations in 4 villages. This technique saves time in weeding and favors optimal yields. As a result of the team's extension work, 2 new villages have joined the program this year where rice has never been cultivated before.

Farmers of the Ndollor CCF project of the Mbour District have taken the initiative to plant Souna 3 improved millet variety in association with fruit trees in alley-cropping style. Seeking the means to revive soils, a group of farmers are trying this technique on a collective demonstration plot having learned about it from a former extension agent now based in the village. Immediately after the harvest, they will plant an assorted vegetable garden on the same field.

Farmers working with the CCF project in Baback (Thiès District) initiated a "Day of the Farmer" inviting 8 surrounding villages, OFPEP staff and their partners from USAID and the Natural Resources-Based Agricultural Research Project (NRBAR/USAID 685-0285). This day was dedicated to exchanges between farmers of different villages on the theme "Appropriate On-Farm Technologies". Over 70 men and 22 women participated in this event.

Senegal Country Report

Program Background And Approach

OFPEP assists the seed and soil related programs of PVOs, Farmers' Associations and the Peace Corps in Senegal using a process approach. It aims to maximize the farmer's use of traditional knowledge and local inputs and increase their awareness of proven techniques that can be incorporated into their land management practices to increase productivity at the farm level. This is accomplished through participatory training and demonstrations. The idea of adult education through participatory extension to smallholder farmers is to provide them with the information as well as experience in testing ideas and concepts for themselves. Thus the farmer to farmer training/sharing of information becomes a powerful tool for change and sustainability.

OFPEP/Dakar's process approach consists of the following elements:

1. A meeting is held with farmers to confirm their interest in the program.
2. Collaborating NGOs must have extension agents who can be trained in technical interventions and who will fulfill data collection and monitoring responsibilities.
3. The OFPEP approach is defined and the technology is introduced to the farmers being careful to promote local organization (association, village counter-parts) to assure sustainability.
4. Once farmers agree on a proposed technical intervention, a survey is carried out to assess technical constraints, farmer's knowledge and the extent of their experiences with techniques introduced by other NGOs. This survey will serve as baseline information and contains both socioeconomic and agronomic data reflected at the household level in order to measure future impact. The survey results are also used to develop program training materials that take farmers knowledge into account.
5. Participatory training of farmers and NGO agents begins.
6. Demonstration plots are farmed as the application of training content and used for comparison purposes.

Goals And Objectives By Collaborator

All OFPEP projects are demand-driven and aim to complement and build-on farmers existing knowledge.

OFPEP Collaboration with Christian Children's Fund (CCF). The overall objective of the Christian Children's Fund is to improve the well being of the children and the communities in which they live through a multi-sectorial approach.

Specific objectives for this year are: to support seed multiplication techniques; to improve the organic content and fertility of the Dior (sandy) soils; and to combat the problems of wind and water erosion.

Table 2: Organization of Collaborative Program with Christian Children's Fund Techniques: Compost, Improved Millet, Live Fencing-tree planting-cassava.

District	Villages	Population/ Households	Extension Agents
Thies	Baback	1,683 / 152	3
	Fandene	3,543 / 342	
Mbour	Diokhar	1,500 / 260	5
	Fissel	2,000 / 435	
	Ndollor	10,365 / 1,150	
	Thiadiaye	10,365 / 1150	

Christian Children's Fund, headquartered locally in Dakar, consists of 6 village projects of the Thies Region: 4 in the Mbour District and 2 in the Thies District. Village extension agents, trained and assisted by OFPEP and their technical partners, ISRA, are based in their respective villages.

Peace Corps. Project objectives for the Peace Corps Rice Initiative are to enhance long-term productivity of rural women rice farmers through the dissemination of improved rice varieties and the promotion of appropriate cultivation and field-management techniques.

The specific goal of this program is to aid at least 1500 women rice farmers in 53 villages in the districts of Kolda, Foundiougne, Niore and Tambacounda and to increase their production of paddy rice by 40% over traditional variety production amounts of 900 kg/ha. (Peace Corp/Senegal Rice Productivity Enhancement Project Plan, 1995)

The table below situates the zones of intervention, presents the number of villages and collaborators associated with the OFPEP/PC Rice Initiative.

Table 3: Organization of collaborative program with Peace Corps.

Region	Number of Villages	OFPEP Staff	ISRA Staff	PVCs	Village Counterparts
Kolda	25	✓	✓	✓	✓
Tambacounda	9	✓		✓	
Kaolack	7	✓		✓	
Fatick	12	✓		✓	✓

Note: the counter-parts are extension agents native to their respective villages who have been selected by the population to assist the volunteers and eventually take over their work after their departure.

Diapanté/MONSANTO. Diapanté is a French-Senegalese NGO based in St. Louis working on agricultural extension in the Delta region of the Senegal River Valley. Diapanté-OFPEP collaboration involves ISRA St. Louis in a study to evaluate the use of Dry Round-up weed killer developed by MONSANTO on irrigated parcels of the Senegal River Valley. The objectives of Diapante are to increase farmers production of rice paddy through weed-control activities.

Anambé/MONSANTO. The same MONSANTO trials are being carried out in the Anambé Basin with several individual farmers and GIEs with the technical support of ISRA/Ziguinchor and SODAGRI (Agricultural development company). Specific objectives of these trials at both sites are:

- to evaluate the feasibility of technical recommendations for rice production and the possibility of their use by farmers;
- to evaluate the technical and economic benefits that can be attained from applying Dry Round-up prior to seeding fields; and
- to train extension personnel and farmers on the method of application prior to seeding.

COMI. The former NGO COMI now consists of 2 women's groups with a total of 102 members farmers and an extension worker who follows up on activities and serves as liaison between OFPEP and the GIEs. The goals of the collaboration with COMI are to assist farmers to increase their rice production with the use of improved varieties and practices.

ISRA-NRBAR/Village Associations of Soukoto and Sinthiou Kohel. In collaboration with the Natural Resources-Based Agriculture Research Project (NRBAR/USAID 685-0285) and 2 ISRA technicians, OFPEP is conducting on-farm agro-forestry activities associated with market gardening in 2 villages of the Kaolack region.

The objectives of this activity are to:

- confirm results obtained in ISRA stations under typical farmer conditions;
- extend confirmed techniques to 2 villages on the following themes: combating animal intrusion, wind and water erosion, land degradation and soil fertility loss; tree, fodder and agricultural crop diversification; increasing rural agricultural production.

The market gardening objectives are to:

- diversify crop production in general and help increase revenues;
- integrate women into project activities;
- expose the population to improved techniques in market gardening during the dry season.

Program Structure And Management

OFPEP has substantially increased its activities in Senegal following:

1. the appointment of Lisa Washington-Sow, who was hired as Process and Linkages Specialist based in Dakar, Senegal. Monitoring and evaluation and gender analysis are particularly emphasized aspects of her duties.
2. Jalaane Faye's activities as Program Assistant have been extended. In addition to soil fertility and conservation activities in collaboration with ISRA through the NRBAR grant, he is also responsible for technical assistance to the Peace Corps Rice Program.

These two events free time for the Senegal Country Coordinator, Alphonse Faye, to conceptualize and analyze field data.

Aissastou Keita Daffé was engaged as a full-time employee of Winrock International during May 1995 as Secretary/Receptionist. Baba Lô continues to provide logistical support to the OFPEP team as the Driver.

OFPEP/Dakar has put much emphasis on the development of monitoring tools (**Appendix C**) to better demonstrate impact at the household level. Our sponsors from the NRBAR project have worked with us on devising a logical framework for the soil conservation activity underway at Soukouto and Sinthiou Kohel of the Kaolack region. Similarly, consultants from DESFIL and Development Technologies International have met with the OFPEP/Dakar staff for information sharing and brainstorming on more effective techniques for data collection and storage.

OFPEP has gained a reputation with many institutions including the US AID mission in Dakar for its demonstrated ability to work through local organizations and together with farmers to increase their capabilities and productivity. Over the past year OFPEP staff have been invited to consult with USAID on programmatic issues related to the re-

engineering of the Dakar office. OFPEP staff have also participated in several key conferences, seminars and meetings including:

- The official conference launching the Community Based Natural Resource Management Program (USAID 685-0305) in which program objectives, design, and implementation strategy were decided. OFPEP/Dakar is also member of the CBNRMS Steering committee.
- Conference on Natural Resources (African-American Institute/USAID) to reflect on a better coordination of natural resource based activities and interventions for NGOs and projects operating in the field.
- Workshop on the Gender Approach (Winrock-Abijan) where participants strategized how to incorporate gender into every step of planning and decision making.
- Office Management for NGOs (CONGAD)

The project staff has also been included for the first time in the annual meeting of West and Central African Millet Research Network (INTSORMIL), a research support project financed by the Swiss Development Agency that involves 6 West African countries (Senegal, Cameroon, Ivory Coast, Mali, Niger, Burkina Faso, Mauritania, and Nigeria). ICRISAT and INTSORMIL are the technical advisors of this network.

Role of the Advisory Committee: to give advice and recommendations on the OFPEP strategy and planning of activities.

In order for OFPEP to supply technical assistance to organizations involved in the improvement of seeds and soils in rural areas, the Advisory Committee focus on the following guiding lines:

1. To facilitate collaboration and coordination of activities between organizations working on these domains in Senegal;
2. Elaborate potential programs;
3. Examine and provide advice in the action plans for the different programs.

* Members of the Advisory Committee:

- All partners
- ISRA
- USAID
- PNVA
- USAID/NRBAR

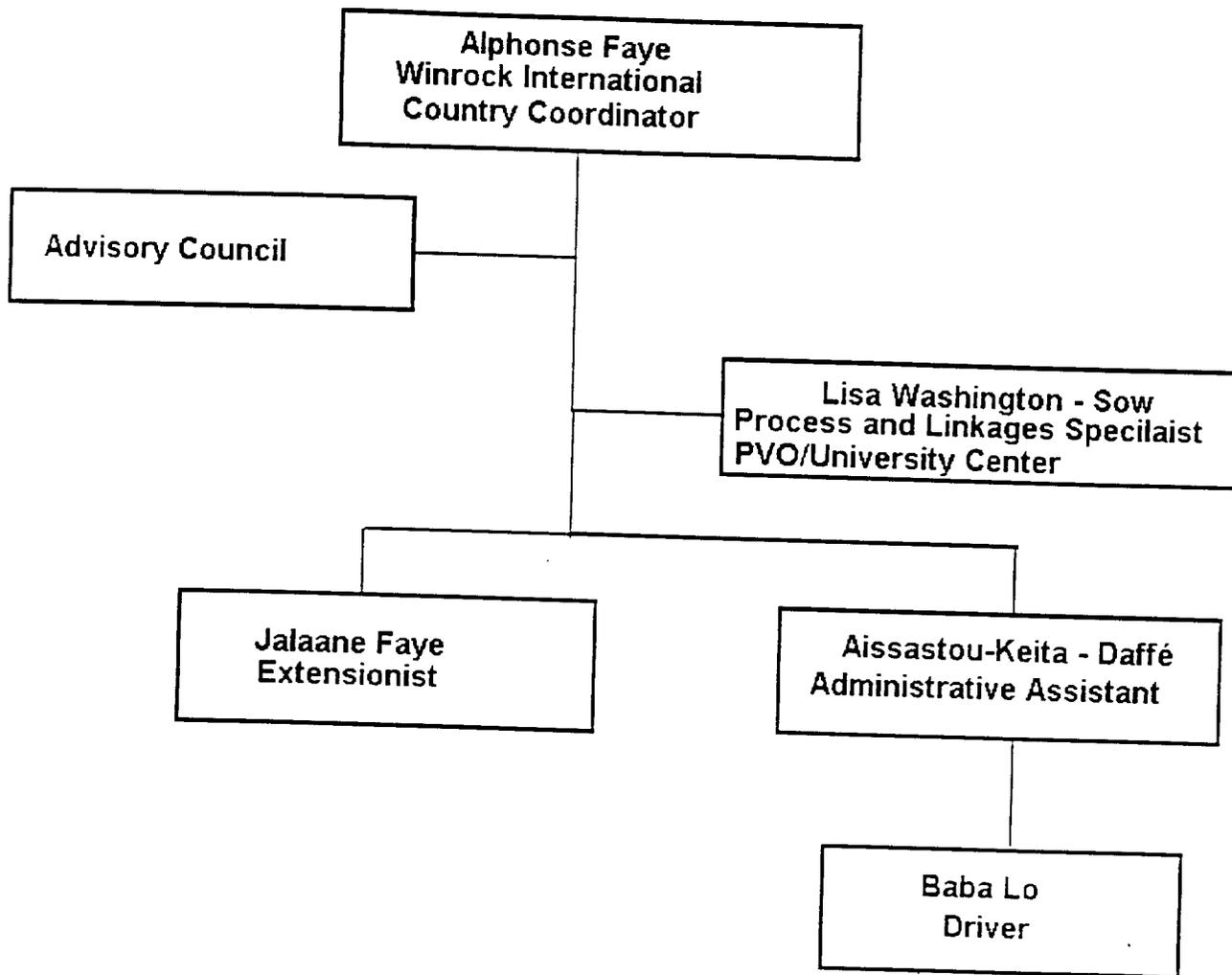


Figure 2: Organizational Chart of WINROCK INTERNATIONAL in Senegal

Tables: Results and Impact Year 3 Activities

Table 4: Seed: improved rice and millet seeds, cassava cuttings

	Peace Corps	CCF	COMI
Number exposed to new technology		30 villages 19,561 farmers	91 farmers 2 villages
Training of trainers	19: year 2 11: year 1	8	
Production Totals	11,490 kg improved rice	31,746 kg of cassava	850 kg improved rice
Yield increases: farmer practices vs. OFPEP technology	30-50% increase		
Input distribution	240 kg improved rice seed	300 kg improved millet seed 80 ha cassava cuttings	farmer's input (seed re-distribution)
Number practicing seed demonstrations and OFPEP technologies	54 villages 1006 farmers	30 villages 151 farmers	
Seed production and extension to new farmers	19 new villages		17 farmers 2 villages

Table 5: Results in Soil conservation: Herbicide trials, live fencing, tree planting, & market gardening

	Anambé farmers associations	Diapanté	Christian Children's Fund	ISRA/NRBAR
Yield increases farmer practices vs. OFPEP technology	35.2% reduction of labor time: 30.2%	25%		
Production			113 ha live fencing put up	9045 plants produced in 2 village nurseries; market gardening- 1 village: \$443.00 in profits
Number of farmers exposed to new technology	261 farmers organized in 9 farmers associations	10,800 farmers organized in 306 farmers assoc. (GIEs)	19,561 farmers in 30 villages	360 farmers in 2 villages
Training of trainers	42	34		
Input distribution	farmer's input	1870 kg improved rice seed; 1720 Urea 900 kg NPK 2745 kg Roundup Dry	farmer's inputs	Seeds for 6 woodlot tree species-(1 village) 12 species (1 village), nursery materials \$71.00 in seeds/ materials for market garden
Number new farmers practicing technology		10 farmers in 6 agro-ecological zones	85 farmers in 22 villages	

Table 6: Results in Composting
Collaborator: Christian Children's Fund

Yield increases farmer practices vs. composting	average of 113%
Number of farmers and villages exposed to the technology	19,561 farmers in 30 villages
Production	165 compost pits (131 dry season pits and 34 rainy season pits) in 21 villages
Number of new farmers practicing technology	165 farmers in 21 villages

Project Activities, Results, and Significant Impact

For an overview of the results of OFPEP Senegal dealing specifically with soil fertility and seed related activities please see table 4 on results.

Seed Production

Peace Corps Rice Initiatives

Table 7: Number of farmers involved in rice demonstrations in 1994-95.

Region	PCVs	Villages	Producers	Seed Production
Fatick	5	9	31	2655 kg.
Kaolack	3	6	150*	2250 kg.*
Kolda	6	12	104	6730 kg.
Tambacounda	3	8	52	2476 kg.
TOTAL	17	35	337*	14,111 kg.

Note: harvest from October 1994 to January 1995.

*estimated

Monitoring

OFPEP's monitoring system approach relies heavily on farmer feedback in order to provide the most appropriate, most needed technologies to it's collaborators. The OFPEP

team in conjunction with APCD/Agriculture has conducted several monitoring activities for this agricultural campaign. One of these, a pre-planting tour from March to April, 1995 of 47 villages collaborating with the OFPEP/PC Rice Initiative had the following objectives:

- to evaluate the 1994 campaign with participating farmers and obtain feed back about their experience with the improved varieties and accompanying technologies;
- to obtain feedback from PCVS on their potential level of participation in OFPEP's proposed monitoring system.

Table 8: Number of farmers encountered on PC monitoring tours

Dates	District	#villages visited	# PCVs met	# women farmers met	# male farmers met
3/8-13	Tambacounda	9	3	66	10
3/13-18	Kolda	18	8	88	20
4/10-12	Nioro	8	3	126	16
3/27-30	Foundiougne	12	3	43	10

Christian Children's Fund

Millet seed production plots. In the CCF zone, farmers rarely used improved varieties of millet. Our recent survey showed that only 20 to 30% had ever previously used selected varieties. Drought conditions have reinforced farmers' need and demand for short cycle varieties that can produce a crop even under reduced rainfall and /or erratic rain distribution.

To deal with these realities, OFPEP and CCF devised a program with the main objective of this activity being to evaluate proposed improved varieties of millet in terms of yield, their adjustment to local systems and their acceptance by consumers.

Three hundred kilograms of the improved varieties: SOUNA III, IBV881 and IBV8004 are being compared to the local variety on a parcel of 0.5 hectare using farmers' traditional inputs. The parcels used for these tests are large enough to demonstrate their potential yield under typical small-holder farming conditions.

Table 9: Number of demonstration parcels per village.

Village	Number of demo plots	Seed Variety	Total Area planted
Baback	20	IBV 8004	10 ha
Fandene	20	IBV 8004	10 ha
Fissel	20	IBV 8001	10 ha
Diokhar	20	Souna III	10 ha
Ndollor	20	Souna III	10 ha
Thiadiaye	19	Souna III	9.5 ha
TOTAL	119	2 varieties	59.9 ha

Soil Conservation Activities

Farmers are continually confronted with problems of drought and reduced rainfall, wind and/or water erosion, and declining soil fertility because of pressure on the land and shortening of the traditional fallow cycle. Thus, CCF partner farmers and OFPEP staff have developed a pilot program for the protection and conservation of soil in the village of Baback.

- Live fencing protects the soil from wind and water erosion, provides protection of crop residues from animal intrusion, and allows for the natural regeneration of local tree seedlings.
- Fruit and multi-purpose tree species raised by the farmers in their own village nursery are planted within and protected by the fence.

The average area fenced-in per farmer is 1.3 hectare for a total available area of between 3.5 and 5 hectares or a percentage of protected lands that varies between 26% to 37% of available land.

In association with this activity, farmers are planting cassava cuttings on the fenced in plots for income-generation. The yield from a one ha cassava plots is average 5 tons which is worth about \$163.00. A small survey conducted amongst 20 farmers of Baback revealed that farmers use this income to resolve different family needs particularly:

school fees and health care costs:	18%
reimbursement of debts acquired:	6%
purchase food	36%
purchase material and agricultural inputs	10%
construction of house	12%
purchase of livestock	18%

Compost

The compost activity offers strategies for rural families to economize in the aftermath of the devaluation of the CFA *franc*. Farmers are convinced that compost significantly increases production and this is confirmed by the numbers of compost pits constructed in relation to the number of farmers trained on this theme.

Table 10: Number of farmers trained in composting.

Village	Number of farmers trained	Number of farmers using compost pits	% applying technology after training
Baback	33	24	72
Fandene	32	17	53
Diokhar	16	40	250
Fissel	111	22	19
Ndollar	13	17	130
Thiadiaye	111	41	36
TOTAL	316	161	50

The use of compost on millet fields showed tremendous increases in production. The table below is based on a study of 9 farmers who each planted 2 fields with millet. In each case, the farmer had applied compost to one field, and not applied it to another.

Table 11: Impact of compost on production

Villages	# of Farmers	Composted field (T1) Yields (kg)	Test field not Composted (TO) Yields (kg)	% increase (TO/T1)
Ndollar	3	423	171	+147%
Fissel	1	1000	625	+60%
Fandene	2	848	220	+285%
Baback	3	797	422	+88%
Average		767	359.5	+133%

(Source: OFPEP/Senegal, 1995)

Round Up Dry Project

Background

Weed control is a fundamental aspect of rice-farming along with water, seeds, fertilizers, etc..and is one of rice-farmers major problems. Chemical weeding is among the best known method of weed-control. The most frequently used herbicides are Weedone, Garill, Basagran PL2, and Propanil.

Glyphosate in the liquid form (Roundup 360 EC) has been tested and applied to infested plots good results. This product has now been perfected in soluble granules and is being demonstrated to rice farmers in Senegal.

Results

Table 12: Effects of the treatment on rice yields in the Senegal River Valley

Product used	Quantity	Yields (min.-max)	Percent increase (min-max.)
Round up	3.4 kg	4726.5 kg -5078 kg.	17%-36%
Propanil Weedone	6 liters 1.5 liters	3772 kg. -3725 kg.	

Results from demonstrations in the Anambé Basin

The tests consisted of a comparison between two different treatments:

1. farmers traditional pre-planting techniques on weed-control represented the basis of comparison (control); and
2. application of Roundup Dry prior to planting rice: in a dose of 1.7 kg/ha where there is infestation of annual weeds; or a dose of 2.5 kg /ha in the case of mixed flora or dominance of perennial weeds.

The tests were conducted at 23 sites including 22 individual producers representing 9 different GIEs. The treatment plots were all 500 m2 in size.

Of the 23 pairs of test plots, the following results were observed :

- an average increase in yields of 35.2% varying from 3.3 to 95,5%; and
- a reduction in manual weeding time of an average of 30.3 %.

Extension work by Diapanté

Extension in the form of sensitizing meetings and training was done to introduce Roundup in the liquid form and in soluble granules to rice farmers and to inform them of its potential advantages. The 26 farmers working through Diapanté each have an average of 44,89 ha dedicated to rice cultivation (min. 2 ha, max. 235 ha)

Other aspects of this activity include the presentation of the procedures employed and results obtained from trials at the (ISRA) station; explanation of the experiment in typical farming conditions to clarify conditions of participation to each farmer during the pre-extension trials of the Monsanto project. Diapanté also assisted in site identification and monitoring of farmers' work.

On-farm activities in the Senegal River Valley

This experiment consisted of three treatments with ten farmers, each of them maintaining three test plots:

- T1 Farmers' practices: minimum surface 200 square meters, maximum 7000 square meters. Total surface 4.9 hectares.
- T2 Dry Round-up at the rate of 2.5 kilograms/hectare: minimum surface 300 square meters, maximum 8800 square meters. Total surface 4.79 hectares.
- T3 Dry Round-up at the rate of 3.4 kilograms/hectare: minimum surface 360 square meters, maximum 8300 square meters, total surface 4.55 hectares.

On-farm activities at Anambé, Velingara Region, Southern Senegal

This experiment, now in its second year, consists of 500 meter parcels of either T0 and T1 or T0 and T2 depending on type of weeds existing in farmers' parcels:

- T0 Farmers' practices.
- T1 Dry Round-up at the rate of 2.08 kilograms/hectare in sites where annual weeds exist.
- T2 Dry Round-up at the rate of 3.12 kilograms/hectare where perennial weeds exist.

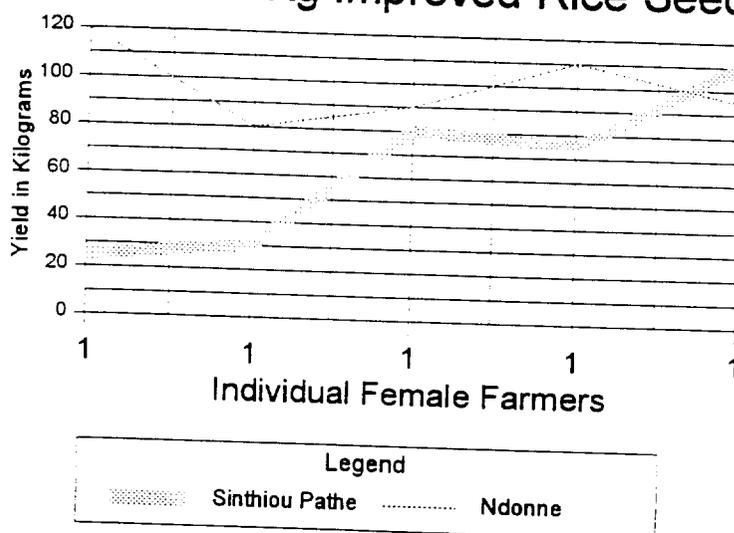
Farmers revealed to us during monitoring meetings that they are very satisfied with this product that has recuperated their rice fields once overtaken by perennial weeds. Results from these two activities will be presented in next year's Annual Report.

COMI

The ten women rice farmers of the villages Sinthiou Pathé and Ndonne of the Tambacounda District, are very pleased with their production from the 1994 campaign. Having used only 2 kg. of the improved variety DJ 1219, they obtained the following results:

Table 13: Results of rice farmers in Sinthiou Pathé and Ndonne.

Yields from 2 Kg Improved Rice Seeds



The case of the lowest yield was explained by the farmer as being because of flooding that nearly destroyed her entire crop. Other women expressed the opinion that they liked the improved varieties for their high yields and many tillers. For the campaign 95-96, these women will distribute seed to 11 new women.

ISRA/NRBAR

Agroforestry

Sixteen farmers of the village of Sinthiou Kohel (Kaolack District) raised 5,300 trees in their village nursery including the following species: *Acacia mellifera*, *Acacia laeta*, *Acacia niloticam*, *Zizyphus mauritiana*, *Bauhinia rufescens*, *Eucalyptus camaldulensis*, *Cajanus cajan*. Eighteen farmers of Soukouto (Nioro District) raised 12 different species for a total of 3,745 plants.

Market gardening

The market gardening activity was initiated to promote women's income generation and participation in natural resource protection/agroforestry. It was carried out with the 56 women from the Soukoto women's group who are also involved in growing improved rice varieties. On a 1 ha plot protected by live fencing, these women cultivated cabbage, onions, eggplant and tomatoes and earned a total profit of \$443.00. Of this amount, the women placed \$102.00 in a collective savings fund and distributed \$6.00/women cash. This activity will be repeated and expanded for the 1995-96 dry season.

Technical Assistance and Training Provided And Received

Consultancies

The Senegal OFPEP team has benefitted from several short term consultancies, conferences and seminars in addition to contributions from technical visits during the year. All reports and summaries are found in **Appendix B**.

Jerome Guin conducted a study on the OFPEP/PC Rice Initiative in the Kolda region which documents diffusion patterns through informal networks, and identifies characteristics of the improved varieties preferred by the predominantly women rice farmers of the region and it also makes pertinent recommendations for an improved monitoring system of this program. The study, completed in December 1994, was based on fieldwork conducted during November 1994 (see summary attached).

Mamadou Daffé, Agronomist and Soukeye G. Thiongane, Sociologist, performed a study that addresses the soil fertility problems expressed by rice farmers of the OFPEP/Rice Initiative in the Nioro and Kolda regions 5/95. Their recommendations include propositions for a soil fertility management program. (see summary attached)

A multi-disciplinary team consisting of Atoumane Agne, Agronomist, Biram Ndiaye, Nutritionist and Salimata Ba, Sociologist, conducted an impact study of the OFPEP/PC Rice Initiative. The study was carried out in all 4 rice growing regions (Kolda, Foundiougne, Nioro and Tambacounda) covered by the program using the Participatory Rural Appraisal (PRA) methodology 7/95.

Training Provided

OFPEP is an awareness building and training program that strengthens the ability of farmers to use their own existing knowledge and powers of observation to improve productivity in specific crop situations and under differing cultural practices and environmental conditions. The demonstration of techniques is the process by which a particular farmer is exposed to, considers, and finally rejects or adopts a particular technique.

The first step towards adoption of the proposed techniques, is becoming aware that other technologies exist. Awareness is achieved by OFPEP partly through training. Descriptions of different types of training with each collaborator is presented below.

Peace Corps

Pre-Service Training

OFPEP staff led 4 different sessions during the Pre-Service training (March to June 1995) for the 19 new Peace Corps Volunteers from the Sustainable Agriculture program. These sessions focused on the following topics:

- history of the PC and OFPEP Collaboration, current activities and opportunities for the future;
- potential benefits of improved rice varieties in relation to the different ecologies;
- the rice production system and practices used by the farmers in volunteer's future work zone, causes for common rice production and possible control methods;
- the requirements of improved rice varieties in terms of soil, water and farming practices.
- the monitoring and evaluation process used by OFPEP/PC.

In-Service Training (IST): ISRA/Bambey

The IST served as a forum of exchange between researchers specializing in region-specific crops and technologies and PCVs from the Sustainable Agriculture Program. Twenty five Peace Corps Volunteers and 8 ISRA researchers participated in this activity which resulted in collaborative (ISRA/PC) on-farm trials of improved varieties of cowpea, millet and corn throughout Senegal during this campaign.

Rice Summit

Nineteen first and second year rice volunteers gathered at this third annual three day workshop sponsored by OFPEP (May 7 -10). OFPEP staff led discussions on program-specific issues including:

- presentation of the previous year's results by zone
- the coming year's program incorporating lessons learned from the previous year
- the future of the OFPEP/PC Rice Initiative
- new report format with special emphasis on gender and socioeconomic information gathering.

Christian Children's Fund

Training

The 8 village Extension agents from the CCF projects participated in a three day training session on the following subjects:

- agricultural extension
- techniques of composting, soil conservation
- special instructions for this year's on-farm trials with improved millet
- indicators of impact for the elaboration of monitoring/evaluation sheets.

This session included inter-village visits to demonstrate compost and soil conservation activities. There were many exchanges of ideas between villages. Recommendations for monitoring tools were a part of the general conclusions of the workshop.

OFPEP/MONSANTO

Training

Training sessions on the application of the Roundup Dry product are organized for the farmers in collaboration with technicians from SODAGRI. ISRA is responsible for the training sessions and the monitoring of the trials. OFPEP/WINROCK is responsible for providing training materials, funding and monitoring visits.

A training session with 42 participants representing 9 GIEs was held June 15 - 16 1995. It covered the following subjects:

- cleaning and maintenance of equipment
- proper use of equipment
- mixture and dose of Roundup Dry product
- special health and safety precautions to exercise when using the product.

Farmer initiated exchange forums

Farmers of the CCF project in Baback organized a "Day of the Farmer." Eight neighboring villages represented by 70 men and 22 women, OFPEP staff, and their partners from USAID and NRBAR were invited to this event. The day was dedicated to exchanges between farmers of different villages. The following were among the central themes of farmer's recommendations:

- the importance of women's work in the farming system and recommendations for income-generating activities specifically for women
- the necessity for farmers to return to certain traditional practices that conserve soil fertility (use of manure)
- importance of investing more labor time in the fields.

Resource acquisitions

We have acquired an 500 Mg upgrade on our PC with the following software: Paradox for Windows, WordPerfect for Windows, Lotus for Windows version 4.

Lessons Learned

Following recommendations from the mid-term evaluation, we have worked on several adjustments to help us more effectively build the capacity of our collaborators and contribute local communities. Monitoring tools have been developed with each collaborator that emphasize gender, farmer feedback and other qualitative data. These tools will facilitate documenting impact in socio-economic and agronomic terms. Because of the differences between each collaborator, the adopted monitoring system had to be tailored to each of their operational contexts and needs. We found that by integrating base-line PRA tools into the monitoring package for Peace Corps Volunteers, for example, we facilitate their initial contact with the villages they are to work in. Monitoring visits have also been reinforced with village feedback sessions.

OFPEP strengthens the capacity of local NGOs by working with village-based extension agents, training them in technology transfer, extension and monitoring and evaluation in each village. For example, OFPEP works with a committee of 35 members selected by the community including one village extension agent from each CCF project. In this way the activity continues and the local community benefits from having a sustainable technology, monitored by a local agent. During 3 years of fruitful collaboration with the Peace Corps however, this process has been difficult to respect as PCVs are engaged for 2 year periods and are not necessarily replaced once they've left. Many dynamic groups of rice farmers have been abandoned without technical monitoring, as a result. By identifying village extension agents in PC Rice Initiative villages, and working on strengthening the capacity of the traditional women rice farmer's group, OFPEP's work in improved rice seeds will be more sustainable and women will have easier access to technical assistance from ISRA. Training/technical support for PCVs will be furnished by staff and partner agencies.

In an effort to document impact on rice farmers and families as a result of the PC Rice Initiative, OFPEP engaged a team of consultants to conduct an impact evaluation using the Participatory Rural Appraisal (PRA) methodology in four rice growing regions. An advisory committee consisting of a sociologist, a PRA expert and the OFPEP staff met with the team in order to provide methodological guidance, and additional perspectives on the many aspects of the study. Despite the orientation meeting held prior to the study and 4 feedback sessions during the course of the study, the advisory committee felt that the consultants failed to integrate their suggestions and did not adequately fulfill the terms of reference for the following reasons: (M. Savanné; agenda plan from study attached)
(Appendix B)

- the study gave no idea of the existing types of organizations in the villages studied
- nor did it indicate the increase or decrease in impact throughout the existence of the program
- the study considered rice as the staple food when it is only a supplement to the cereal regime in these regions
- the study did not consider the importance of flexibility in promoting farmer innovation and traditional seeding styles.

Recommendations For The Coming Year

For increased sustainability of activities and their institutionalization, a study of all organizations affected by OFPEP is recommended. This study would look at how they function, how has this affected their abilities to benefit from OFPEP, and how OFPEP has contributed to the capacity-building of each organization.

To improve the planning and monitoring of project activities, it is recommended that OFPEP hold planning and evaluation sessions with each partner (instead of exclusively with farmers) after each harvest season. The following points would be discussed: current objectives of the program, problems encountered and strategies for their resolution, and evaluation of the agricultural campaign.

For the soil fertility program to be implemented in the rice fields, it will be necessary to include men farmers in the meetings, training, technical visits, etc. This is because men are cultivating food crops on the upland sandy soils that are eroding into the lowlands where rice fields are situated. Any attempts to remedy the problems of soil fertility and land management must include all members of the farm family.

Activities Planned For The Next Reporting Period

In addition to continuing the activities currently underway OFPEP plans to implement the activities discussed below.

The soil fertility extension program manager and program will be fully operational during the next reporting period.

In order to improve monitoring, data analysis and information sharing, OFPEP staff will receive computer training on the following software: Windows 4.0, WordPerfect for Windows 6.0, Lotus for Windows 4.0 and Paradox for Windows. This training will also be extended to selected collaborators to promote their capacity building.

The OFPEP Process and Linkages Specialist will attend a three-week training course on Monitoring and Evaluation in Dakar, sponsored by the local USAID Mission.

OFPEP staff (Secretary, Program Manager and Soil Fertility Program Manager) will receive English language training for 1 year.

The closer working relationship with ISRA that will be developed in this new framework (collaboration between ISRA, PNVA, CONGAD) will permit ISRA technicians to deliver technical assistance to our partners and farmers long after OFPEP is gone.

The following studies are proposed for next year: (1) the nature, type and mode of functioning of farmer's associations currently working with OFPEP and OFPEP's impact on them; (2) cost/benefit study of the impact of OFPEP technology.

Technical sheets in local languages will be produced for diffusion to farmers and NGOs. In order to create the most appropriate documentation based on the farmer's real needs, a study will be undertaken to account for the themes most requested, the languages materials should be produced in, and the level of literacy of the target population. OFPEP will also contact local NGOs focusing on literacy for potential collaboration on this activity.

Coordinate inter-village visits to promote exchanges of ideas between farmers of different zones.

UGANDA

Program Overview And Highlights Of The Past Year

Seeds and Soil Management

The past year has witnessed an increasing number of farmers practicing on-farm seed selection, harvesting, preservation and storage of improved seed varieties promoted by OFPEP and its partners in Uganda. More than 3,375 adopters of OFPEP-promoted new crop varieties planted their own on-farm selected seeds of Longe 1 maize, Nam 1 soybeans, and MCM 5001 beans during the first and second crop seasons of 1995 (March/April and August/September). At least 5 farmers' groups are beginning to be net sellers of these improved seed varieties to individual farmers. OFPEP itself has bought more than 200 kgs of seed from such farmer groups for new demonstration plots in Kenya. In addition, the farmers themselves are spreading the varieties. From one sample group of 60 farmers, it was found that they had sold quantities of seed ranging from 80 to 550 kilograms. It should also be noted that the cassava varieties (NASE 1 and NASE 2) resistant to the African Cassava Mosaic Virus (ACMV) which were planted in eight demo sites in the two districts of Iganga and Tororo were such an outstanding success that there were scrambles everywhere for them as planting material. OFPEP is now pushing for the rapid multiplication of these cassava planting materials using the high humidity rooting chamber technology which OFPEP introduced this past year. This plant disease is beginning to destroy a large percentage of the cassava plants in Eastern Uganda and Western Kenya. Farm families who depend on this food crop were at a loss as to how to replace this staple crop when they discussed the problem with the OFPEP teams. By building on linkages already established with local research institutions, they were able to obtain not only the germplasm for ACMV-resistant cassava, but also a simple and rapid technology for multiplying it.

Since OFPEP conducted a Training of Trainers' (T.O.T) Workshop on soil conservation and soil improvement for all the 3 OFPEP districts at Iganga (January 25-27, 1995), members of three farmer groups have established two soil erosion banks, some stabilized with napier grass. The use of calliandra for alley cropping to provide green manure has attracted increased demand but is constrained by insufficient calliandra seed and calliandra rhizobium inoculant. Composting has largely remained accepted only in theory. The farmers have cited labor constraints and lack of wheel barrows as reasons preventing ready adoption of composting as a soil-amending technology. Mukono district is exception in this case where women farmers have one or more compost piles located near their cereal fields and/or vegetable plots. However, an increase in vegetable growing which is usually undertaken around the homesteads should lead to an increase in the use of compost manure. The proceedings of the T.O.T. on soils mentioned above have been put together and distributed by the OFPEP East Africa office.

Partnerships And Linkages

To date we have collaborative relations with fifteen Non-Governmental Organizations (NGOs) as follows:-

Mukono District

1. Buzaama Cooperative Society Ltd
2. Talent Calls Club
3. Uganda Association for Social Economic Progress.

Iganga District

4. Multipurpose Training and Employment Association (MTEA)
5. Kigulu Development Group
6. Mukitono Urban and Rural Rehabilitation and Development Association
7. Multi-Sectoral Rural Development Project of the Busoga Diocese (Church of Uganda).
8. The Cornerstone Orphan's Education Association of Uganda.
9. Nankoma Youth Program for Adult Education
10. Agoma General Enterprises
11. Busiki Multipurpose Rural Development Association

Tororo District

12. Christian Children's Fund (C.C.F.)
13. Fellowship for Urban and Rural Assistance
14. Babirir Bandu Farmers' Association.
15. Mudodo Women Group.

These partners (NGOs) mobilize the farmers and farmers' groups, and having gone through a number of T.O.T.s conducted by OFPEP, have now begun to run their own training sessions. Four training sessions for group leaders have resulted in the distribution of new varieties of soybean, use of rhizobia inoculant, and four new demonstration plots.

OFPEP is also assured of the collaboration of the Namulonge Agricultural and Animal Research Institute scientists for technical information and for OFPEP training programs-provided that OFPEP can pay per diem. The T.O.T.s conducted in April on Rapid Multiplication of Cassava planting material using the High Humidity/Rooting Chamber Technology by Dr. Moses Onim was, for example, with the collaboration of two scientists from the Namulonge Agricultural and Animal Research Institute.

It may also be noted that OFPEP has a relationship with the Uganda Seed Project based at the Kawanda Agricultural Research Station. All improved varieties of seeds promoted by OFPEP are acquired on a wholesale basis from the Uganda Seed Project. It is noteworthy that one of the NGO collaborators (MTEA) has submitted a proposal for reaching the masses with the OFPEP interventions on its own, their proposal targeting 60,000 farmers. Another collaborating NGO (Talent Calls Club) has submitted a proposal to a

donor in Kampala to take the high humidity rooting chamber technology for rapid multiplication of mosaic-resistant cassava planting material to 5,000-6,000 farm families in Goma Sub-County, Mukono District.

Collaboration with NGOs is promising to increase even more in the coming year. This is based on the tremendous growth in the number of OFPEP partners achieved in the past year, where more than 10 groups or organizations have been added to the network.

In some communities, without formal organizations, lead farmers have begun arising to train their fellow farmers in neighboring communities on a voluntary basis. In some cases this is encouraged by local government officials. In Mukono there are 2 such farmers, 5 in Iganga and 5 in Tororo. This grounding in the community increases the sustainability of project activities long after OFPEP will have left the area.

OFPEP's role as a "FORWARD LINKAGE" to NGO collaborators and farmers is beginning to be more clearly understood in the 3 districts OFPEP is operating in.

Sustainability and Replicability

As yet another example of the increasing influence resulting from OFPEP's initiatives is the instance of one of OFPEP's collaborating NGOs, the Multi-Purpose Training and Employment Association of Iganga, which introduced a large quantity of Nam 2 Soybean seeds (about 2,000 kg of seed) to a district in the North East of the country. If this continues to occur, and is accompanied by the recommended agronomic practices for this and other crops, then we could record the beginnings of replicability. Indeed, it is a good case for seeking extension of OFPEP into other districts of Uganda. (Note: there are 39 districts in Uganda.)

As for sustainability, from the technical point of view, three factors need to be considered. Firstly, the degree to which OFPEP will, in the next two years, succeed in enlisting unqualified cooperation from the traditional government extension service to sandwich the OFPEP interventions in their normal schedules. Secondly, considering that many of the local NGOs are themselves ill-funded, sustainability of these NGOs necessarily precedes their sustaining the OFPEP technologies.

In the final analysis, the sustainability question seems to rest with OFPEP's success with lead farmers who will arise to render voluntary service to their fellow farmers. This year has happily seen the beginning of this spirit. If it is nurtured and encouraged some measure of sustainability and replicability will be registered.

Table 14: Adopters of OFPEP technologies outside the OFPEP groups

Technology	Iganga	Tororo	Total
Soil conservation	2,580	-	2,580
Animal manure	1,431	-	1,431
Compost manure	237	-	237
Seed selection	16,108	-	16,108
Seed storage	16,108	-	16,108
Longe 1 Maize	16,108	14	16,122
Nam 1 soybean	14,597	82	14,679
Seredo sorghum	986	13	999
P224 millet	-	4	4
MCM5001 beans	5,164	5	5,169
Rhizobia	12	14	26

The above figures were arrived at by taking information from several sources into account: sales records of adopting farmers; data from farmer monitoring forms; seed distribution lists from group leaders' reports from NGO partners, and information gathered during farmer meetings.

Sustainability also depends upon the ease with which farmers market any surpluses and those crops which are grown mainly for cash e.g. soybeans. The problem here is that the small-holder farmers OFPEP is working with are high-cost producers. The farm gate prices for their crops typically do not cover their production costs. When the farmers begin to reap profits (at least more decent returns to their labor) from growing a particular crop in a prescribed manner, the production of that crop is guaranteed to be sustained.

Farmer Innovation

The most remarkable farmer innovations have been in respect of the high humidity/rooting chamber technology. While the Namulonge Research Institute Chamber is of concrete hollow blocks forming the perimeter of the chamber - the hollows hold water- and sawn timber roof, the farmers' modification is a chamber with whatever containers e.g. discarded plastic cups, bottles etc. placed in the middle of the chamber with a roof built from locally available tree branches. Intercropping as opposed to pure stands promoted by OFPEP is another farmer innovation.

Uganda Country Report

Program Background and Approach at Site

Unlike a "project" which is issue-specific, OFPEP addresses the small-holder farmers' problems in a package form. The package includes soil conservation and soil fertility mending, on-farm seed activities (selection, harvesting, processing, preservation), agronomic practices relating to farmers' preferred crops and marketing-all with sensitivity to gender issues. All these aspects of the program are addressed through on-farm demonstrations to farm groups following Training of Trainers (T.O.T) Workshops. Demoplots are harvested in the presence of the farmers and the results analyzed (compared) on the spot with all the farmers present. The demonstrations are repeated in the subsequent season and farmers who are ready to move into the adoption stage are encouraged to do so. In the third succeeding crop season, the old demonstration plots are left to the farmers to maintain if they so wish and new demonstrations are established in new communities.

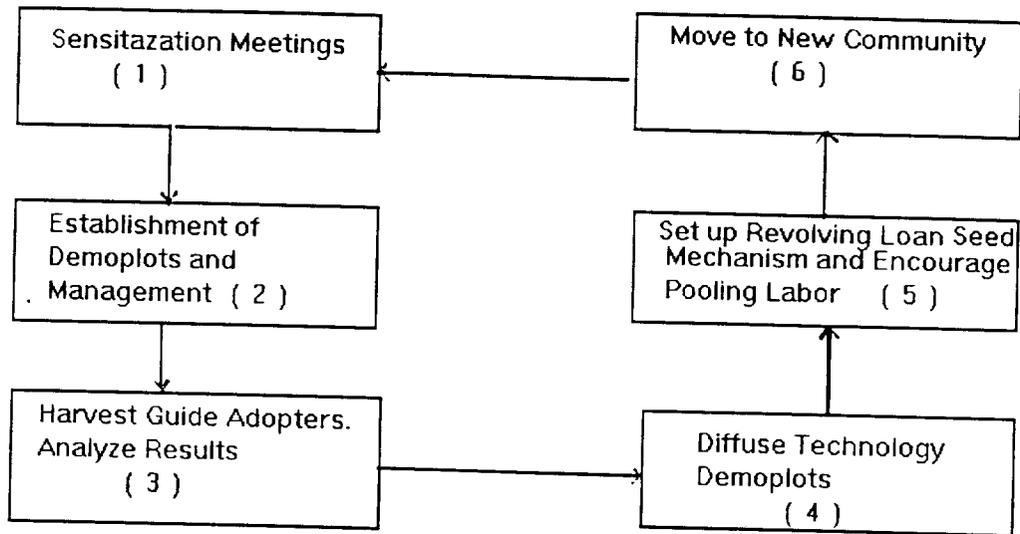
It should be noted that OFPEP promotes scientific organic farming as demonstrated by its emphasis on improved quicker-maturing, and disease-resistant high-yielding seed varieties with legumes inoculated, use of rhizobia inoculant and compost manuring and green manuring. The addition of deficient nutrients from inorganic sources is also considered when soil analyses reveal their deficiency and affordable local sources can be located. In some cases, where yield increases are sufficient the purchase of imported fertilizers may be chosen by progressive farmers.

Mukono district was incorporated into OFPEP's spatial coverage in October 1994. Although Mukono district is only two crop seasons old, adoptions of the OFPEP technologies especially improved seeds of soybeans (Nam 1), beans (MCM5001) and maize (Longe 1) are already being registered. Composting and the use of animal manure is also becoming more common.

The diffusion of new seed varieties is through a kind of Revolving Loan Mechanism. Adopters are loaned the required seed (type and quantity) at the beginning of the crop season-at planting. At the end of the season (harvesting time) the farmer "reimburses" the seed loaned to the local collaborating NGO to be similarly loaned to other farmers and the process continues.

Soil erosion banks to check soil erosion have usually required more than family labor to establish. Group work has therefore proved an asset in respect of this technology, particularly in the absence of animal traction to open up the trenches.

Figure 3: The following circular flow chart summarizes the approach so far used on the ground.



Goals And Objectives, By Collaborators, For Year 3

Structure And Management

The in-country overall administration of the program(OFPEP) is handled by Sandra Blanchard of the Agricultural Cooperative Development International (ACDI), the program sub-contractors. There is a new Country Coordinator to manage the day-day operations both in the field and at the head office from mid-may, 1995.

(On a sad note, the Field Operations/Gender Specialist recruited in October, 1994 passed away at the beginning of July (peace be upon her soul). Her replacement is expected to begin work at the beginning of October, 1995. The former Country Coordinator, Francis Oching, also passed away recently.

It should be remembered that the bulk of farm activities are performed by women. A Gender Specialist to work with them contributes positively and significantly to the success

of the OFPEP objectives. The Gender Specialist is normally based at the head office and makes frequent working visits to the field in the 3 districts.

The district field offices are manned by District Extension Specialists who work in collaboration with the local NGOs operating in the districts on field activities - training, demonstration plots, field days, coordinating seed revolving loan scheme as well as acquisition of all inputs for both demoplots and adopters.

The above management structure maybe represented diagrammatically as follows.

Figure 4: Management and Organizational Chart of OFPEP in Uganda.

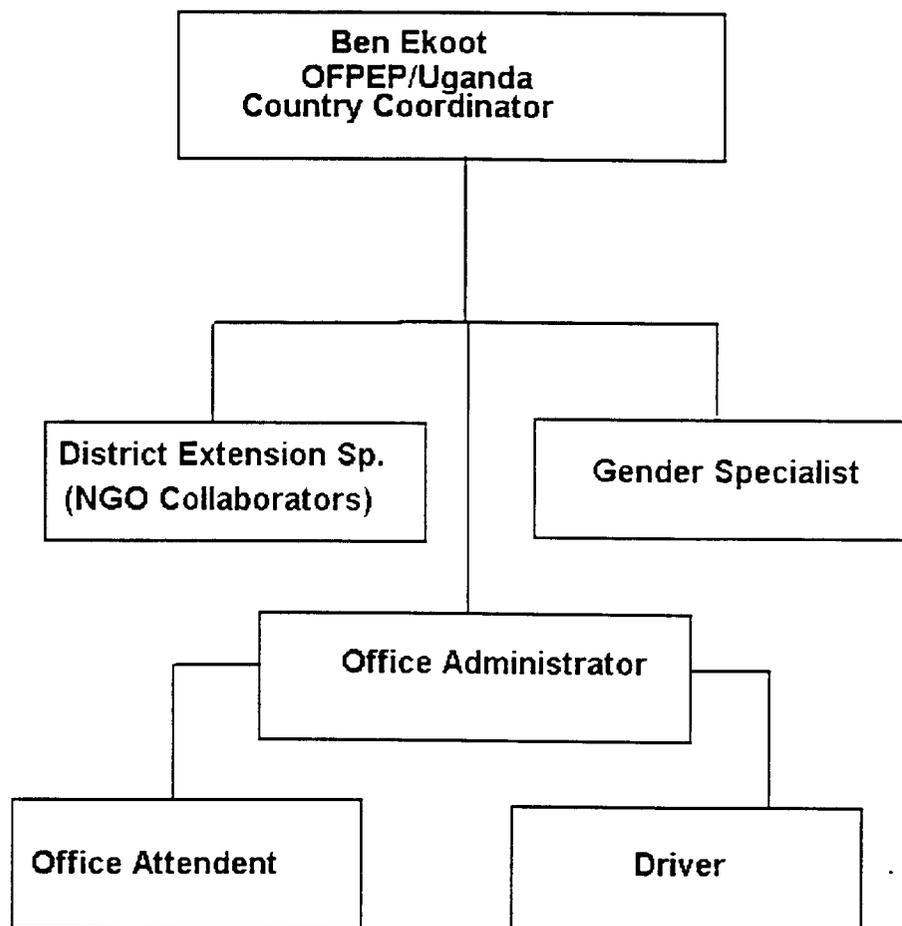


Table 15: Activities and Results - Significant Achievements and Impact.

Activity	Achievements	Comment
Expand collaborative network(s)	Have enlisted the collaboration of 15 local NGOS.	3 in Mukono 4 in Tororo 8 in Iganga.
Training of Trainers Workshops.	a.1 T.O.T on soils for all 3 districts. (24 trainees) b. 5 T.O.T.S on rapid multiplication of cassava planting material using high humidity/rooting chamber technology.	Held in Iganga, Central district. 1 in Iganga 2 in Tororo 2 in Mukono Iganga and Tororo with participation of Dr. Moses Onim and 2 Namulonge Agricultural and Animal Research Institute scientists NGO collaborators attended all these TOTs.
Establishment of demonstration plots for training purposes.	225 demoplots established in 3 districts.	116 in Iganga 95 in Tororo 14 in Mukono
Training farmers.	3,375 farmers	Each demo site served training needs of an average of 15 farmers.
Introduction/Testing of new technology	Introduced the Rapid Multiplication of Cassava Planting Material from one node cuttings using high humidity rooting chamber. Had 5 T.O.T.s on the technology .One collaborating NGO is proposing to diffuse the technology to a sub-county of 5,000-6,000 farm families if donor funding applied for comes through.	The farmers have since modified the technology to suit their conditions. However, termites are a menace to the technology. Germination rate is otherwise typically over 90%.
Establish input supply system(s)	Farmers' groups are now producing and selling seeds of self-pollinating crops: MCM5001 beans, Nam 1 soybeans, Longe 1 maize. OFPEP has bought up to 400 kg of MCM 5001 beans. The rhizobia inoculants plant at the Madhvani industrial complex has normalized. Inoculant can now be obtained at short notice.	Collaborating NGOs are going to run a revolving loan mechanism for seeds (self-pollinating crops) and farmers groups will sell seed to fellow farmers. This will be a private sector mechanism. They will need to pool orders for rhizobia inoculants to be economical.
Developing training, extension materials.	Have started writing the "How to Grow..." crop manuals to be translated into the vernaculars. The task has been divided between the district Extension Specialists.	When produced the NGO Collaborators will be responsible for the dissemination of these materials.
Supporting farmer-training programs.	Twelve lead farmers who have volunteered to teach farmers in new communities are fully supported in terms of inputs for demoplots.	
Monitoring and Evaluation	This has been a continuous process by the Extension Specialists.	The computer program for analysis is expected early October, 1995.
Increase production of soybeans.	200 tons harvested by August 1995. Work on marketing (Key to increasing production) has been initiated with the completion of a study on marketing.	Farmers used a mug deemed to be equivalent to 500 gm (2 mugs=1kg). Accuracy not entirely guaranteed. Implementation of the recommendations on the Marketing study report will go a long way in boosting the morale of farmers.

In line with the reporting requirements for the PL-480 Title 11 Monetization Program, a new impact measurement form has been developed (see **Appendix E**).

Technical Assistance and Training Provided And Received

We wish to acknowledge the technical assistance we have received from the Namulonge Agricultural and Animal Research Institute. In particular this Institute provided 2 scientists who assisted in the T.O.T.s on Rapid Multiplication of Cassava Planting Material. The Institute provided all clean germplasm for these T.O.T.s.

It should also be reported that a two-month study (consultancy) on the marketing of soybeans was undertaken in from March until mid-May, 1995. Contacts with the Uganda IDEA Project have been established and it is expected that more marketing channels for soybeans are going to be opened.

Mukono District Farm Institute provided appropriate technology to women in respect of fuel-saving (firewood-saving)stoves.

Lessons Learned

We must learn the habit of timely documentation of everything we do. Indeed, we must document the on-farm results much more in order to capture as much impact OFPEP is making as possible. This is an area where the collaborators' help will be of tremendous value. The more the collaborators undertake training the more capacity building OFPEP is able to promote.

Recommendations For The Coming Year

- The Extension Agents should concentrate on identifying new local NGOs and Community Based Organizations (CBOs) and training them to train members under their organizations.
- NGOs and CBOs should take full charge of the Revolving Loan Mechanism for seeds. They should also take charge of the purchases of the rhizobia inoculant for farmers.
- The NGOs and CBOs should begin to organize the farmers in respect of marketing their crops bearing in mind the increasing openness/competition in the economy.
- Training manuals should be completed in the first quarter of year 4.
- Increase vegetable growing especially among the women groups to improve nutrition and increase income.

Figure 5: OFPEP-Uganda Activity Sites



Activities Planned For Year 4

- Increase efforts towards Rapid Multiplication of ACMV-Resistant Cassava planting material in the OFPEP districts. ACMV is a national problem which begs for emergency aid approach.
- Increase the propagation and use of calliandra.
- Establish demonstration plots in the upper primary schools.
- Increase contact with the agricultural research stations (before each crop season) to be abreast of the latest scientific innovations.
- Use the mass media to publicize OFPEP beyond the three districts.
- Produce scientific summaries on OFPEP interventions in both English and local languages.
- Stage farmers' competitions in the adoptions of OFPEP interventions. Give certificates for completion of training courses.

KENYA

Program Overview And Highlights of the Past Year

Seeds And Soil Fertility

Seeds

The decrease in agricultural crop yields in rural areas of western Kenya is partly attributed to the use of poor seeds, where only about 30% of the farmers use commercial improved seeds. This is according to an informal survey conducted by the Ministry of Agriculture Livestock Development and Marketing (MALDM).

With this information on hand, OFPEP-Kenya conducted demonstrations with crop varieties in the first rainy season of 1995. In the varietal demonstration, the commercial improved crop varieties were compared to farmers' varieties at 24 locations in six districts in western Kenya. The crops demonstrated were cereals (different varieties of sorghum and maize), and legume crops including food beans, soybeans, and groundnut. Maize varieties were planted in 17 sites, and sorghum, beans, soybeans and groundnuts were planted in 18, 11, 8 and 7 sites, respectively. Out of the five maize varieties planted in the demonstration plots, the two highest yielding varieties came from farmers. However, there were no significant differences in grain yields among the tested maize varieties. An improved sorghum variety, Seredo, had the highest yield of 4437.5 Kg/ha; the least yielding was a farmer's local variety, Andiwo, that had a yield of 2504 kg/ha. Among the bean varieties, MCM 5001, an improved variety brought in from Uganda had the highest yield, and the lowest yielding was GLP-92, an improved variety from Kenya Seed Company. Local soybean out-yielded improved soybean by 36.8%, whereas, groundnuts did not have significant differences.

It is important to maintain the quality of seed in storage, so that when it is re-issued for planting it is in the same condition as when it was placed in storage. To do this one has to aim at minimizing the rate of deterioration during storage. Most small scale resource poor farmers use traditional methods to store their seeds. Various methods were described during the PRA meetings with farmers. Some of these included: use of sand; hanging above fire place; use of ash and hanging outside. To establish the effectiveness of each of these methods, OFPEP-Kenya organized detailed replicated seed storage demonstrations comparing traditional seed storage technologies to a recommended commercial seed storage pesticide, actellic super (250 g primiphos methyl per liter). The demonstration has been set up in seven sites in three districts in western Kenya with collaborating NGOs. The seed storage technologies being tested include hanging maize cobs under the roof eaves, hanging the cobs outside under tree branches and hanging cobs over cooking places where firewood producing smoke is used. Traditional methods using 1 part sand to 2 parts seed ratio, and wood ash as preservatives are also included. Results of these demonstrations will be available in February, 1996 and will be reported in the midterm report.

A Training of Trainers workshop on seed activities was conducted in mid July, 1995, and was attended by 25 participants drawn from government ministries and collaborating NGOs. In addition, 28 training sessions were held for farmers at the sites where demonstrations for 1995 long rains were established. A total of 1,724 people were trained: 493 (28.6%), were women, 434 (25.2%) men and 797 (46.2%) youth.

Soils

The results of the baseline survey on soil fertility and soil conservation were very informative. Of the 291 farmers interviewed, 94.7% indicated that their soils had low fertility problems, however, only 63.9% of the farmers with livestock use animal manure to improve soil fertility. Compost and inorganic fertilizers were used by only 28.3%, and 4.2% respectively, while agroforestry in its modern understanding, and rhizobia inoculant were not used by anyone.

Results from laboratory investigations of soil samples collected from 24 OFPEP-Kenya demonstration sites and 31 from collaborators' adaptive research sites (Care-Kenya), indicated deficiencies of some plant nutrients and some parameters that determine good soils. The analyses showed that nitrogen, was 76.4% deficient, phosphorus (32.7% deficient), calcium (21.8% deficient) and potassium (12.7% deficient). However, magnesium was not deficient in any of the 55 sites sampled.

OFPEP-Kenya also assessed soil fertility through crop responses to various fertility amendments in on-farm demonstrations. Twenty-two soil fertility demonstrations were established in the long rains of 1995. Yield results from the demonstration indicate that one can expect additional grain yield of at least 80% above control by applying Di-ammonium phosphate (DAP) either alone or in combination with organic manures. By applying only animal manure or compost to improve soil fertility, increased maize grain yields were 33.3% and 75.0% respectively above the control.

Partnership And Linkages

OFPEP-Kenya works closely with Non-governmental Organizations and government extension agents through the MALDM. In addition, the program works with Kenya Agricultural Research Institute based at Kibos sugar research station. The program has also developed collaborative activities with the Soil Science Department of the University of Nairobi through its activities in Biological Nitrogen Fixation as a soil fertility improvement technology. The rhizobia inoculant used in the short rains of 1995 was purchased from the department.

Sustainability and Replicability

OFPEP-Kenya has taken steps towards ensuring that program activities remain sustainable for long after external support is withdrawn. These include:

- Formation of two national organs, OFPEP National Advisory council (AC) and Technical Advisory Team. An Advisory council was formed at the beginning of the program to facilitate management of the program. The committee has played an advisory role to the program and acted as the link between the program and the institutions they represent. The two committees are made up of members from all participating NGOs, government and one international agricultural organizations (ICRAF).
- Training of community leaders and extension staff of local NGOs. One training of trainers workshop was held in mid-July 1995, and was attended by 25 participants drawn from collaborating NGOs and lead farmers. The training provided a good forum for intensifying activities with collaborators. The local collaborators and governmental institutions have the potential for sustaining the momentum of the current activities beyond the program life.
- Training farmers on new and improved technologies is one other way of ensuring sustainability of the program activities even in the absence of OFPEP staff. Training of both community members and leaders was a major OFPEP activity in the past year. Twenty-eight training sessions were held for farmers at the sites where demonstrations were established in 1995 long rains . A total of 1,724 people were trained, of whom 493 (28.6%), were women, 434 (25.2%) men and 797 (46.2%) youth.

To benefit people in other areas with similar problems under similar conditions, OFPEP-Kenya involves the government administrative machinery to mobilize community members during training sessions. In this way OFPEP-Kenya team trained up to 200 farmers in one training session. By involving many participants at farmers training sessions, the program activities have the potential of being replicated or spread far and wide, away from the activity site.

Farmer Innovation

During the baseline survey, OFPEP-Kenya discovered a number of innovations and modifications developed by the farmers themselves. These included;

- compost making, especially among farmer groups in area where CCF operates
- planting improved crop varieties
- seed selection and preservation
- planting in line using recommended spacing - our observation approximately 50% of the farmers visited used this technology courtesy of MALDM.

Farmers are encouraged to conduct their own demonstrations in crops or technologies that interest them. The demonstrations are conducted with help from OFPEP staff and/or collaborators. One farmer in Upper Nyakach division of Kisumu district, through her own initiative, established a demonstration plot after observing what had been done at a neighboring demonstration site. In her plot the farmer compared two improved varieties of maize, H625 and Maseno Double cobbler. She also compared one finger millet variety with DAP fertilizer as a soil improvement and control as farmers practice.

Kenya Country Report

Program Background

Human population is rapidly expanding in the districts where OFPEP-Kenya operates in western Kenya. There are up to 1,300 people per square kilometer in Kakamega and Vihiga districts (Population Census, 1989). Poor and unreliable rainfall in most parts of Siaya, Kisumu, Homa Bay and Migori districts have led to low crop yields. This forces farmers to struggle to earn a living in difficult conditions -- relatively poor, fragile soils and natural vegetation.

Based in western Kenya around the lake Victoria basin OFPEP-Kenya is built on the network and foundation of the Dual Purpose Goats (DPGs) of Small Ruminants Collaborative Research Support Program (SR-CRSP). The SR-CRSP which was funded with a grant from title 12 of USAID operated in western Kenya for 12 years doing research and development on DPGs. The Kenya-OFPEP was based on the DPG network in western Kenya, working with many collaborating farmers and farmer groups in the districts where SR-CRSP operated. These districts were Siaya, Kisumu, Kakamega and Vihiga. (Figure 6)

Homa-Bay and Migori are intervention districts for CARE-Kenya, Peace Corps Volunteers (PCVs) and Mobilizing Against Desertification (MAD) which are the Non-governmental Organizations (NGOs) collaborating with OFPEP-Kenya in these areas. There is a possibility of expanding the program to Busia which is an intervention district for PCVs and Christian Children's Fund (CCF). This will not be done until OFPEP-Kenya establishes itself well in the first six districts.

Approach

OFPEP-Kenya focuses its attention on small holder farmers with particular emphasis on women farmers. Its major concern is basic food production, improvement of nutrition levels and the production environment. The program integrates efforts to improve on-farm soil conservation and fertility, and farmers' access to good quality seeds of improved crop varieties. OFPEP-Kenya benefits from related DPG project activities. Its activities help farmers to benefit from some 12 years of successful research and development of such goats in western Kenya. These animals provide resource poor farm families with

milk, meat, cash and manure which contributes significantly to small holder farmers' welfare and improvement of soil fertility. With average management on-farm, one lactating DPG doe produces approximately one liter of milk per day.

An Assessment of farmers' needs is done in project areas with special emphasis on project mandates by conducting PRA meetings with farmers. The farmers are then requested to rank their priorities in PRA meetings where they select the technologies they wish to be tested in their area. These include soil fertility and soil conservation amendment methods, testing of improved varieties in comparison to farmers' varieties on farmers own land, and capacity building through training of trainers of NGOs and government ministries' extension staff and farmers.

Improved technologies from national, regional and international research organizations are compared to farmers indigenous technologies in demonstrations on farmers' lands where farmers themselves manage all aspects of the demonstrations. The farmers assess the technologies and select what works best within their environments and capabilities. Such technologies are extended to more farmers through adoption and farmer to farmer diffusion. Performance of the various technologies on-farm is shared with the source research organizations of such technologies.

Results of successful and rejected technologies are summarized in the program reports and shared with farmers through training, collaborating NGOs, and government organizations. Farmer extension training is jointly done by experts from the same NGOs and government personnel, or consultants under the auspices of OFPEP.

The OFPEP-Kenya approach has centered on simple technological interventions that improve farm productivity with minimal inputs.

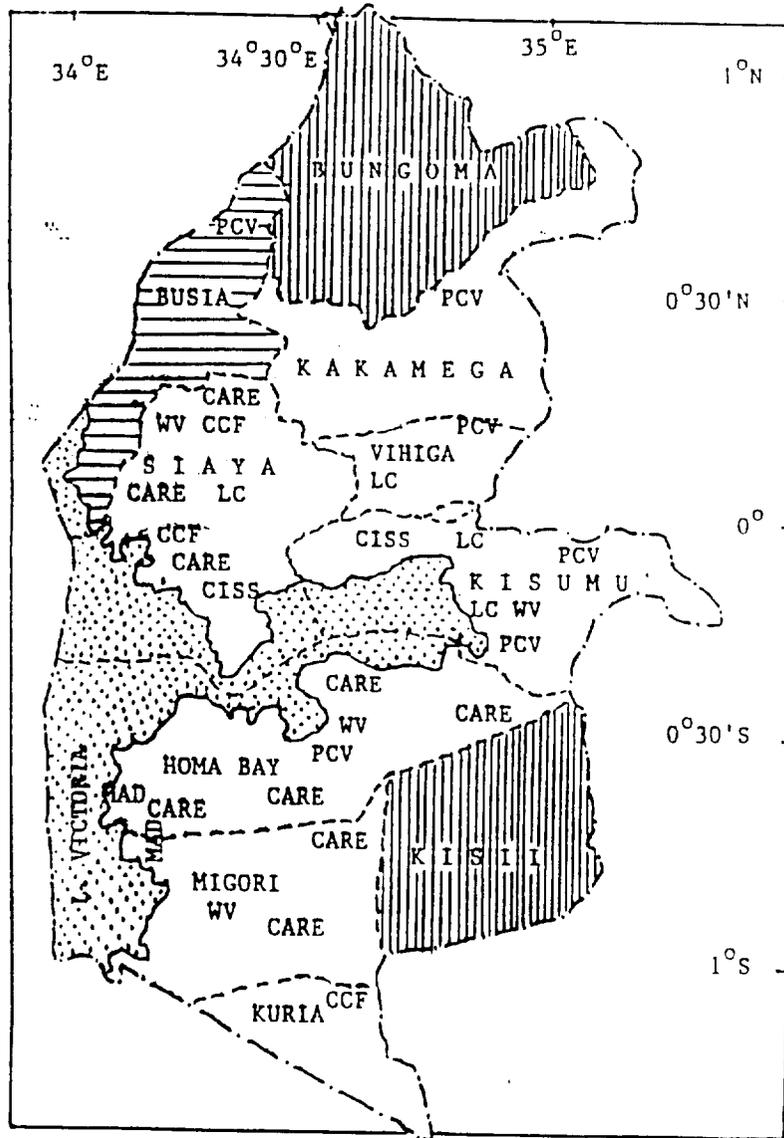
Goals and Objectives

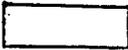
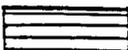
The goal of OFPEP in all countries where it operates is to improve nutrition, income and well being of small farmers by addressing agronomic constraints that farmers face and providing opportunities for farmers to test, modify, adopt and adapt new technologies.

The objective of OFPEP is to enhance on-farm productivity of crops and livestock for the resource poor smallholder farmers, and improve their welfare. To achieve this, the main areas of OFPEP-Kenya activities are:

- Improvement of soil conservation.
- Improvement of soil fertility.
- Quantity and quality improvement of on-farm seeds.
- Capacity building of farmers and extension staff of collaborating NGOs and government ministries through training.
- Increasing gender awareness and highlighting the roles played by men, women and children in agricultural production.

Figure 6. Map of OFPEP Kenya Sites



-  OFPEP DISTRICTS
-  DISTRICTS WHERE OFPEP'S COLLABORATORS ARE LIKELY TO EXTEND OFPEP TECHNOLOGIES TO
-  OFPEP COLLABORATORS PRESENT AND OFPEP TECHNOLOGIES ARE LIKELY TO SPREAD TO

OFPEP COLLABORATING NGOS

- CARE - Co-operative American Relief Everywhere
- CCF - Christian Children's Fund
- CISS - Community Initiative Support Services
- LC - Lagrotech Consultants
- MAD - Mobilizing Against Desertification
- PCV - Peace Corps Volunteers
- WV - World Vision International

The program aims at making improved agricultural technologies more readily accessible to the large number of impoverished rural small holders in these areas.

Project Structure And Management

Overall supervision of the OFPEP program is the responsibility of Dr. Pierre Antoine of Winrock International. Dr. J.F. Moses Onim, is the OFPEP East African Coordinator. He provides immediate leadership in both administrative and technical matters for OFPEP-Kenya and is in charge of overseeing activities in each of the OFPEP countries (**Figure 7**).

Mr. Robert Ondigo joined the program in mid-February, 1995 as the country extension and training coordinator with vast experience in extension and training. Since he was working as a senior government extensionist and training specialist in MALDM, he is currently the best linkage between OFPEP-Kenya and the MALDM. His duties include training of farmers and extension staff of NGOs and MALDM. He provides over all assistance to the program Country Coordinator.

Ms. Rose Sigar is the program Country Coordinator whose duties include, supervision of administrative assistants, assisting with field and office duties, and writing reports.

Messrs Christine Okoth and Nelson Omondi joined the program in October, 1994 as extension assistants to help in overseeing and supervising project activities in the field, with special attention to Kakamega and Vihiga for Mr. Okoth, and Homa-Bay and Migori districts for Mr. Omondi.

Ms. Beatrice Lumadede is the administrative assistant in charge of administration, OFPEP-Kenya financial accounting, and computer word processing and data analysis.

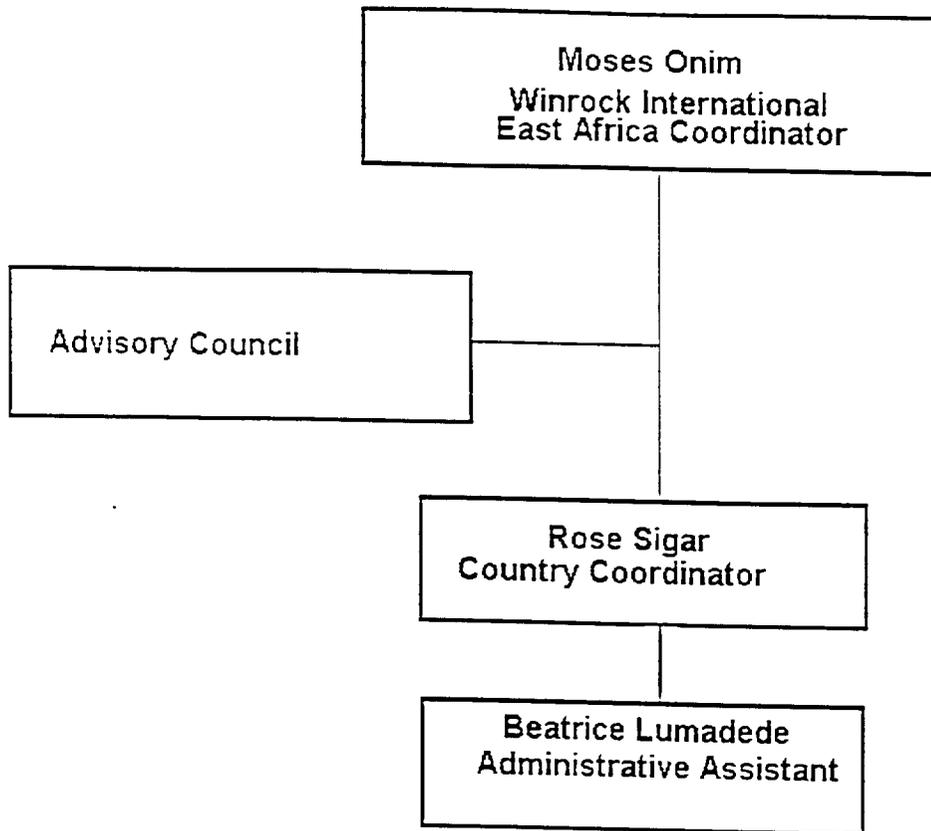
Mr. Timothy Ayieko is the program driver whose duties also include assisting program extension staff in the field.

Program Activities And Results

The onset of the long rains of 1995 saw the beginning of an array of activities that culminated in the planting of the demonstration plots during the whole of April. Come May and the process of monitoring the demonstration sites was started. This continued during the better part of May. At the end of May, OFPEP-Kenya staff embarked on a one and half month long training of farmers that was rounded up with a training of trainers held on July, 16-18, 1995.

Activities for the short rains have begun. Sites have been identified and planting completed in most of the sites.

Figure 7. Organization Chart of OFPEP-Kenya.



OFPEP-Kenya undertook the following activities between Oct.-1994 and Sept. 1995:

Recruitment of Collaborators

Nine organizations were recruited to work with the program, namely, CARE-Kenya, World Vision International (WVI), Community Initiative Support Services (CISS), Mobilizing Against Desertification (M.A.D), Christian Children's Fund (CCF), Kenya Agricultural Research Institute (KARI), Ministry of Agriculture, Livestock Development and Marketing (MALDM), Peace Corp Volunteers (PCVs) and Lowland Agricultural and Technical Services (LAGROTECH). Lagrotech is the representative of Winrock International which is the lead institution in Kenya. OFPEP-Kenya activities are based in Lagrotech's offices in Kisumu in western Kenya. All collaborating NGOs are actively working with OFPEP-Kenya in their respective areas of operation. (Table 17)

Recruitment of Farmer Groups

Seventeen women and farmer groups with a total membership of 1,246 farmers were recruited into the program in the past year and baseline surveys conducted with the members (Table 16). Most of the groups were recruited with the help of the collaborators.

Table 16: Farmer groups of OFPEP-Kenya.

District	# Of Groups	Total Membership	Attendance			Total Present	% Present
			Women	Men	Youth		
Kisumu	11	991	173	28	0	201	20.3
Siaya	4	182	66	6	1	73	40.1
Vihiga	1	33	6	5	1	12	36.4
Homabay	1	40	4	1	0	5	12.5
Kakamega	0	0	0	0	0	0	0
Migori	0	0	0	0	0	0	0
TOTALS	17	1246	249	40	2	291	109.3

Of the farmer groups listed in the table, eleven are in Kisumu and four are in Siaya districts, and one each for Homa Bay and Vihiga districts. More groups have been recruited, both in Siaya and Homa Bay. We have a further eight groups in Siaya district with CARE-Kenya and four groups in Homa Bay district with a PCV and another four with CARE-Kenya. Out of the 1,246 total members of groups recruited for the program, only 291 (23%) attended the first meetings called by the program.

Table 17: Summary of activities by partner.

	Activity	# Of Sites	Partners
SEEDS	Maize variety	14	CCF, CARE, MALDM, PCV
	Sorghum variety	14	CCF, CARE, MALDM, PCV
	Food bean demos	4	CARE, MALDM, PCV
	Soya bean	6	CCF, CARE, MALDM, PCV
	groundnut	7	CCF, CARE, MALDM, PCV
	Seed storage trials	7	CARE, WV, Lagrotech
SOILS	DAP-inorganic fertilizer	15	CCF, CARE, MALDM, PCV
	Animal manure	11	CCF, CARE, MALDM, PCV
	Compost	11	CCF, CARE, MALDM, PCV
	Rhizobia inoculant	4	CCF, CARE, MALDM, PCV
CAPACITY BUILDING	Training of Trainers	1	See Appendix H
	Training of Farmers	28	All collaborators

The recruitment was conducted by holding Participatory Rural Appraisal (PRA) sessions with the group members. During these sessions, conversations and discussions were held with the group members after introducing the program to the farmers. It is through these discussions that we do farmers' needs assessment in on-farm seeds, soil fertility and soil conservation. It is encouraging to note that farmers have received the program quite positively and all the recruited farmer groups accepted to collaborate in the program.

Soil Conservation and Soil Fertility Baseline Survey.

The baseline survey was designed to gather data on soil fertility and soil conservation. The information from this survey helped the OFPEP-Kenya staff to:

- identify the constraints related to improvement of soil fertility and soil conservation and the needs of target communities.
- establish a benchmark against which OFPEP-Kenya and its collaborators will measure progress due to their corrective activities.
- develop training materials for extension agents, partners and farmers.
- identify appropriate applications of technologies generated by the research institutions.

The baseline surveys on soil conservation and soil fertility were conducted from November, 1994, to March, 1995. The main objectives of the survey were to establish soil fertility and soil conservation practices in the districts where OFPEP-Kenya operates, and to record farmers' perception on the extent of soil erosion in their areas. After the above information was obtained, appropriate soil and water conservation and suitable soil fertility amendment technologies were introduced. Like with the farmer group recruitment drive, PRA sessions were held with group members and their answers to specific questions were recorded. After the group discussions, knowledgeable individuals were selected and asked questions pertaining to soil fertility and conservation and their answers were recorded in the questionnaire (**Appendix F**).

A baseline survey on nutritional status of children between the ages of one to five years had been conducted by collaborators in some of the districts where OFPEP-Kenya operates. This included CCF and CISS areas of operation in Siaya. OFPEP-Kenya intends to use this information as a bench mark for their activities in these areas.

Soil Fertility

As indicated previously, 94.7% of the interviewed farmers said that their farms had the problem of low soil fertility. However, only 63.9% of the farmers with livestock use animal manure to improve soil fertility on their farms. Similarly, only 28.3%, 0%, 4.2% and 0% use compost, agroforestry technologies, inorganic fertilizers and rhizobia inoculant respectively to address this problem.

Soil Conservation

Only 20% of the farmers met during the PRA sessions use some kind of soil conservation technology to reduce soil degradation. Soil erosion was mentioned as one of the major factors contributing to low soil fertility and therefore should be addressed if soil fertility is to be maintained and improved. Soil erosion is a serious problem in most areas in the region, except in Kano plains. Various methods are used to conserve soil and to control soil erosion. The most common ones being terracing and contour plowing. Grass strips, stone terracing and mulching are used by only 1.6, 0.9, and 0.3% respectively. OFPEP-Kenya will train and encourage farmers on the use of these methods in addition to extending terracing methods to other areas not practicing it. Results from individual interviews on soil conservation indicated that rain run-off is a major cause of soil erosion.

No NGO has addressed soil conservation problem in these areas. The MALDM has addressed the problem in most of the areas where the farmers indicated that the extent of erosion is very serious, however, very little has been done to reduce soil erosion. To address this problem OFPEP-Kenya hopes to team up with the MALDM to motivate farmers on importance of soil conservation and train them on simple and affordable soil conservation techniques.

Follow-up visits

Follow-up visits were made to all the groups recruited for the program. During the visits, OFPEP-Kenya field personnel and collaborators viewed sites selected for the demonstrations. The farmers were urged to ensure that the demonstration sites were ready on time for planting at the onset of the long rains of 1995.

Results of soil laboratory analyses results

Before planting the demonstration sites, soil samples were collected by the staff of the National Sugar Research Station-Kibos in conjunction with OFPEP-Kenya staff. The soils were then taken to the station where laboratory analyses were conducted. Results from the laboratory analyses of soils sampled from the demonstration sites indicate that most of the soils are deficient in organic matter and nitrogen. The worst affected are soils in parts of Vihiga and Siaya districts. All samples from Vihiga district were deficient in nitrogen and organic matter while the other elements were in adequate amounts. Phosphorus is a major problem in Siaya district soils. Of the samples collected 87.1% lacked adequate amounts of organic matter, 80.6% are low in nitrogen and 51.6% are low in phosphorous. Only 19.4% and 12.9% of the soils were deficient in potassium and sodium respectively. Calcium was deficient in 29% of the samples

In Kisumu district, nitrogen is the most deficient element in soils. Of the sites sampled in this area 82.4% were deficient in nitrogen, 35.3% in O.M, 11.8% and 17.6% lacked adequate amounts of P and Ca respectively. Homabay soils were adequate in all elements except O.M which was deficient in 66.7% of the samples.

Table 18 presents the results of the soil analyses, for more detailed information of soil analysis results see Appendix G.

Table 18: Soil contents of organic matter, phosphorus, nitrogen and important plant nutrient bases in some districts in western Kenya.

District	-----%-----		ppm	bases (me/100mg)			
	O.M	N		P	K	Na	Ca
Deficient if	<4.0	<0.2	<20.0	<20.0	<0.1	<4.0	<1.0
KISUMU (n=17)							
Deficient	6	15	2	0	2	3	0
Adequate	11	2	15	17	15	14	17
%Deficient	35.3	82.4	11.8	0.0	11.8	17.6	0.0
SIAYA (n=31)							
Deficient	27	25	16	6	4	9	0
Adequate	4	6	15	25	27	22	31
%Deficient	87.1	80.6	51.6	19.4	12.9	29.0	0.0
HOMABAY (n=5)							
Deficient	2	0	0	0	0	0	0
Adequate	3	0	5	0	0	5	5
%Deficient	66.7	0	0.0	0	0.0	0.0	0.0
VIHIGA (n=2)							
Deficient	2	2	0	0	0	0	0
Adequate	0	0	2	2	2	2	2
%Deficient	100.0	100.0	0.0	0.0	0.0	0.0	0

O.M - Organic Matter, N - Nitrogen, P - Phosphorus, K - Potassium, Na - Sodium, Ca - Calcium, Mg - Magnesium.

To assess the quality of compost and animal manure used in the demonstration plots, a few samples were collected and taken for analysis. The analysis was done for nitrogen, potassium, phosphorous and organic matter. The results are shown in the table below. As the results indicate organic fertilizers are very low in phosphorus. It is important that phosphorus is added from an external source if benefits are to be derived from the fertilizers.

Table 19: Results of laboratory analyses of samples of compost and manure

	pH	K ₂ O	P ₂ O ₅	O.M	N
Compost 1	6.9	1.82	0.50	13.60	1.18
Compost 2	7.9	1.66	0.19	17.00	0.86
Compost 3	7.7	1.30	0.34	21.20	1.25
Compost 4	7.8	0.77	0.20	22.50	0.47
Animal Manure 1	7.4	1.68	0.47	26.40	1.02
Animal Manure 2	7.7	2.35	2.35	29.90	1.61
Animal Manure 3	7.8	1.68	0.72	29.40	2.00

On-farm demonstrations

a. Crop Variety Demonstrations

To compare the performance of various crop varieties recommended for the regions in which OFPEP-Kenya operates and to enable farmers to evaluate the crop performance for themselves, productivity demonstrations were established. In each one, different varieties of the same crop were planted side by side. Each crop variety was planted in a 24 m² (4x6) plot.

With technical assistance from OFPEP-Kenya staff and collaborators, 24 varietal demonstrations were established in the first rainy season of 1995, using different varieties of sorghum, maize, beans, soybeans and groundnuts. In the demonstration plots, improved commercial varieties were assessed against the local farmers' crop varieties. All varieties received the same and recommended agronomic practices, and they were only assessed for varietal differences. In most sites, the plots were weeded twice before harvesting. Yields were recorded and analyzed at the end of the season, and farmers were then allowed to decide on the varieties they preferred.

Two of farmers' locally selected maize varieties out-yielded the commercial improved and recommended varieties. An improved variety of sorghum, seredo, out-yielded the farmers varieties by between 45-80%. Another of the improved varieties, Mtama-1, had the lowest yield. This was mainly because in most plots the grains were eaten by birds to an extent that some of the plots had zero yield. This particular variety, however has the potential to yield 2250 Kg/ha under complete bird control.

General performance of legumes was poor, particularly groundnuts. The bean variety MCM 5001, an improved variety brought in from OFPEP Uganda, out-performed the local variety, Lipala, by 43.5% and a locally improved commercial variety, GLP-92, by

53.5%. Yield differences between the groundnut varieties was not significant. Local soybean out-yielded another improved variety brought in from Uganda by 37.5%. These results provide a basis on which to train farmers on on-farm seed selection.

Table 20: Crop varieties in demonstrations

Variety Name	Source of Seed	Type of Seed
Maize		
Local white	Farmers	Composite
Local yellow	Farmer	Composite
Maseno Double Cobber	Lagrotech Consultants	Improved Composite
Hybrid 512	Kenya Seed Company	Recommended Variety
Hybrid 625	Kenya Seed Company	Recommended Variety
Sorghum		
Seredo	Kenya Seed Company	Recommended Variety
Andiwo red	Farmers	Composite
Andiwo 2	Farmers	Composite
Nyakabala	Farmers	Composite
Mtama-1	ICRISAT	Recommended Variety
Ochuti	Farmers	Composite
Rabour	Farmers	Composite
Goperi	Farmers	Composite
Food Beans		
MCM 5001	Ex-CIAT	New Variety
GLP-92	Kenya Seed Company	Recommended
GLP-2	Kenya Seed Company	Recommended
Sindori	Farmer	
Groundnuts		
Uganda Red	Uganda	Improved
Homabay	Kenya Agricultural Research Institute	Improved
Soybean		
Nam 1	(Namulonge)	Improved
Maragoli	Farmers	

Analysis of the yield results showed the influence of location on yield to be highly significant thus indicating that seed selection and recommendations should be site specific. Therefore, it is important to train farmers carefully on seed selection unless research institutions have the capability of conducting seed selection on wider localities. It should,

however, be realized that high yield is not the only parameter farmers look for in demonstration crop varieties, they also consider early maturity, cooking and eating qualities.

Table 21: Yields in Kg/24m² and Kg/ha of varieties in demonstration plots.

Crop/Variety Name	Yield Kg per 24/m2	Yield in kg per ha
Maize		
Local White	16.1	6708.3
Local Yellow	14.9	6208.3
Maseno Double Cobber	13.0	5416.7
Hybrid 625	12.5	5208.3
Hybrid 512	12.2	5083.3
Sorghum		
Seredo	10.7	4458.3
Nyakabala	7.2	3000.0
Andiwo 2	6.0	2500.0
Mtama-1	4.4	1833.3
Food Beans		
MCM 5001	6.6	2750.0
Lipala	4.6	1916.7
GLP-92	4.3	1791.7
Groundnuts		
Uganda Red	4.7	1958.3
Homabay	4.4	1833.3
Soybean		
Local	9.9	4125.0
Nam 1	7.2	3000.02

b. Soil fertility demonstration.

In soil fertility demonstrations, the effects of different fertilizers were compared to ascertain the superiority of one over the other. The following technologies were used: DAP, animal manure, compost, inoculant, and a combination of DAP and animal manure, and DAP and compost, where applicable.

Fertility demonstrations were established, using only Maseno Double Cobber (MDC) improved composite to compare plots where nothing was applied (control) with plots which received various fertility amendment treatments, namely organic fertilizers (animal

manure and compost), inorganic fertilizer- diammonium phosphate (DAP) and combinations of organic manures with DAP.

Table 22: Soil fertility amendments used

Soil Amendments	Field Measure per Hole	Estimated Weight (kg)/ha
Control (nothing applied)	0	0
Animal Manure	Two handfuls (hf)	5,000 - 10,000
Compost (cpt)	Two handfuls (hf)	4,000 - 8,000
Diammonium phosphate	1 teaspoonful (tsp)	60 kg of P ₂ O ₅
Diammonium phosphate with animal manure (a.m.)	1 tsp DAP + 1 hf a.m.	60 kg DAP + 7,500 a.m.
Diammonium phosphate with animal compost	1 tsp DAP + 1 hf cpt	60 kg DAP + 6,000 cpt

The plot sizes, spacing and agronomic management were the same as for the variety demonstrations. Soil fertility demonstrations were conducted in 24 sites in six districts of western Kenya.

Table 23: Results of soil fertility demonstrations

Fertilizers	Yield per 24 M2 Plot	Yield per Hectare	% Increase over Control
DAP/COMPOST	17.54	7308.3	192.3
DAP	14.00	5833.3	133.3
DAP/ANIMAL MAN.	10.50	4375.0	78.1
COMPOST	10.32	4300.0	75.0
A/MANURE	8.08	3333.3	33.3
CONTROL	6.55	2500.0	-

The results indicate that DAP--either alone or in combination with organic manures--can give additional grain yield of about 80% above control. By applying either animal manure or compost to improve soil fertility, increased maize grain yields were 33.3% and 75.0% respectively.

These demonstrations gave important evidence on the status of soil fertility that was reviewed with farmers during training and field days. The results are encouraging farmers to apply soil amendments in their own fields.

From the fertilizer demonstration, we can determine the soil fertility amendments which give us the best maize grain yield responses. At the same time, we can also determine the variety that has high yield potential. These demonstrations enabled OFPEP and its collaborating NGOs and farmers to see how these fertility-estimating methods are correlated. The various crop responses to soil fertility amendments will help us and the farmers to estimate economic advantages of the different fertility amending technologies. Even though the results are not yet conclusive, they do still give indications for potential to farmers with respect to varietal selection and fertilizer use.

c. Germination percent

To determine the effects of various fertilizers and the difference between varieties on germination percent, OFPEP-Kenya staff did an evaluation tour of the established demonstration sites. Each staff visited different sites to count the number of seedlings that had emerged for each demonstration plot and treatment.

Germination was generally affected in all the sites for all the treatments. The most affected were the legumes with soybean having an average of only 29.8%. The least affected were cereals, particularly local sorghum varieties, Andiwo red (88.1%) and Goperi (81.7%). The poor results of crop emergence were attributed to low and erratic rainfalls that also caused delay in planting for that season. On average, maize had the highest germination percentage, followed by sorghum, food beans, soybean and lastly, groundnuts. Other than sorghum, local varieties had lower germination than the other crops.

The data presented in the following table shows that, in general, all soil improving technologies reduced seed germination of crops, especially those of the legumes.

Table 24: Effect of fertilizer application on germination percentage of some cereal and legume crops in OFPEP districts in western Kenya.

CROPS	AM	COMP	DAP	AM/ DAP	COMP/ DAP	CONTROL	Totals	
							Totals	Mean
Maize (MDC)	57	68	61	74	50	72	382	63.7
Sorghum	61	77	55	77	62	82	414	69.0
Food Beans	48	37	26	39	18	53	221	36.8
Soybean	40	42	20	(39)	31	62	234	39.0
Groundnuts	21	24	4	3	36	39	127	21.2
Germination Totals	227	248	166	232	197	308	1378	
Germination Means	45.4	49.6	33.2	46.4	39.4	61.6		45.9

AM= Animal Manure, Comp= Compost Manure, DAP=Diammonium Phosphate, MDC= Maseno Double Cobber.

Among the fertilizers, DAP and compost/DAP reduced germination most, with mean germinations of 33.2 and 39.4%, while the control had the highest score, with a mean of 61.1%. The unavailability of adequate water in the soil due to poor rainfall at the beginning of the season created high osmotic tension around seeds in the soil, especially where DAP was applied. This osmotic tension reduced the ability of the seeds to absorb water, thereby reducing germination.

But despite the poor germination, it is encouraging to note that the crops did well in most of the demonstration sites and distinct differences in general crop conditions and yield were observed among the fertilizer treatments and crop varieties.

d. Seed storage demonstrations in seven sites in western Kenya

A detailed replicated seed storage demonstration comparing the effectiveness of traditional seed storage technologies to a recommended commercial seed storage pesticide called *actellic super* (250 g primiphos methyl per liter) has been set up in seven sites. The seed storage technologies being tested include hanging maize cobs under the roof eaves, hanging the cobs outside under tree branches and hanging cobs over cooking places, using 1 part sand to 2 parts seed ratio, and wood ash as preservatives. Results of these demonstrations will be available in February, 1996 and will be reported in next year's annual report.

Training of Farmers and Agricultural Extension Staff

Starting from May 31, 1995 to July 28, 1995, OFPEP-Kenya staff, together with collaborating NGOs, including; Lagrotech Consultants, Peace Corps, CARE-Kenya, Christian Children's Fund (CCF), and the government's Agricultural Extension Department and Research Division of MALDM, planned and organized 28 demonstration sites in six districts in western Kenya which were used as training venues for farmers. The purpose of this series of training was to create awareness on the four main OFPEP mandates (technologies) on soil conservation, soil fertility, on-farm seed selection (on-farm single plant selection, post harvest seed drying and processing, seed storage and germination test) which, if practiced, would improve crop productivity. The two major methodologies used in training the communities was by the use of Participatory Rural Appraisal (PRA) and on-farm demonstrations of OFPEP mandate technologies.

During the training the farmers were involved in discussing the new and improved technologies demonstrated on their farms. Simple soil conservation technologies that farmers can easily practice on their farms were discussed. These included; terracing, grass strips, stone walls, plant or grass trash, and agroforestry. For soil fertility, the use of organic manures, especially animal manure, compost, plant biomass from agroforestry, biological nitrogen fixation (BNF) for legumes as rhizobia inoculant, and inorganic fertilizers were discussed as sources of plant nutrients.

The farmers were also trained on how to do on-farm plant selection when the crop is still in the field, post harvest seed selection or--how to sort out bad seeds from good ones-- and how to dry and store them using the traditional methods. This area of training was important because farmers can select and store their own seeds which will enable them to plant in time without struggling to buy improved commercial seeds which sometimes are not readily available in the seed markets.

Table 25: A summary of farmers trained during OFPEP-Kenya farmers training at the demonstration site between May 31 to July 28, 1995.

District	Number of groups trained	Men	Women	Youth	Total
Kisumu	7	46	108	208	362
Siaya	9	260	264	229	753
Homa Bay	7	82	61	229	372
Vihiga	1	24	22	126	172
Kakamega	1	6	21	3	30
Migori	1	16	17	2	35
Total	26	434	493	797	1724

Table 26: Distribution of trainees with collaborators.

Collaborating Organizations	Total Trained
Lagrotech Consultants	310
Peace Corps Volunteers	368
CARE - Siaya	404
Christian Children's Fund (CCF)	379
MALDM	42
CARE - Homa Bay/Migori	221
World Vision International	0
CMAD	0
TOTAL TRAINED	1724

Seed germination is an important factor for farmers so as to ensure that the seeds they plant will germinate and have the vigor to grow. To minimize such losses and to insure that seeds used are viable, the farmers were trained to do germination tests 2-3 weeks before planting by using local available materials like calabash, broken pots or tins.

Training of Trainers

From July 16-18th a successful 3-day training of trainers workshop was conducted at Tom Mboya Labour College in Kisumu. The training on seed activity was attended by 25 field extension staff from most of the collaborating organizations (**Appendix H**). The lectures were delivered by OFPEP East Africa coordinator, Dr. Moses Onim, and OFPEP-Kenya team of Mr. Robert Ondigo, Mr. Chrispine Okoth, Mr. Nelson Omondi and Ms. Rose Sigar. The training subject matter was as listed below;

1. Plant selection in the field
2. Seed selection after harvesting
3. Seed Storage
4. Testing seeds for quality
5. Practical on seed storage and germination testing

The extension coordinator-Nyanza province, Mr. S.B. Anunda closed the workshop. During his speech he emphasized the need for training on seed technology noting that, in Nyanza province, one of the two provinces where OFPEP operates, only 20-30% of farmers use improved seeds. He thanked OFPEP-Kenya for the work it was doing on training both farmers and extension agents on seed activities and creating awareness within the communities, on the importance of using quality seed.

Other Contacts Made

On August 20, 95, Mr. Ondigo visited PCV Kevin Urban at Homalime in Homabay district. The purpose of the visit was to make observations on the extent of soil erosion in the areas surrounding St. Alberts secondary school and to see how OFPEP-Kenya could help reduce soil erosion in this area. The meeting was positive and Kevin and Robert agreed to make further visits and to set a date when farmers could be mobilized to create awareness of the dangers of soil erosion and discuss what measures could be taken to curb the erosion.

Three local NGOs, Sustainable Community Oriented Development Program (SCODP), Grail, a Catholic community based organization and Kenya Energy Non-governmental Organizations association (KENGO), have shown interest in collaborating with OFPEP in conducting the demonstrations.

Meetings Held

An Advisory Council (AC) meeting was held on November 8, 1994. The meeting was chaired by Dr. Onim, and various issues were discussed. The main agenda for the meeting was to explain OFPEP's organizational structure and spectrum of operations to the AC members. The AC members were also requested to briefly explain their areas of operation and the type of agricultural activities they are involved in.

Two Technical Advisory Team (TAT) meetings were held in the past one year. The first meeting chaired by Dr. Onim was mainly used to explain to the potential collaborators the structure of OFPEP's organization, and its main operational mandates. In the meeting, plans for the 1995 long rainy season were also discussed. TAT members agreed to start the process of conducting soil surveys, using PRA as the major method of data collection from farmers, to enable them set goals for their specific mandate areas. The second TAT meeting mainly discussed results of progress on program activities in the long rains of 1995. (Appendix I)

Visit by Dr. Pierre Antoine

On July 4, 1995, Dr. Pierre Antoine visited OFPEP-Kenya from Uganda. The purpose of the visit was to evaluate the activities of the program to date. On his arrival at the Kenya-Uganda border with Dr. Onim, they were met by Mr. Robert Ondigo and Rose Sigar. The team then immediately proceeded to Mr. Alex Mbotto's farm where they met a group of farmers and CARE field staff. After a short interlude with the farmers they visited the demonstration site and then continued on to the Rang'ala Family and Child Development project (RFD). The project is affiliated to Christian Children's Fund. At the project site the group was shown agricultural activities done by the project. The group then visited two other demonstration sites, Mr. John Oddi's farm situated along the Kisumu-Busia road and Mr. Tobias Ochuka's farm. From the field visit OFPEP-Kenya staff held a meeting with Dr. Antoine. In the meeting, program activities and staff organization were reviewed. Dr. Antoine was shown some of the training aids developed by OFPEP staff.

OFPEP-Kenya's significant achievement\impacts

In reviewing the schedule for the first year, the following has been accomplished:

- An advisory council was established including members from the NGO community, government and international organizations.
- A technical advisory team was established including technical staff from collaborating NGOs and Government institutions.
- One Advisory council and two technical advisory team meetings were held.
- 24 crop variety and 22 soil fertility demonstrations were established in six districts where OFPEP-Kenya operates.
- 29 on farm training workshop for farmers were conducted at the demonstration sites.
- A total of 1724 people attended the training sessions which included 493 women, 434 men and 797 youth.

- One training of trainers workshop was conducted and was attended by 25 participants from non-governmental organizations, government ministries and lead farmers. Several trainers also joined farmers during the farmers training sessions.
- Resources and needs assessments were conducted in some OFPEP-Kenya districts through baseline survey data gathering.
- Monitoring and evaluation of the demonstration plots was done until harvesting of the crops of the long rainy season of 1995.

The impact of OFPEP-Kenya activities will be evaluated during the coming year.

Table 27: A summary of activities in seeds and soil fertility in OFPEP-Kenya in the past year is shown in the below.

	Activity	Number Of Sites	Partners
S	Maize Variety	14	CCF, CARE, MALDM, PVC
	Sorghum Variety	14	CCF, CARE, MALDM, PVC
E	Food Bean Demos	4	CARE, MALDM, PVC
D	Soya Bean	6	CCF, CARE, MALDM, PVC
S	Groundnut	7	CCF, CARE, MALDM, PVC
	Seed Storage	7	CARE, WV, LAGROTECH
S	D.A.P. Inorganic Fertilizers	15	CCF, CARE, MALDM, PVC
O	Animal/Farm Yard Manure	11	CCF, CARE, MALDM, PVC
I	Compost	11	CCF, CARE, MALDM, PVC
L	Rhizobia Inoculant	4	CCF, CARE, MALDM, PVC

Technical Assistance And Training Provided And Received

Dr. Pierre Antoine as the director of the program has continued to give overall technical support and advice to the program.

Kenya Agricultural Research Institute (KARI) was hired by OFPEP to give technical support on soil sampling and chemical analysis. OFPEP hopes to continue using them for soil analysis.

Dr. Onim, in his capacity as the East Africa coordinator, provides continuous technical assistance and consultancy services to both OFPEP in Uganda and Kenya in addition to

providing consultancy services to various other organizations involved in community based activities e.g OXFAM.

One of OFPEP staff, Mr. Chrispine Okoth, was asked by CARE-Kenya to help organize and conduct a training on seed activity during a farmers field day for the organization. He was involved in training 190 people, 54% of whom were youth.

Lessons Learned

1. Commitment from farmers has not been total especially where group farm's were used for demonstrations. Most members have to work in their fields before working on group demonstration plots. This has led to group demonstration plot being neglected.
2. Because of severe labor constraints to farmers during peak times (planting and weeding), farmers rush to plant and weed their fields first and sometimes attend to the OFPEP demonstrations last. Late planting therefore sometimes causes lower crop yields than would be the case if they were planted in time.
3. OFPEP is designed to work through collaborators. This has been working relatively well, however, it has not always been easy as collaborators also have their own set objectives and would like to concentrate their efforts towards achieving them. Therefore, some collaborators have found adding OFPEP activities to their program as a burden.
4. Collaborating NGOs in principle agree to support OFPEP activities in their area of operation where their activities are similar to those of OFPEP. However in practice, their collaboration is sometimes not complete. For example, transport may not be readily available to support OFPEP activities. Since OFPEP funding was based on the assumption that collaborating NGOs would provide transport, this constraint reduces the potential impact of OFPEP in some cases.
5. With the limited funding, for it to achieve impact, OFPEP activities should be concentrated in a smaller area. For wider coverage more staff should be hired into the program and funds availed.
6. Transport has not been adequate because of the extensive (6 districts) area to be covered, with only one old field car and 1 motorcycle to the extent that the target of 50 farmer groups set for the first year was not achieved. To solve this, OFPEP staff have had to use public means, and walk long distances in order to reach demonstration sites.
7. Not all can be achieved according to plan. There are external factors that can lead to failure of program activities. For example, weather has not been on our side, rains were erratic in the beginning of the first rainy season of 1995. As a result

most fields had poor germination especially legumes, necessitating replanting of many of the demo sites.

8. Input acquisitions should be done well in advance and should be in areas readily accessible through telephone, faxes or road to avoid delay in planting of the demosites. Acquisition of inoculant delayed planting of demosites where legumes were to be planted. Soya beans, MCM 5001 variety of beans and inoculant were ordered from Uganda and never arrived until after most farmers had planted hence OFPEP was late in planting some of its demo sites. One maize seed variety H622, originally planned to be used in the demosites had to be dropped since it could not be found with the stockists. A bean seed variety GLP 92 recommended for the region had to be purchased from Eldoret, 100 km from Kisumu.

This gives credit to OFPEP's goal of making quality seeds available to farmers through individual seed selection or organizing for proper marketing channels.

9. Researchers have much to learn from farmers knowledge and preferences
10. In some cases, farmers and government extension collaborators expect to be paid for their activities with OFPEP-Kenya. This has strongly been discouraged, but the feeling still persists.
11. Governments should support such programs by mobilizing their staff to actively participate in program activities without expecting cash returns

Recommendations For The Coming Year

A few recommendations from the germinations results may be listed as follows:

1. Plant only when there is adequate rainfall to wet the soil well whenever you use any form of fertilizer or manure.
2. Do not let seeds come into contact with fertilizers or manures in the planting holes, therefore mix the fertilizers or manure with the soil well before seed placement.
3. These findings should be shared with farmers so that their crops do not suffer from the same effects whenever they use fertilizers or manures.

Activities Planned For The Next Reporting Period

The following activities are proposed for OFPEP-Kenya in its second year:

- a. Four Advisory Council meetings will be held in the course of the year.
- b. At least two Technical Advisory Team meetings will be held.
- c. Information collection and dissemination will be enhanced.
- d. Baseline surveys on soil fertility, soil conservation, seed quality and availability and nutritional status of children aged 1-5 yrs will be carried out.
- e. Write and disseminate reports.
- f. Training of trainers sessions will continue to take place.
- g. Mobilization of demonstration materials will take place in a timely manner.
- h. Monitoring of demo-sites will continue.
- i. Harvesting of demo-plots will continue, barring unforeseen disasters.
- j. Evaluation of the technologies demonstrated by the farmers, collaborators and OFPEP-Kenya staff will continue.

The Gambia

OFPEP REPORT OCTOBER, 1994 TO MARCH, 1995

Within six months period from October, 1994 to March, 1995, OFPEP funding supported the following programs except "F"

- a. Field visits to soil conservation sites in Nyoro in Senegal and Jawara and Kerewan in Save the Children Federation impact area for Action Aid extension staff and F.F.H.C extension adviser.
- b. Focus Group Discussions (FGD) to know farmers perceptions on and knowledge gained in liming, composting and Rhyzobia demonstration.
- c. Organised joint sub-regional ANR conference which brought together farmers NGOs and donors.
- d. Program and training needs assessment with eleven collaborating NGOs with a view to expand and decentralize the implementation of OFPEP program.
- e. Procured and distributed some technical equipments for effective program implementation.
- f. Follow-up survey after the grant closure to determine the level of improved seed and technology adoption and ANR impact.
- g. Procure and distributed 75 tons of lime for 1995 soil ammendment and demonstration program.

FIELD VISITS TO SOIL CONSERVATION PROGRAMS.

In October 1994 the extension adviser of FFHC and 12 people from Action Aid The Gambia visited Nyoro in Senegal to see conservation demonstrations by research and farmers. This was followed by a days visit to Njawara and Kerewan (SCF's conservation sites). The two visits exposed the extensionist to different techniques like hedge rows, rocklines, gully plugs, bunds dikes etc. and different strategies used to implement the techniques. The agencies expressed their satisfication on the varieties of techniques they saw and learnt and that will help improve their program planning.

FOCUS GROUP DISCUSSIONS.

The Focus Group Discussions aimed to gather farmers opinion on some of the technologies promoted i.e liming, composting and Rhyzobia inoculation. On composting all the farmers expressed their appreciation on the simplicity of the technology and that it does improve the soil especially using it to fill polypots to propagate trees and in back yard fields. It will be difficult to adopt on large scale due to difficulty to transport compost product and incorporate it in yields. For liming, all the women expressed seeing impact of lime in their demonstration

plots. A further data collection showed that an average of 292 kg increase in lime plot over non-lime plot and the lime product is locally available. For Rhyzobia demonstrations, the five demonstrators expressed seeing difference in plant height in the treated over the non-treated trees.

The tree species used (Prosopis, Gliricidia, Luecaena, Bano, Pigeon pea and Sesbania) don't produce that much shade that can effect plant. It is early to mention the degree of rhyzobia treated trees nitrogen fixing level. However, the size of trees shows great difference. Pruning is done in one of the site to be used as green manure which will also be demonstrated in the field.

ANR SUB-REGIONAL CONFERENCE

Save the Children organised and hosted a sub-regional conference on Agriculture and natural resources. The aim was to bring together the key actors in Agriculture and Natural Resources Management (ANRM) (Donors, NGOs and farmers) to discuss common problems, look at different interventions. All the eleven collaborating NGOs attends and OFPEP offices in Senegal, Uganda/Kenya and Save the Children Federation offices in Mali, Burkina Faso, and Tunisia. The participating farmers contributed highly beyond many people's expectation. They (farmers) finally recommended such forums be organised for farmers regularly to make them learn from each other.

NEEDS ASSESSMENT WITH OFPEP

Partners

A month and half needs assessment was carried out with all eleven collaborating NGOs. The aim was to look at planned programs and training needs of all the NGOs with a view to expand and decentralize the implementation of OFPEP program. During the exercise, meetings and discussions were held with the management, field staff and target farmers of each NGO and training plans drawn. It was the first time for extension staff and farmers to express their training needs.

The assessment results were compiled and reviewed by the Advisory Council 1995 was going to see real expansion of OFPEP program empowering more farmers to implement lot of sustainable and proven technologies.

TECHNICAL EQUIPMENTS

To empower and increase the technical capacities of collaborating NGOs, some technical equipments were purchased and distributed between some needy NGOs for use in their program implementation. These are soil probe, tapeline measure, stakes and soil pressure pH metre reader. Despite the closure of OFPEP funding, Training of Trainers (TOT) will be organised for NGOs in June to increase their skills and also the use of some of these equipments.

TECHNICAL ADOPTION AND IMPACT ASSESSMENT

SURVEY

To know the adoption rate of improved rice varieties and animal traction as well as the impact of ANR, a follow up survey as conducted after the closure of the grant (OFPEP). The survey also looked at the local diffusion systems, conservation practices, yields and food security levels among others. It became evident that ANR sites produced more rice than other sites and the food security is improving for the first time in more than ten years, over 30% of women claimed that their produces will last them between 7 - 12 month and more of those women are in ANR villages. **(Appendix K)**

LIMING

During the assessment and pre ANR sites, liming demonstration featured prominently. This resulted to an increase in the amount of lime as well as demonstration sites. 75 tons of lime was purchased and distributed and Save the Children will continue on the trainings and demonstrations despite the grant has ended.

POLITICAL SITUATION

For almost three decades, The Gambia practised multi-party democracy under a republican rule. On July 22nd, 1995 the Armed Forces Provisional Ruling Council (AFPRC) overthrow the government of Sir Dawda Jawara in a bloodless military coup. The Gambia is now ruled by the AFPRC assisted by cabinet Ministers most of whom are civilians.

After 3 months in office the AFPRC announced their four year timetable which was well received by the donor community and even the Gambians. Within a day the Foreign Office of London advised their people not to travel to The Gambia for holidays. This dealt a severe blow to the Gambian economy which realises up to 10 percent of its GDP from Tourism and employs about 10,000 Gambians directly.

Following this advice there was public outcry about the timetable and program of the AFPRC. Consequently a National Consultative Committee which was broad base was formed to tour the urban and rural areas to solicit the views of people about the timetable. This exercise lasted for 4 weeks and it was generally recommended that the AFPRC should not stay more than 2 years in Government. Subsequently the Chairman of the AFPRC decided to reduce the timetable to 2 years in view of the fact that nobody seems to welcome the 4 year period.

The presence of military rule has presented a climate of uncertainty in the country. The cost of living is mounting daily lot of people are jobless especially the public sector

were a lot of people have been retired or laid off for one reason or the other. Most of the donors i.e EEC, UN agencies and USAID have categorically stated that the AFPRC should expedite the return to democratic and civilian rule at the earliest possible time.

The US Federal Law (section 508) prohibits direct aid to military governments and all aid to government ministries and departments was halted.

The USAID had scaled down activities just after the coup for 6 months just to watch developments of the political situation in the country. After 6 months the USAID decided to design a program which is geared towards democracy and governance. This program entails civic education for the general populace and community so that they are more educated on what their rights are and also equipping them with the ability to choose their own leaders. This will be evaluated after six months to see the level of impact and that will determine what type of program USAID is going to design for the country. This takeover seriously affected a lot of USAID funded projects like the OFPEP grant.

IV. Financial Report

Table 28 summarizes the expenditures incurred during Year III of the program, and processed by Winrock through September 30, 1995.

Expenditures were very much on target during year III, in regard to operations in Senegal, Uganda and Kenya, and the core budget of Winrock and the PVO/University Center. Expenditures in The Gambia are reported through the end of March 1995, date of termination of OFPEP work in that country.

Monies initially earmarked for The Gambia for the period April 1995 - September 1997, and savings made during the first two years of project implementation have been re-programmed toward Ethiopia and the consolidation of ongoing activities in the other countries. There is reason to believe that the high pace of spending of funds observed during year III will even be increased during year IV, now that re-programming has taken place, and that additional demands are emerging from partners in the field.

Other Sources Of Funding

In addition to the match originally scheduled in the contract, OFPEP was the beneficiary of continuing support grants in Senegal (Monsanto, mission buy-ins) and in Kenya (FICAH). These grants will likely be renewed into year IV. At the end of the program year, IFAD also awarded Winrock and WARDA a \$750,000 grant to support and extend OFPEP in West Africa.

It is also worth mentioning that the regular program match in Uganda is provided by PL-480 funds, with the approval of the government of Uganda.

In-kind contributions by partner institutions or by individuals have not yet been factored into the match.

Table 28. On-Farm Productivity and Enhancement Program: Summary of Expenditures at the End of Year III (September 30, 1995)

Budget Category	Budget	Cumulative	Remaining
USAID Share			
I. Salaries and Wages	314,944.00	194,436.72	120,507.28
II. Fringe Benefits	107,569.00	75,109.30	32,459.70
III. Short-term Specialists	93,677.00	41,133.53	52,543.47
IV. Travel and Per Diem	181,257.00	80,245.36	101,011.64
V. Allowances	17,520.00	13,065.40	4,454.60
VI. In-Country Costs			
A. Local Hire Staff (West & East Africa)	151,800.00	51,589.13	100,210.87
B. West Africa	154,641.00	101,617.34	53,023.66
C. East Africa	123,822.00	12,034.75	111,787.25
Total In-Country Costs	430,263.00	165,241.22	265,021.78
VII. Other Direct Costs	30,503.00	18,607.50	11,895.50
VIII. Procurement	33,500.00	2,728.58	30,771.42
IX. Subcontracts			
A. PVO/Joint Center	934,691.00	451,122.36	483,568.64
B. ACDI (Uganda)	281,313.00	102,010.50*	179,302.50*
C. Save the Children (The Gambia)	333,207.00	176,370.21	156,836.79
D. World Vision/Africare	81,245.00	0.00	81,245.00
Total Subcontracts	1,630,456.00	729,503.07	900,952.93
X. Indirect Costs	159,706.00	87,391.91	72,314.09
Total Costs-AID Share	2,999,395.00	1,407,462.59	1,591,932.41
Cost Sharing - Matching			
Subcontracts-PVO Match			
A. PVO/Joint Center	311,962.00	162,854.39	149,107.61
B. ACDI (Uganda)	241,451.00	51,619.91*	189,831.09*
C. Save the Children (The Gambia)	111,292.00	66,834.53	44,457.47
D. World Vision/Africare	27,082.00	0.00	27,082.00
Total Subcontracts-Subcontractors Share	691,787.00	281,308.83	410,478.17
Miscellaneous-WR Share	0.00	50,177.36	(50,177.36)
Overhead-WR Share	354,081.00	235,420.98	118,660.02
Total Cost Sharing	1,045,868.00	566,907.17	478,960.83
Total Costs-AID & Matching	4,045,263.00	1,974,369.76	2,070,893.24

* Through December 31, 1994 only; 1995 USAID billings of about \$43,000 and match of about \$27,000 not processed yet.

Appendix A

Advisory Council Meeting Minutes - Senegal

Advisory Council Meeting Notes Feb. 24, 1995

Introduction of OFPEP by Dr. Pierre Antoine emphasized seed and soil activities which are two of the major constraints for small-farmers. In addition, more effort must be put into specifying and documenting the program's impact with collaborators.

1. The mid-term evaluation showed that there has not been enough demonstration of the program's success. This is a priority for the OFPEP/Dakar team and must be done as a process that begins by identifying indicators and discussions with our collaborators.
2. Some examples from the Gambia of collaboration on monitoring and evaluation systems:
 - ANR conference organized to promote closer collaborative relations in the Gambia;
 - Study conducted on training needs assessment;
 - Advisory Council meeting of 2/22/95 had the objective of identifying a method of standardization for the various monitoring systems currently used by NGOs and projects. The outcome of the meeting was to collect elements of each monitoring system in use to eventually work towards standardization.
3. NRBAR example: meeting recently held to identify indicators with collaborating associations/organizations. Desfil is also looking to assist projects/NGOs in the identification of indicators for natural resource management. Anthropology offers new ways of identifying socioeconomic indicators such as: using social and material factors as demonstration of wealth (bicycles, radio, etc.) More information on this could be obtained from: Organization of Applied Anthropology, Culture and Agriculture.
4. Desfil has targeted Senegal to create a database for sharing with USAID and partner organizations. This was MIS-based on different production technologies but many NGOs didn't see how to use the database. NRBAR has M&E plan for all grants. Bill Roberts is working on a village-level logframe. In setting up these M&E systems they will try to standardize indicators.
5. Many speak of M&E but what about how to do it?
6. At the Peace Corps, volunteers are willing to participate in M&E if this is indicated as part of their service at the beginning. Jerome Guin's report has demonstrated impact via informal social relations at the village level.
7. This point (#6) has been confirmed and documented so how do we move to the next step which is capturing information within social networks. It is important that we inform ourselves on the state of the art methodologies as to not go back in time.

Baseline data should initially be set up including household. The profiles the quality and consistency of data should be examined.

8. At World Vision, monitoring is more focused on action plans than impact.

9. USAID/Uganda is aiming to show impact at the household level now and link it to the baseline later.

10. In integrating soil fertility with agriculture the socioeconomic feasibility of soil conservation has been studied. Without state support, it has been difficult for the population to use fertilizers. What is people's experience in this area?

11. CCF: Through support to other programs related to children, agriculture has become a priority. Problems have come up in monitoring yields because most is consumed after harvesting. Winrock should make a greater effort to share information with CCF.

12. We need to use an approach that links us more closely to village partners so that they provide the indicators. The PRA evaluation is effective for this.

13. Exogenously formed projects have wasted allot of time in the field as they were formed prior to consulting the real problems in the field.

14. ISRA/OFPEP should go with the dynamic of phosphate for fertilizer use. How does one study impact without starting over from zero.

15. Go to collaborators for impact studies with other projects that have resources. Create a bibliography of impact studies through collaborators using e-mail at PVO University Center; do case studies of villages chosen for given criteria and follow them closely.

16. We should document the role that immigrants are playing here at the household level.

17. Phosphate was used here in the 1970s, later replaced by fertilizers. Phosphate companies prefer to prepare mixture with sulphur which is more profitable to export.

18. A joint study with the participation of ISRA/OFPEP/NRBAR is a good idea.

19. OFPEP will meet with NRBAR on follow up plan to monitoring. We will also look at the results from consultant on cereals produced by women to be working here soon.

Sarah Workman announced her plans to leave OFPEP and thanked all participants for their collaboration with her. In closing, participants were thanked and invited to meet with OFPEP staff on the M&E systems and possibilities.

Participants Advisory Council meeting 2/24/95

NAME	TITLE	ORGANIZATION
Diane Nell	Director	Save the Children/the Gambia
Mary Lou Surgi	Program Coordinator	PVO/University Center
Stephane Le Bivani	Engineer	ISRA/Bambey
Amadou Dia	ATA	World Vision/Thies
Jean Pierre Ndiaye	DRCSI	ISRA
Sarah Workman	P&L Specialist	OFPEP-PVO University Center
Wendy Wilson Fall	Outreach Advisor	NRBAR/ISRA/USAID
Keneth Byrd	APCD/Agriculture	Peace Corps
Mindy Miller	Program Planning Unit	World Vision
Paul Anamosa	Natural Resource Planner	ISRA/NRBAR
Tom Osborn	WI Consultant	WI
Jalaane Mamadou Faye	Program Assistant	OFPEP
Lisa Kitinoja	Farmer-to-Farmer	Winrock
Alphonse Faye	Country Coordinator	Winrock
Lamine Niang	Program Officer	CCF
Antoine Pierre	Director	OFPEP/Winrock
Marcel Preira	World Vision AD	World Vision
Mamadou Diaw	APCD/NR	Peace Corps
Lisa Washington-Sow	consultant	OFPEP

Lisa Washington-Sow 2/95

NOTES FROM ADVISORY COUNCIL MEETING 7/20/95

Objectives of the Meeting

- A. Share monitoring and evaluation systems and activities put into place since the previous meeting
- B. Review of program of planned rainy season activities
- C. Other additional diverse points

The meeting was introduced by Alphonse Faye and facilitated by Lisa Washington-Sow.

- 1. Brief review of major points of previous meeting of 2/95.

M&E activities

- 2. Overview of monitoring tools employed currently by OFPEP/Dakar.
- 3. NRBAR organized 2 workshops in Thies on parameters to define terms relative to development of logical framework.
- 4. Diapante: better adapted choice of farmers-reverification of information with extension workers.
- 5. Peace Corps: working to improve their macro level institutional memory. Monitoring of agro-forestry activity for 3 years periods from nursery to planting. Questionnaire used to evaluate technical aspects. In the second year an evaluation is conducted which looks at the number of farmers, time frame and economic aspects.

Qualitative experience in M&E

- 6. Agents should write reports and use the summary of reports as tools.
- 7. Savanne: Monitoring can be done under two different circumstances:
 - 1. control such as for research for our own purposes where research determines conditions;
 - 2. monitoring to generate capacity of peoples to take over the activity.
- 8. CBNRMS is concerned with measuring program impact on how the program satisfies the population's natural resource needs as at the C.R CERP and CER levels. The official opening seminar was based on the program's logical framework. Evaluation is planned after each stage of the program with the Ecological Monitoring Center's involvement to note physical changes. CBNRMS is concerned with increasing

agricultural yields and farmer revenues and is therefore choosing indicators such as:

- number of markets
- distance to market
- method of transportation to market
- quantity of harvest consumed

9. World Vision: Retaining monitoring information has been a problem therefore they are conducting literacy in their literacy training centers but are also setting up monitoring systems at the village level in Wolofphile for immediate use.

Rainy season Activities of OFPEP

A. Rice field fertility

Mme Aminata Badian has recently joined the team half-time to reflect on and lead activities concerning soil fertility.

B. Christian Children's Fund CCF: live fencing/manioc

Baback is pilot village and now, having demonstrated success and popular acclaim, the same activities will be diffused to Ndollar.

Active varieties of millet-Souna 3, 8003,8001 have also been distributed to selected farmers of CCF villages. The objective of this activity is to train seed producers who will create improved millet seed banks that will serve their zones. One arising constraint however is that land tenure pressures in this zone may limit the expansion of this activity.

C. World Vision: Striga-resistant sorgho

The varieties of sorghum being introduced to Senegal have already been tested in Ghana, Mali, and Zimbabwe. The World Vision zone of intervention is not a sorghum-growing zone therefore sites have been identified outside of the zone. The following is a list of sites and number of parcels;

Thies	6
Louga	7
Kaolack	6
ISRA	Bambey and Kaolack

All trials seeds have been distributed. This program is to be followed for two years.

D. CONACAP: OFPEP has assisted this credit NGO associated with the World Council of Credit Unions with preliminary contacts to help certain farmers with their credit concerns.

E. Diapante: bad off-season for our MONSANTO pesticide activity illustrated by the limited number of participating farmers. The rainy season is sure to be more promising.

F. Anambé: This project in contrast, also a MONSANTO pesticide activity, has been successful and popular with the farmers that they are willing to pay for half of the price of the product (normally given as grant to interested farmers). Unfortunately, the CNCA has granted funding for only 100 HA of the 1000 HA developed by the SODAGRI.

Diverse points

- Does manioc drain nutrients on protected parcels?
- Mme Badian: yes and normally the two activities should not be combined but this is a real challenge when farmers find crops like manioc to be more profitable than cereals like millet that are less draining on soil nutrients. This places cash crops against food crops.

- in the south there is an activity presently going on that uses livestock breeding to combat soil fertility problems in zones with poor soil.

- extension and animation on fertilizers: NGOs and extension agents are also supporting farmers to use revenues to conserve their soils through the use of mineral fertilizers

Monitoring Tools

PC (not available on diskette -copies were destroyed)
CCF-millet, livefencing/manioc, compost
Anambé rice
COMI rice

Brochures distributed this year

1. Improved millet
2. Compost manual

Appendix B
Consultant Reports - Senegal

SUMMARY AND TRANSLATION OF CONSULTANCY REPORT

**Creation of Land Management Program for Rice Fields of the
Valleys in the Departments of Kolda and Nioro
Mamadou Daffé, Agronomic Engineer and Soukeye G. Thiongane,
Sociologist May, 1995**

Background

OFPEP has worked towards improving rice production by introducing the use of improved varieties with predominantly women farmers for a number of years through a collaborative program with the Peace Corps in 4 regions of Senegal. In the perspective of developing this program, known as the OFPEP/PC Rice Initiative, OFPEP wishes to reinforce improved seed activities by implementing land-management activities that respond to problems expressed by farmers in rice cultivation. These problems were most notable in the regions of Kolda and Nioro.

Methodology

This study was carried out between 24 March and 24 April, 1995. The study zone was defined by the list of villages involved in the OFPEP/PC Rice Initiative according to the types of constraints to production identified at the various sites.

The consultants investigated 12 of the 24 villages involved in the Rice Initiative: 9 villages in the Kolda region and 3 in the Nioro region.

A multidimensional approach inspired by PRA (Participatory Rural Appraisal) was used for this study which involved: a literature review of available sources, direct observations of the conditions and means in which production is carried out and informal survey carried out on 2 levels:

1. Institutions working on agronomic research and extension in the study area: extension agents and staff of decentralized government, CERP, ISRA, NGOs, Projects, village associations and organizations. Surveys were implemented as interviews based on check-lists elaborated after study of secondary documentation.

2. Participatory research with farmers: semi-structured interviews with farmers involved in rice production, open focus-group discussions with the populations.

The analysis of data collected required an iterative approach which is part of the PRA methodology.

At the feed-back session held with the OFPEP coordinator, the consultants requested complimentary information in order to better situate there propositions in a final document to the present strategy. The response arrived 25 April by fax.

Objectives

The principal objective of this study is to contribute to the planning of soil fertility activities considering the specificity of problems, the eco-geographical realities and the farming practices of each of the regions.

The study should address the following points:

- the state of research and knowledge in the field of water management and of lands surrounding rice fields, adopted farming practices, farmer knowledge and practices related to soil fertility of each region;
- the level of agricultural extension particularly related to soil fertility management of the rice fields in each region;
- and the identification of principal constraints (technical, agronomic and socio-economic) at these different levels of the study.

The analysis of the results of this study should be elaborated in the form of a logical framework to bring out a clear and effective intervention strategy.

Points Demonstrated by the Study

1. Rice production is almost always destined for home consumption as rice is the primary cereal consumed in these regions. Generally, the harvest is controlled by the first wife of the head of household and lasts for up to 5-6 months in some villages of Nioro.
2. Other problems associated with rice cultivation are: difficulties in weeding, animal intrusion, and bird attacks which obliges them to stay in the rice fields to survey crops.
3. Women are the primary producers of rice in this area but they lack access to the means of production.
4. A rice land management program would require hydraulic and topographic studies.

Pilot villages for first phase of program:

- Soukoto in Nioro: land management against erosion and sand encroachment. The activities to put in place would include anti-erosion dikes on the high parts off the valley;
- Ndiayene Post: land management against salt intrusion. Activities would include studying with population means of putting up an anti-salt dam.

- Framework of the program: The program will have a 3 year pilot phase and will be located:
- In Kolda in 3 test villages Ligueto, Saré Yoba Diega and Temento Samba. These were chosen in because of favorable physical conditions for rice production, dynamism, conscientiousness and organization of population;
- For Nioro: the pilot program will concern Ndiayene Post and Soukoto because salt intrusion and erosion and sand intrusion in the rice fields the most common soil problems in the zone are severe there.

Specific information about the villages chosen:

Kolda Region

Temento Samba

There are deep immersed and upland rice fields in this village. The principal problems are the lack of water and consequently, destruction from striga. To combat the problems of soil fertility, the women have tried several fertility techniques such as manure, peanut shells, post harvest residues which they have found not to work either because of the small quantities applied or weak means of application.

The women have a system of work groups for labor but these groups cost 5000-7000 CFA per day. Their husbands are responsible for payment.

This village receives assistance from the NGO Aide-Action which has already installed a well in the market garden and offers services in literacy, elementary education, lightening of women's tasks (cereal mill, husker) and a credit-union.

Lingueto

This village also has deep-water and upland rice fields. While there were once favorable hydraulic conditions for rice production here, this is no longer the case. Gradual sand accumulation has formed sand barriers that block the normal water circulation. In contrast, certain deep water rice fields retain water all year long which permits a small part of the population to produce off-season rice. This requires men's participation due to the system of free animal-grazing during this time of year which would require fencing. Water retention is a problem on upland parcels. The presence of striga in the last 6-8 years has caused decreases in production and causes more women to prefer transplanted deep-water cultivation. The priority for women farmers is to construct a dam for better water management. This village has retained experience from Chinese rice project.

Recommendations

The proposed program of activities should be based on the participatory approach that implies the following steps:

- sensitizing the populations on the state of degradation of the rice fields;
- situating and reviewing the problems identified during the course of the present study;
- working with populations on programming, technical studies and activities to materialize;
- identification of the principal actors and partners that should be involved in the execution of activities;
- developing and implementing monitoring and evaluation indicators with populations.

Due to the limits on OFPEPs intervention strategy, some of these orientations could be developed in a partnership framework with the different institutions that work in the regions studied.

Conclusions

The major constraints to the development of sustainable rice cultivation are linked to:

- in Kolda: the more frequent occurrence of striga which is related to the lack of flooding of rice fields, sand encroachment, decrease in soil fertility and to the difficulties of working the land with only traditional tools.
- in Nioro: the problems of salt, acid, and sand encroachment, related to lack of rainfall and to the difficulties of working the land; land has become harder for the women to work particularly with only traditional tools.

**SUMMARY OF CONSULTANCY REPORT
OFPEP SENEGAL SURVEY OF THE RICE PROGRAM:
CASE STUDIES IN THE REGION OF KOLDA WITH THE
COLLABORATION OF THE PEACE CORPS**

Jerome Guin
December 1994

Background

OFPEP is the successor to OFSP (1987-1992) the On-Farm Seed Project which aimed to improve traditional seed production and storage techniques. Like OFSP, OFPEP works through various NGO partners and ISRA to reach small farmers with low-input technologies focusing on seeds and now, soils.

The PC Rice Initiative began under the OFSP in 1988. Baseline information was initially collected from comparison plot trials which provided recommendations for establishing the program (McPeak, 1991). Those recommendations stressed the importance of focusing on transplanted, short cycle varieties. Although the success of the program has never been questioned, this study was requested to fill a void on documentation on the program impact of the program. In particular, this study aims to assess the following: the adoption rates, levels of acceptability and diffusion of the improved varieties.

Methodology

This study was conducted initially in 11 villages of Kolda selected by the consultant using focus-group interviews (FGIs). During the course of those FGIs, 4 additional villages were selected for study having been cited by farmers as villages where improved varieties had been distributed.

Points Demonstrated by This Study

1. The used of the two transplanted Improved Varieties (IVs) introduced by OFPEP/PC (DJ-12 and Rock-5) are widely adopted by women farmers in Kolda because they appreciated the taste, increased panicle production and adaptation to existing ecologies. In contrast, the two direct-seeded IVs introduced to the region are not as widely adopted because rice is generally transplanted rather than directly sowed in Kolda.
2. Exchanges of improved variety seeds have occurred between extended family members and to residents of villages that share the same rice fields with the farmers receiving IVs.
3. The OFPEP monitoring system in place at the time put too much emphasis on agronomic indicators.
4. The study on adoption rates, diffusion patterns and economic impact on mangrove

Swamps in Sierra Leone by Adesina and Zinnah, 1993 is a good example of what could be expected from the OFPEP/PC Rice Program.

5. The monitoring system should include indicators for: adoption rates, farmer feedback and evaluation of the acceptability of the technologies as key indicators, and should be examined on a regular basis.

Recommendations

1. PC and OFPEP should clarify attainable objectives for the rice program including the means by which PCVs are to attain the objectives. For example, it is not clear whether or not the program is limited to the promotion of IVs and improved technologies.
2. The agronomic data that PCVs are asked to collect should be simplified.
3. Improvements in communications between PC administration, OFPEP staff and PCVs and improvements in the monitoring system would make the program more successful.
3. Surface areas planted with IVs in addition to the quantity of seed planted and harvested at the regional, village and household level should be monitored on a regular basis.
4. If other low-input technologies are to be introduced such as composting, more PCVs and OFPEP staff participation/coordination would be required.

SCOPE OF WORK

A Nutritionist, Agronomist and Socioeconomist are needed to comprise a multidisciplinary team to perform a Participatory Rural Appraisal Case Studies that illustrate the impact of the OFPEP/Peace Corp Rice Initiative on the household level.

Background of the Rice Initiative

Peace Corps collaboration on the Rice Initiative began in 1989 with the On Farm Seed Project in the Department of Bignona and was extended after baseline studies had been conducted in the regions of Foundiougne, Kolda, Tambacounda and Nioro. The overall goals of the program are to contribute to the increased well-being of farm families by improving soil and seed related agricultural practices. OFPEP provides technical advice in the collaboration by facilitating the linkage between ISRA and Peace Corps and by OFPEP presents simple technologies which respond to the problems identified by rice farmers. This is done in the form of demonstration sites which serves as comparison juxtaposed with traditional system. Peace Corps Volunteers work with village counterparts to assure that technical advice remains sustainable at the village level.

Currently, the program involves 16 Peace Corps Volunteers working directly with over 566 farmers in villages throughout the regions of Foundiougne, Nioro, Tambacounda and Kolda.

Overall Objectives of the case studies

These case studies will serve as a mid-point evaluation of different kinds of impact at the household level of the Peace Corps Rice Initiative. Using the OFPEP logframe as basis, the study will assess how the program has contributed to the improvement of nutrition, income and well being of small farmers. This data collected in case studies should be compared for verification of impact to national figures on income, nutrition and quality of life.

Issues to be considered

The following questions are central to OFPEPs concerns that the case studies address in assessing impact:

- what is the importance of rice in the food supply at the household level?
- what are farmers motives for growing rice:
(i.e Senegalese custom, status)
- Quantity of cultivated rice consumed per household compared to other crops cultivated;
- Quantity of rice purchased during the year: types of income-generating activities performed to acquire cash to buy rice;
- Gender: the effects of changes in the family's traditional division of labor for rice production

Task description

In conjunction with other team members, based on OFPEP logframe and results obtained during OFPEP/PC monitoring tour of PC rice villages, plan and develop case studies that signal the impact of the PC Rice Initiative at the household level. The Study area which will be determined by the study team will be representative of the rice-growing trends in each region. The team will make a point of identifying parameters for analysis extendable for monitoring of the studied regions on an annual basis. The final output will consist of document for each region.

Qualifications

All team members should have extensive experience in participatory rural appraisal PRA methodologies particularly monitoring and evaluation PRAs; extensive field experience in integrated development approach Senegal; strong communication, inter-personal and team-building skills; fluency in one of the following Senegalese languages: Pulaar, Soce, Mandinka, or Serrer; computer skills with Word Perfect.

Nutritionist

MPH or other related degree, candidate will identify indicators to evaluate improved nutrition for populations in rural Senegal.

Agronomist

M.S agronomy or related field; candidate will identify indicators for the increased use of productivity enhancement technologies and assess cost benefit ratio of the use of these technologies compared to traditional systems of production; assess extent to which other agricultural activities are performed to generate cash for the purchase of cereals.

Socioeconomist

M.A sociology of Development or related field; candidate will assure that relevant data on farming system is collected and analyzed; identify indicators for impact on gender changes in rice production and for the well-being of farm families. Contribute to the evaluation of the program in socioeconomic terms; assess the extent to which non-farm activities are performed to generate cash for the purchase of cereals.

Terms of contract

The terms of the contract will be defined by the PVO University Center Collaboration in Development.

a:sowpra

IMPACT ASSESMENT OF OFPEP RICE PROGRAM
Atoumane E. Ange, Salimata Ba and Biram Ndiaye
Summary and Translation, September 1995

In the framework of its Rice Program, the On-Farm Productivity Enhancement Program's (OFPEP) outreach activities disseminate improved rice varieties and technologies in villages in the southern, south-eastern, and central-south regions of Senegal.

After several years of trials and demonstrations, OFPEP wished to assess the impact in the villages involved in the program. To this end, terms of reference were developed, the overall objective of which was to assess the impact of the Rice Program through the identification and analysis of economic, sociological and nutritional parameters, using the PRA (participatory rural appraisal) methodology, along with traditional fact-finding tools.

The team responsible for the study comprised an agro-economist (Atoumane E. AGNE), a sociologist (Salimata BA), and a nutritionist (Biram NDIAYE).

An advisory committee including OFPEP Staff and two specialists in participatory methods and project evaluation assisted the team on this assignment. Also assisting were the Peace Corps Volunteers (PCVs) entrusted with the coordination of OFPEP activities in the areas concerned (14 villages selected on the basis of ethnic diversity and length of involvement in the program).

In addition to secondary data, semi-structured individual and group interviews enabled the team to address issues relating to program implementation, dissemination channels (social mapping and integrated flow chart) and, overall aspects connected with production, consumption (cross-classification) and organization at the village level (role playing).

BACKGROUND

Geographical Facts

The OFPEP Rice Program in Senegal covers 4 administrative districts (Kolda, Tambacounda, Nioro and Foundiougne), i.e. a surface area of 33,848 km², and a total population over 600,000, unevenly distributed (e.g. density is 22/km² in the Kolda division, while it reaches 82 in Nioro). The main ethnic groups in this area are : Wolofs, Mandingos, Fulanis, Serers, Sarakholés, and Bambaras.

Annual rainfall varies between 500 and 1000mm (compared with a national average of 400). The drainage network is relatively dense, with discharges highly varying according to the season (rainy season from June to October, dry season from November to May). The main rivers in this area are the Gambia, the Casamance and the Saloum. Soils are traditionally dedicated to food grains and cash crops.

Food and Nutritional Status

With respect to food grain production, CSA (Food Security Commission) data for the 1994 crop year have shown that the self-reliance period for food security is 13.6 months for the region of Fatick (of which Foundiougne is part) and 21.8 months for the Kaolack region (of which Nioro is part). This points to the high-level of food self-sufficiency that could be achieved in the program area if all grain production were exclusively for home consumption.

Malnutrition, however, amongst children between the ages of 1 and 5 years, varies between 22 and 24%. It must be stressed that there is no linear correlation between food availability and a populations' nutritional status. Indeed, malnutrition has many causes, including poor sanitation, environmental factors, and inadequate provision of health services.

The prevalence of diarrheal diseases in the program area ranges from 21 to 24% (national average is 20 %), and there is a high percentage of low birthweight babies (under 2.5 kg) particularly in the Kolda and Tambacounda districts.

Rice in the Program Area

Status of Rice in the Farming System

In order of importance, major crops in the area concerned are: peanuts, millet, maize, sorghum, cotton, and rice. Cassava, cowpeas, sweet potato, and fornio are secondary crops. Rice represents less than 2% of the total food grain production.

The drying up of lowlands which no longer accumulate enough runoff water and the gradual salinization of rice fields appear to be the main culprits in the decline of rice production.

In general, there are no great differences between the farming techniques practiced, apart from seeding methods. These depend on environmental factors, technical status, farming traditions, and labor availability. Thus, two seeding techniques coexist in the program area: direct seeding, and transplanting.

Weeding is generally done by hand or with the traditional hoe, starting three weeks after seeding. In areas with good rainfall levels (Kolda and Tambacounda) farmers have to perform weeding two to three times, whereas once is enough for those in Nioro and Foundiougne, where it does not rain much. Weeding is the most time-consuming activity in rice production. It may take three weeks to two months. Animal traction and pesticides are seldom if ever used. Harvesting is performed by women.

Rice in the Staple Diet

Rice is the most coveted grain crop in the program area. It is considered a prestige food enjoyed during religious and traditional festivities. All rice production is destined for home consumption. Locally produced rice is consumed after harvest until stocks

are depleted and purchased thereafter.

OFPEP'S Strategy

OFPEP'S Rice Program was launched in the area of Bignona in 1988. It was then extended to Kolda in 1991, and to Tambacounda, Nioro, and Foundiougne districts in 1992.

Implementation of the program at the grass roots level is under PCVs' responsibility.

After identification and selection of villages (where rice is already grown in general), baseline surveys are conducted during the first year, with a view to grasping all aspects of rice production.

Women's groups are the PCVs' main partners. In each selected village, the PCVs also have counterparts who assist them in their various activities, the focus of which is on the introduction of improved varieties and the adoption of appropriate farming technologies.

The improved varieties are early maturing and high yielding, which enables farmers to combat the pre-harvest hunger season.

In each village, the PCVs are in close collaboration with beneficiaries. They provide the seeds (1-2 kg/beneficiary), ensure that farmers are aware of the technologies introduced in order to improve production, and monitor performance. This is complemented by sensitization meetings and on-field demonstrations.

IMPACT OF THE RICE PROGRAM

It must be stressed that the impact assessment suffered from many drawbacks, despite the insight gained into the Rice Program, these relate to :

- the timing (the assessment coincided with the first rains, at a time when most people are working in the fields and do not have much time to attend meetings);
- the long distances between villages, causing the team to spend too much time travelling as well as problems of accomodation within the villages;
- problems of communication resulting from an insufficient mastery of local languages; and,
- the lack of baseline data on the nutritional status in the area concerned.

Socio-Organizational Aspects

Extension

As stated earlier, extension lies with PCVs. The dissemination process, however, is often interrupted with their departure after two or three years of service. Parallel (informal) dissemination channels are being set up by the farmers themselves, who share improved varieties with their neighbors.

It is estimated that in the four administrative divisions (Kolda, Tambacounda, Nioro, and Foundiougne), 40 villages are directly participating in the program, with a total of 423 farmers.

Adoption of proposed changes

Adoption of a new rice variety depends on a combination of factors including the life cycle, production, environmental conditions, ease of processing, taste, etc.

The DJ variety is successful because it is a high-yielding one. In contrast, Rock 5 is not appreciated as much by farmers because it matures very early coinciding with heavy labor periods for other crops.

The technological innovations relate mainly to the seeding technique (seeding on-line instead of broadcasting), the application of manure, and shifts in the agricultural calendar.

Seeding on-line is difficult for women farmers to adopt, even though it considerably reduces weeding chores. Women, who constitute the bulk of rice farmers in the program area, find it physically demanding to have to use a rake and a rope to make rows for seeding on-line. Furthermore, competition for seeding equipment pulled by animal traction at this period is intense because men, who generally own the equipment use it on their peanut fields. Women also have to seed other crops at the same time. For these reasons, ensuring adherence of all villagers to the program, especially men, who play an important role in the decision-making process, is a critical ingredient for its success.

Technical and Economic Aspects

Changes as a result of new technologies

In general, there are no major changes induced by the program with respect to traditional techniques. In Kolda, for instance, adoption of seeding on-line still poses problems despite early adherence to the program. This is due to farming customs and farmers' poor knowledge of the behavior of new varieties, most of all when several of them are introduced at once. In fact, the introduction of these varieties does not seem to be accompanied with comprehensive information as seeds are often obtained through informal networks.

Where seeding on-line has been adopted, however, e.g. Pethie, Missirah, Oundoundou, the proposed technologies are followed. As a result, the time dedicated

to plowing and planting is considerably reduced, and weeding becomes easier. Also to be stressed is the gradual involvement of men in rice production following the CFA franc devaluation. This has positive implications for an increase in production, since women have no rights when it comes to land tenure issues.

Increase in Rice production

There is widespread recognition among the farmers and PCVs interviewed that the improved varieties yield higher than the traditional ones, even when the technologies proposed are not adopted. The table below presents traditional compared to improved variety yields.

Average Yield (Kg/Ha)				
District	Variety			Average Yield
	DJ-12	IRAT	ROCK 5	
Kolda	2,176		2,984	675
Tambacounda	1,408	1,610		880
Nioro	1,591		2,195	
Foundiogne	1,847	1,101	1,801	1,500

Source : Departement of Agriculture

Household production remains at low levels because of reduced cultivated areas (0.25 ha/household).

Cost-Effectiveness

The data collected through informal and participatory methods in the framework of the impact assessment highlight the following trends :

- the program did not induce major additional investments, the bulk of the work being carried out by family members;
- with the improved varieties, rice production increases, and much of the time saved can be dedicated to improving other crop productions.

In sum, bearing in mind the adverse effects of the CFA franc devaluation on households and the fact that they view rice as a prestigious food grain, it is safe to say that the program has a positive impact. The challenge is to involve more villages and farmers.

Food Availability and Nutrition

With the rice program, households can enjoy a longer period of food security. Of the 13 villages visited, a longer self-reliance period has been witnessed in 8.

In view of the lack of baseline data on the nutritional status in the program area, it was assumed that malnutrition would be less severe in the villages that joined the program earlier.

After analysis, however, it turns out that there are no significant statistical differences between these villages and latecomers. Moreover, the slight edge the former have over the latter has more to do with unequal access to health services and poor sanitation than with food availability and early involvement in the program.

RECOMMENDATIONS

For the program to be sustainable, there is a need to strengthen the capacity of the women's groups involved so that they can diffuse and monitor improved seeds and assure that they are accompanied by the proposed technologies.

In areas where men are getting involved, seeding on-line is likely to gain ground. In this perspective, their participation in sensitization meetings and demonstrations should also be sought while preserving women's interests (conflicts likely to arise in connection with land tenure rights and equipment ownership).

In some villages, especially around Foundiougne, salinization and water erosion threaten the continuation of rice farming. Community initiatives are required, with a proposed land management scheme that would include the use of land dikes and micro-dams.

As for nutritional issues, there is need to collaborate with other NGOs and government structures in order to improve the nutritional status in the program area.

**OBSERVATION NOTES ON THE EVALUATION REPORT:
IMPACT OF THE RICE PROGRAM IN SENEGAL**

The following observations are based on our participation on the Advisory Committee after having read the consultant's document. The observations are on: the format of the document, the content of the report, and suggestions.

Format of the document

Page numbering

Page 2 The principal themes indicated on the table of contents should be numbered to facilitate consulting of the document.

Example:

Introduction	page 3
Conclusion	page 4
Objectives	page 8
Organization and methodology	
Limits of the study	

1.2 There are some elements to be corrected on the final version

page 4	line 5	read supported
	line 11	write women organized or not in groups
	line 15	write destined
	line 21	of weeding
page 9	line 11	write methodological
page 12	line 9	write a progressive decrease in isotates
	line 23	write tropical
page 19	line 21	write_---
page 24	line 4	write designation of the women
page 25	line 1	erase they have been proposed
page 27	line 25	write it is not often practiced
page 29	line 14	write of behavior
page 32	line 14	write from nature

page 37 line 15 write analysis
page 38 line2 write the one encountered
page 40 line 23 write without

Content of the document

The writing style

The style of writing does not bring out the population's perception in the results presented. This is explained to a certain degree by the use of PRA tools instead of a global participatory research and planning process in the different villages studied by the consultancy team.

This remark is accepted by the consultants that explains their choice of method by constraints such as time, the distances between sites and the period chosen for this evaluation mission.

The introduction is not sufficiently elaborated and does not situate the project well in its context to allow the reader to have a global vision of the work they are to do nor give a taste for reading the report.

The results

The report has enough information even if certain aspects should have been better analyzed. The results are not always compared to the objectives fixed by the project. One feels that the report conveys a preoccupation to emphasize qualitative analysis to the detriment of quantitative considerations. This is why qualitative analysis was favored in the context of chapters on the style of food and sanitary conditions and the place of rice in the diet.

Quantitative analysis of tools used in the annex brings one to think:

1. The team favored interviews to the detriment of the process of triangulation of the tools and the analysis of observation.
2. The team's work plan denotes an insufficiency of interaction between team members while in the field.

Recommendations

In terms of recommendations, attention should be paid to:

- the improvement of the capacities of supportive socio-economic actions for the durability of project actions;
- the implication of the populations in choosing counter-parts to assure their integration in social structures that should sustain the project and take over once

the PCV has left;

- the system of introducing seeds deserves a community consensus to assure that the amounts of seeds distributed are reimbursed;
- the introduction of new zones to the program should be analyzed in from the point of view of the divisions of work between men and women;
- the approach to nutritional problems should go beyond the question of what determines malnutrition to consider socio-cultural and economic considerations.

Suggestions

For the introduction of the paper

Introduce each section based on the order appeared in the document

Appendix C
Monitoring Tools - Senegal

OFPEP ACTIVITY REPORT FORM

(revised 3/95 file13 wk1) No

A. Act start date:

B. Date: _____ C. Duree: _____

D. Recorder: _____

E. Collaborator: 1. CCF 2. WV 3. Diapante 4. P.C 5. Formation 6. ISRA 7. other

F. Village: _____ G. Arond. _____
H.C.R. _____

I. Dept: _____ J. Region: _____

K. Transport: 1. OFPEP 2. NRBAR 3. PROGES 4. Monsanto 5. PC 6. Diapante 7. other

L. Other participant: 1. CCF 2. WV 3. Diapante 4. P.C 5. PROGES 6. ISRA 7. NRBAR
8. Monsanto 9. gov't 10. consultant 11. Formation 12. other

M. Type of activity: 1. Training 2. Meeting 3. TA/field visit/monitor 4. monitor/evaluation

No. of field agents: N. _____ women O. _____ men

No. farmers associated w/act. P. _____ women Q. _____ men

R. Theme of Act: 1. rice 2. compost 3. live fence 4. reforest 5. manioc 6. niebe 7. millet
8. M&E 9. off-farm acts. 10. exchange of ideas 11. planning 12. improved manure 13. other

S. Observations: 1. diffusion of tech. 2. observed improvements 3. problems
4. part. of other family members 5. farmer satisfaction 6. farmer need: 7. other

T. Brief summary of activities:

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105

PC Record Book format

I. Maps/Diagrams

- a. Village Appraisal Map of villages where you have initiated the program
- b. Sketches of the rice fields in their ecologies for each village
- c. Seasonal Activities calendar for men, women and children for each village (should include all crops and off-farm activities)

II. Village background information

- a. population: male, female children (under 15) [available with the CERP team or from tax list of village chief]
- b. ethnic groups in approximate percentage of population
- c. village organizations (associations, GIEs) list them and describe characteristics/activities

III. Farmer specific information (farmers using IVs)

- a. socioeconomic data: name, age, sex, no. of children available for assistance in rice fields, total number of kgs of traditional variety planted, number of years in Rice Initiative, names and types of organizations farmer
- b. data from reporting sheets
- c. rainfall: collect cumulative rainfall data (available from CERP team)
- d. rating of plots (good/med/poor) in terms of physical appearance and notes on the criteria you use for rating.

IV. Additional information for follow-up

- a. Problems with village organization or specific farmers
- b. New techniques in organ. training/demos to be duplicated

5/95 (a:recbks)

Peace Corp Rice Initiative End of Campaign Report Form

I. Summary and Background

- a. population: male, female, children (under 15) source and date of information
- b. ethnic groups in approximate percentages of population
- c. village organizations (association, GIE, etc.) characteristics and activities
- d. land tenure: explain briefly how rice fields are acquired typically in the village and the extent of the farmer's rights on them.
- e. Physical environment: rainfall, temperature (maximum, minimum, average) description of terrain
- f. Sketch Appraisal maps of: 1. the relationships between the villages you work in 2. the rice fields of each village (and their ecologies)
- g. attach a village-specific seasonal activity calendar which includes all crops for men, women and children (see example)

II. Methodology

- a. Describe how the information collected in (I.c.) i.e: in group meetings or individual encounters?
- b. Describe any particularities in data collection: difficulties, flaws or procedures employed that facilitated the task.

IV. Findings (complete the data tables)

V. Adoption rates (villages with more than one year of intervention)

- How many farmers received improved varieties outside of selected group of farmers you worked with?
- Which villages are they located in? Was the technology transferred with the seed?

VI. Impact Assessment

- a. Division of labor at the family level: was there an increase or decrease in the number of men cultivating rice or helping in the cultivation of rice? What can this be attributed to? What other changes occurred this year in the way the work was carried out? (Indicate the effects on the family because of these changes)
 - b. Other impact: Evaluate the campaign in terms of any changes that occurred in the village and their impact on the program. Mention any constraints/difficulties to rice production and include off-farm issues
 - c. farmer feedback: Why did the farmers like or dislike the improved variety introduced? technologies?
- (a:pcrefrm 5/95)



Gender-Disaggregated Seasonal Activities Calendar *

Definition	A calendar that identifies livelihood tasks and categorizes responsibilities by season, gender, age, and intensity of activity. It highlights community constraints such as drought or flood seasons, hungry periods, or even local cultural events, which should be factored into project planning.
Purpose	To generate information on the gender-based division of labor and responsibilities in livelihood systems and resource management.
Materials	Poster board or large roll of brown paper, magic markers.
Approach	Input is elicited from both men and women in focus groups or from key informants. Calendars specify the usual activities and responsibilities of household and community members, including children, throughout the year. Calendars will vary according to socioeconomic status; researchers need to be attentive to this variation.
Value	Assists project planners and managers in anticipating the best timing for work with a local community. The seasonal calendar helps planners analyze various local indicators and both men's and women's changing responsibilities.

Seasonal Responsibilities for the Pabalays on Siquijor Island, The Philippines

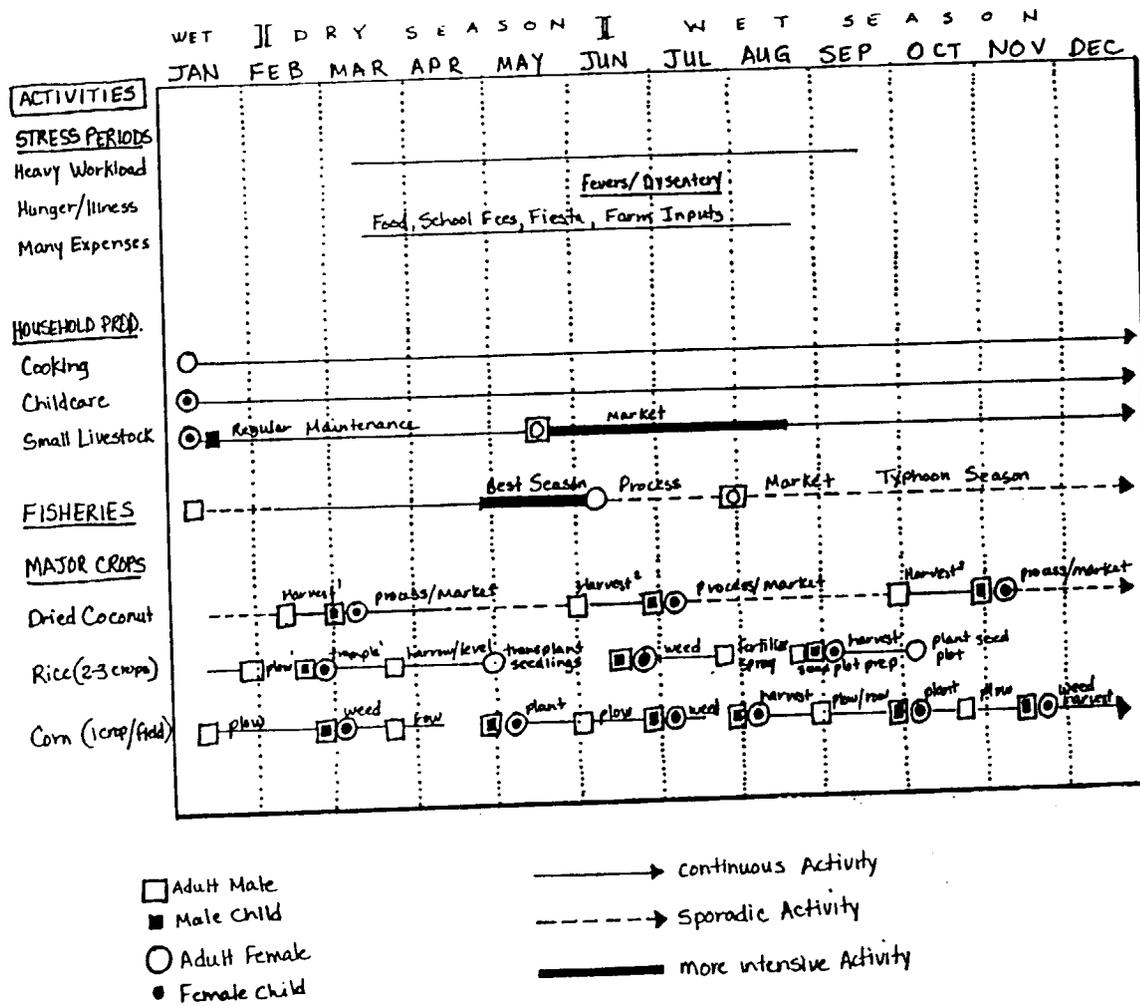
The seasonal calendar clarifies the best times of year to work with families who, like the Pabalays in the Philippines, have multiple demands on their time, varying according to the season.

Eugenia and Tirso Pabalay have nine children. Their marginally productive land provides vegetables for only seven months. To purchase food for the remaining five months, Tirso fishes while Eugenia and the children raise small livestock and sell the extra fish. Eugenia and the children also collect seaweed which they sell to middlemen. Their fishing and seaweed gathering activities, however, are limited by variations in weather throughout the year.

During the heavy weeding season, community members assist each other by weeding farms for wage or a share of the crop. Despite scarce resources, the Pabalays have purchased a cow which Tirso uses to plow the neighbor's fields for cash or payment in kind. All resources are carefully managed to help with food and education expenditures (Shields and Thomas-Slayter, 1993).

*Adapted from Feldstein and Poats, 1989.

Figure 4. Seasonal Calendar for the Pabalays on Siquijor Island, Philippines



Source: Shields and Thomas-Slayter, 1993.

Appendix D

OFPEP Brochures - Senegal

PROGRAM ACTIVITIES

Seed and soil activities

- Participatory assessment of traditional seed and soil management practices.
- On-farm demonstrations of seed selection & storage techniques, biological nitrogen-fixation, agroforestry, erosion control, and crop residues management.
- Distribution of inoculum.
- Training in seed and soil technologies.
- Facilitation of sustainable production of BNF inoculum and green fertilizers.
- Development of markets for inoculum, seeds, and other technical inputs to be supplied locally.

Networking activities

- Creation of in-country networks.
- Linkages of country networks into larger global web.
- Generation of detailed implementation plan (DIP) through participatory workshops.
- Dissemination of program news throughout the international development community via OFPEP's newsletter -- *Of Soils and Seeds / Des Sols et Des Semences* -- produced in both French and English.
- Establishment of databases on seed and soil related resources, active consultants, and other programs/projects.

FOR FURTHER INFORMATION CONTACT:

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OR

Ms. Mary Lou Surgi
OFPEP Program Coordinator
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Collaboration in Development
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Fax: (704) 227-7422
Internet: surgi@wcvax1.wcu.edu

OFPEP

ON-FARM PRODUCTIVITY ENHANCEMENT PROGRAM

The On-Farm Productivity Enhancement Program (OFPEP) integrates efforts to improve farmers' access to good seeds with activities aimed at increasing soil fertility and management at the farm level in Senegal, The Gambia, and Uganda. In addition, western Kenya recently became a secondary site for OFPEP activities. Winrock International heads the USAID funded project and is supported globally by the PVO/University Center for Collaboration in Development. The Center is responsible primarily for establishing linkages, program documentation, and information gathering and dissemination.

OFPEP is concerned with integrating sound technical knowledge with the social, cultural, and educational conditions at the farm level. OFPEP uses an approach based on participatory rural appraisal (PRA) techniques to identify the problems and potential solutions related to agricultural productivity. It then serves as a liaison between community groups/NGOs/PVOs and research institutions that provide training and information about tested techniques to stem the decline of soil fertility and improve crop production through better seed varieties.

Simple techniques like applying animal manures as fertilizer, composting crop residues, planting seeds of improved varieties, or inoculating seeds with rhizobium are demonstrated on the farmers' own fields. The farmers become involved in evaluating the usefulness of the technologies for their particular situations. They make suggestions for adaptations and then try the new techniques again. News of the results of these simple innovations is spread in the country and throughout the OFPEP network by word of mouth, cross-visits, and written materials.

OFPEP's THREE PREMISES

Smallholder farmers throughout the world have more knowledge about agricultural production than they realize.

Increasing smallholders' awareness of that agricultural knowledge could lead to increased food productivity under environmentally sound conditions.

Locally available technical inputs can increase productivity

125

HOW OFPEP CREATES LINKAGES

OFPEP links members of the international development community into a global network concerned with seed and soil issues. It is pursuing a model that can be replicated at sites experiencing problems of agricultural production related to declining soil fertility.

SENEGAL

Lead Institution: Winrock International
Participating Organizations: US Peace Corps, Rodale International, Christian Children's Fund, World Vision, Senegal Institute for Agricultural Research (ISRA), Diapante, COMI.

Each OFPEP country site has a lead agency to coordinate project activities and serve as base for the program's in-country management. Each country has a network of development professionals and rural community members, mostly farmers, who take part in a participatory process of defining and prioritizing seed and soil problems. Technical activities within each country site are guided by Advisory Committees which are made up of representatives from participating organizations.

KENYA

Lead Institution: Winrock International
Participating Organizations: CARE, Christian Children's Fund, Mobilizing Against Desertification, ICRAF, US Peace Corps, World Vision.

THE MONITORING PROCESS

OFPEP relies heavily on farmer participation to build on their indigenous knowledge concerning seeds and

THE GAMBIA

Lead Institution: Save the Children
Participating Organizations: Association of Farmers, Educators, & Trainers; US Peace Corps; Freedom From Hunger Campaign; Action Aid; Good Seed Mission; Gambian Seed Unit; FORUT; People-In-Action; Worldview International Foundation; Gambia Rural Development Agency, Gambian Government Units.

soil fertility management. To develop this knowledge base, Winrock International, the Center for PVO/University Collaboration in Development, and the lead agencies in the target countries follow a three step process of baseline data collection, periodic monitoring, and evaluation. The guiding principle of the monitoring and evaluation system is that of participation. NGO staff members, Peace Corps volunteers, and extension agents as well as the participating farming communities are aided by OFPEP staff in developing appropriate systems to track activities. Baseline data collection precedes any technical intervention in an area. Periodic monitoring is flexible enough to be adapted to the variable situations in the target countries and is not so cumbersome as to overburden staff of the implementing agencies. Such a process will enable program partners to document the changes occurring in farm practices and the impacts on farm families.

UGANDA

Lead Institution: Agricultural Cooperative Development International
Participating Organizations: Christian Children's Fund, Multipurpose Training and Employment Association, Heifer Project International, Makerere University, Buzaama Growers Coop. Society, US Peace Corps.

The linkages created by OFPEP offer many opportunities to program participants.

OPPORTUNITIES FOR FARMERS:

- To share their wealth of knowledge with others in the network.
- To participate in setting the agenda for a program addressing their needs.
- To improve the productivity of their farms.
- To explore new sources for seed and inputs.
- To improve their families' quality of life.

OPPORTUNITIES FOR RESEARCHERS:

- To learn more about the reality farmers face and the constraints they cope with.
- To conduct research with greater relevancy to farmers needs.
- To extend their proven technologies to greater numbers of farmers.
- To access other researchers around the world working on problems of mutual interest.
- To use the technical assistance network offered by OFPEP.
- To participate in training sessions.

OPPORTUNITIES FOR NGOs AND COMMUNITY GROUPS:

- To share their knowledge and experience with researchers and other farmers.
- To bring proven technologies to communities they are involved with.
- To learn more about participatory research and development.
- To exchange information with other organizations and agencies.
- To upgrade technical skills.
- To link up with other collaborators in the network to expand programs of their own.

OF SOILS AND SEEDS

No. 4, January 1995

An Expansion of Seed Sowers/Les Semeurs

Newsletter of the On-Farm Productivity Enhancement Program

OFPEP Looks at the Role of Gender in its Agricultural Activities

Committed to working with resource-poor farmers and improving family livelihood, OFPEP works closely with women farmers who produce 70% of the food consumed in rural African homes. Not all agricultural development projects do this. Many projects, conceived and executed by staff in ministries of agriculture and donor agencies, are carried out by extension agents, the majority of whom are male. Many of these projects may provide training, inputs, and or credit. However, the women who carry the burden of feeding the family are often left out of the planning and implementation of these projects, even though they are often the ones who provide the bulk of the labor on family farms.

One of the reasons for this discrepancy is the lack of analysis and understanding of the roles that each household member plays in the farm household. Information is usually collected at the household unit level, without breaking it down per member. Income may be measured in the same way, without taking into account who controls the money, and who decides if it goes toward children's education, or food, or a new radio or cigarettes.

OFPEP-- with its participatory approach to transferring appropriate technologies to farmers-- is trying to look at the way in which it approaches seed and soil fertility issues at the household level. In East Africa, Winrock International has added Gender Specialist, Ms. Cissy Katunze, to strengthen the efforts of the Uganda team and OFPEP's collaborators in integrating gender analysis into planning and decision-making activities. She presented a paper entitled "The Role of Women in Agriculture in the East



Women not only grow the grain for the household, they also pound and cook it for their families.

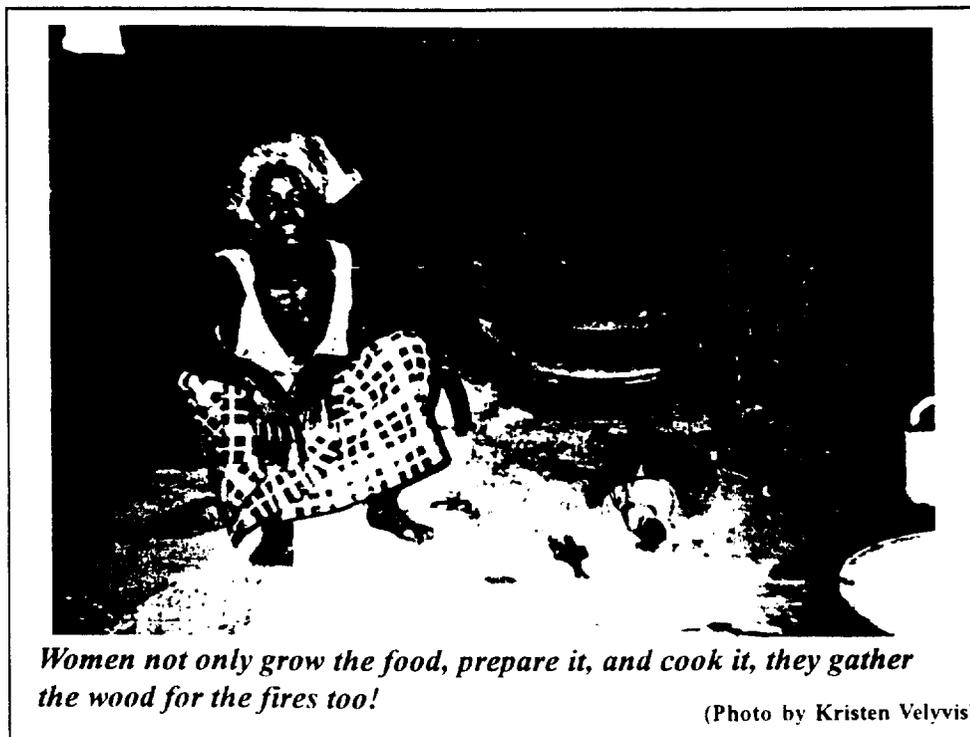
(Photo by Kristen Velyvis)

African Region" at the OFPEP Kenya launching seminar and listed the following possible courses of action and recommendations:

Winrock International • PVO/University Center • ACDI • Save the Children

1. Carry out gender role analysis before introduction of any intervention.
2. Collect and maintain updated data for both males and females, including baseline data.
3. Develop good qualitative indicators that can reflect a change in the improvement or quality of life of both women and men.
4. Insure that both men and women staff and extension agents incorporate gender issues into the fabric of all programs
5. Promote on-farm activities and demonstrations which respect the tight domestic schedules of women.
6. Analyze interventions being introduced to be sure they do not adversely affect women, such as increasing their already heavy labor load.
7. Include the tools of gender role analysis into training of trainers and other program activities.
8. Make a conscientious effort to target women in all development interventions, technology as well as policy.

to the area and crop, are mainly women's responsibilities. From an extensive literature review and their own experience with the project, they produced a document entitled, "Gender Analysis Framework for the On-Farm Productivity Enhancement Program/Peace Corps Rice Initiative: A Model for OFPEP Initiatives". This paper proposes a methodology which enables the systematic inclusion of the gender variable at each stage of the rice initiative without adding additional burdens to field staff or project planners. Much of the methodology is modeled on the data collection, analysis, and presentation



In West Africa, OFPEP Senegal has also been looking at the issue of how its activities impact on women. Late in 1994 three volunteer interns conducted an in-depth analysis of one OFPEP activity to develop a model for including gender sensitivity as a component of the design and data collection used in planning and implementing other project activities. They chose to examine the Peace Corps rice activities in Senegal, which, because of the culture specific

system that has been used for agronomic data collection for the existing rice activities in the hope that this additional socioeconomic information will be gathered and considered in the same ways.

Both of the above cited documents will be available soon from the OFPEP field offices or the PVO/University Center.

Of Soils and Seeds is the newsletter of the On-Farm Productivity Enhancement Program (OFPEP), funded by the U.S. Agency for International Development under agreement FAO-0158-A-00-2054-00. Designed to increase productivity at the farm level, OFPEP assists farmers in Senegal, The Gambia, Uganda, and, as a secondary site, Kenya. The Center for PVO/University Collaboration in Development issues the newsletter and welcomes inquiries, comments, and submissions. Address correspondence for the newsletter to: Of Soils and Seeds, Bird Building, Western Carolina University, Cullowhee, North Carolina, USA, 28723-9056; or fax to 704 227 7422; or e-mail our internet address: pvouc@wcvax1.wcu.edu

128

OFPEP and Peace Corps in Soukoto

By Scott Moeller, Peace Corps Volunteer

As part of the collaboration between Peace Corps Volunteer and the technical staff of OFPEP/Senegal, Alphonse Faye, their rice specialist, makes regular visits to numerous villages throughout the country. Alphonse and Peace Corps Volunteer, Scott Moeller are monitoring rice activities promoted under OFPEP. The OFPEP technicians have helped Scott respond to needs identified by farmers in his area 15 km. north of the Gambian Border in the region of Niuro. Specifically, in Soukoto (the village where this photo was taken), new seed varieties and on-line seeding techniques were introduced three years ago to help them improve their rice production. While the on-line seeding has yet to impress the women farmers, the new seed varieties are now very popular. Also, due to a strong interest expressed by the farmers, soil improvement trials, including inputs of fertilizer and/or locally-produced lime, will be on the agenda for next year.

In other activities, with the guidance of Sarah Workman and Ahmadou Ndiaye, agroforestry experts with OFPEP, the men and women of Soukoto have recently cooperated in the planting of various species of trees and grasses in a series of curved lines in an erosion-susceptible area. They were planted to demonstrate their effectiveness as a type of control of the soil erosion that has been damaging both the upland fields and the lowland rice plots.

Furthermore, with the assistance of Jalaane Faye, a soil fertility expert at OFPEP, the local women's group has constructed a large compost pit which they plan to use to supplement the fertility of the soil within their community garden.

As they anxiously await the long-term results of these extension activities, the OFPEP Senegal technical team and

village based extensionists, such as Scott, view this to be a replicable example of how the partnership outlined in the OFPEP Program can be put to good use.



Scott Moeller, a PCV in Senegal, in the field with one of the rice farmers working with OFPEP and Peace Corps.

OFPEP Begins Activities in Kenya

On October 15, 1994 OFPEP held an all-day seminar to launch its newest (secondary) site in Western Kenya. Attended by representatives from the Winrock and PVO University Center headquarters in the US, as well as many potential local collaborators, the day was an opportunity for each attendee to present information about his or her organizations' and their activities in seeds and soil fertility. It also proved to be an occasion for the exchange of interesting technical information among the members of international research organizations and local groups working with farmers. Common problems, such as striga weed, were discussed, with suggestions being made to further study some indigenous technologies being used to combat this common problem. If this exchange of ideas is

indicative of the kinds of sharing that OFPEP can encourage and facilitate, then it is certainly off to a good start!

Winrock International, together with Lagrotech Associates, is playing the lead role in Kenya. Dr. Moses Onim, who has been the East Africa Coordinator since the inception of OFPEP, is joined by Ms. Rose Sigar, the Country Coordinator. They can be contacted at their office in Kisumu at PO Box 1244, Kisumu, Kenya; Tel.: 254-35-41440; Fax.: 254-35-43063. Some of the earliest collaborators with OFPEP are CARE Kenya, Mobilizing Against Desertification (MAD), World Vision, Christian Children's Fund, and International Center for Research in Agroforestry (ICRAF).

- 129

Mid-Term Evaluation for OFPEP

In October 1994, the end of the second full year of operations, the staff and partners in OFPEP participated in an evaluation process to help them assess where they stood in meeting the ideals and goals stated in the OFPEP proposal. It was decided to do this at this point so that the remaining three years of the project could benefit from any changes or improvements that might be identified during the evaluation process. In each country, teams made up of OFPEP staff, staff from partner agencies, farmers, and occasionally, outside evaluators, were led by Jim Rugh, a specialist in Participatory Evaluations. Field visits were made to talk with farmers and observe OFPEP in action, individual meetings were held with partner and donor agencies, and, in each country, a round-table discussion was held to bring together all stakeholders to address issues related to assessing and improving OFPEP's performance. Overall, OFPEP was given very high marks for its impressive achievements in bringing technical assistance to a

diverse array of partner agencies and community groups, for strengthening relations between and among organizations and for allowing farmers to improve their agricultural practices in ways that are consistent with, and respectful of their indigenous knowledge and experience.

One of the more unforgettable and unexpected findings on a field visit, was the twelve year-old neighbor of Florence Apio, a farmer extension agent in Tororo, Uganda. With his mother dead, and his father not really looking after the family, this young man is using his own wits to make a better life. After observing the demonstrations of different planting patterns (row vs. scattered) and the use of rhizobium inoculant treatment on soybeans on the OFPEP demoplot, he decided to do his own experimenting, planting a secondary demoplot of his own. It is just this experimental spirit that OFPEP is trying to encourage, and will be one of the most important long-lasting impacts of OFPEP's work.



OFPEP/Uganda's youngest demoplot farmer.

(Photo by Jim Rugh)

OFPEP On the Air

Over the past year, OFPEP has come into the international media spotlight with television appearances and radio interviews by OFPEP staff. OFPEP Program Director, Dr. Pierre Antoine, was interviewed in July 1994 on the first installment of *Le Monde Agricole*, a Voice of America radio program heard by 4 million francophone African listeners. West Africa Coordinator, Mr. Alphonse Faye, appeared this past June on *Africa Journal*, a WorldNet Television production serving a viewership over 2 million strong in Europe, Africa, Middle East, and Asia. He participated in a panel discussion on African feminism. In September, Alphonse was seen by over 64 million viewers of the CNN production, *On the Menu*. Alphonse opened the CNN special episode entitled, "Beyond the Numbers" as part of the coverage surrounding the Population and Development Conference held in Cairo.

130

Environment Will Remain Endangered As Long As Poverty Persists

The following article appeared in The Gambia Daily Observer, Thursday, November 24, 1994. Dr. Thompson is the president of Winrock International, the prime contractor for OFPEP and also is a member of the Governing Board of the Center for PVO/University Collaboration in Development.

A fragile earth environment will always remain at risk in developing nations as long as people who live in rural areas continue to be mired in poverty, says environmentalist Robert Thompson.

"If people are imprisoned in poverty...they will continue to put the needs of their families above all else and exploit the environment in manners that are not sustainable."

Thompson said in a U.S. Information Agency Worldnet Satellite television service interview, broadcast on October 27.

Dr. Thompson, President of Winrock International, an environmental consulting firm, spoke on the theme of "Managing a Fragile World -- Ecological Resource Management" to television audiences in Abidjan and Niamey.

Mr. Thompson discussed the new emphasis that environmentalists, as well as development specialists, are placing on the connection between economic development and protection of the earth's ecology called sustainable development. Before, many specialists were convinced that economic expansion was the enemy of environmentalism because it could only be achieved at the expense of debasing the earth's ecology.

"In the rural areas of the developing world, poor people can have their incomes increased as a result of increased productivity on the farm," Thompson pointed out. "But no country in the world," he asserted, "has yet solved the problem of rural poverty," exclusively, "on the farm."

The only countries that have made "significant progress in sustained reduction of rural poverty," according to Thompson, "have done it by creating economic opportunities off the farm" to supplement family income and by permitting "some members of the agricultural community to migrate out of agriculture into other lines of employment."

According to Thompson, the move to harness hydroelectric power in the countryside provides a means to "create an alternative to cutting down trees so as to produce firewood or charcoal." Rural people will always need fire to cook their food, he explained, but by using alternative sources of energy, a developing nation's plant, animal and soil resources can be spared.

But "without reliable power, you will not get generalized economic development in those rural communities at the farm level. And when you don't have that development at the farm in rural communities, you get increasing pressure on that population to move to the capital city, and frankly we don't need more cities of 15 to 20 million people...they too are environmentally damaging."

The thing to remember, said Mr. Thompson, is that "poverty is one of the most fundamental roots of not only hunger but also of environmental destruction, and it's one of the reasons we have to be concerned about economic growth. We have to start that in the agricultural sectors where most of the poor people are."

West African Sub-Regional Conference on Sustainable Agriculture and Natural Resource Management: Building Collaborative Linkages Between Farmers, NGOs, and Donors. November 29 - December 3, 1994. Banjul, The Gambia

The ANR conference sponsored by Save the Children (SCF)-OFPEP/The Gambia provided an excellent opportunity for a range of participants representing five SCF field offices, the four OFPEP countries, five local NGOs from The Gambia, six international development NGOs, farmers from the sub-region, the Peace Corps/USA as well as USAID and the West African Rural Foundation to share perspectives on resource management, technologies, strategies, and experiences over a five day period. The conference was designed to promote reciprocal communication between stakeholders involved at different levels of natural resource management. Each SCF field office and OFPEP country presented overviews of their ANR programs including activities, constraints, collaborators, and future directions. The four panel topics covered soil fertility, agroforestry, erosion control, and agricultural productivity and each topic was followed up with a series of working group discussions. The conference proceedings are being compiled and will be available through OFPEP.

How to Contact OFPEP in the Field

Some of you have written the newsletter wishing to contact OFPEP field offices for various reasons. Well, the following addresses, telephone and fax numbers are for OFPEP's field offices in Africa:

OFPEP/Senegal
B.P. 3746
Rue 2 x Blvd. de l'Est
Point E-FANN
Dakar, Senegal
Tel.: 221-241919; Fax.: 221-241919

OFPEP/The Gambia
c/o Save the Children/The Gambia
PO Box 828
51 Garba Jahumpa Rd
New Town Road, Bakau
Banjul, The Gambia
Tel.: 220-496626; Fax.: 220-496625

OFPEP/Uganda
c/o ACIDI
PO Box 7007
Kampala, Uganda
Tel.: 256-41-254245; Fax.: 256-41-258556

OFPEP/Kenya
PO Box 1244
Kisumu, Kenya
Tel.: 254-35-41440; Fax.: 254-35-43063

New Book Available. . .

Product Development for Root and Tuber Crops. Vol. III - Africa

Edited by Gregory Scott, P. I. Ferguson, and J. E. Herrera

Processing of root and tuber crops is the focus of increasing interest by farmers, traders, researchers, and policy makers in many parts of Africa. This publication includes a wealth of information on the progress made to date with new or improved products and processes that utilize cassava, sweet potato, or potato. Individual papers discuss work underway in Burundi, Cameroon, the Congo, Cote d'Ivoire, Ghana, Kenya, Nigeria, Rwanda, Tanzania, Uganda, and Zaire. The document also contains selected reports on processing activities in Columbia, Peru, Vietnam, and the Philippines. Particular attention is given to production, marketing, and consumption trends that either have facilitated or resulted from the growth in processing.

In addition, an overall approach to product development is outlined followed by specific papers on each of the components including: assessing processing potential; research in support of product and process development; pilot plants; and expansion to commercial operation. Examples are provided for each of these components based on experiences in the countries represented. Case studies outlining the knowledge acquired and lessons learned include cassava processing for animal feed, new snack foods from sweet potatoes, and village-level potato processing for flours and mixes. The document also presents recommendations for future activities in priority areas of endeavor and suggested areas of collaboration with the International Potato Center (CIP) and the International Institute of Tropical Agriculture (IITA) for work on product development for roots and tubers in Africa.

Volume III - Africa is US\$ 15 (in developed countries US\$ 30) plus shipping and handling. Order ISBN-92-9060-163-9 Vol. III - Africa from the International Potato Center (CIP), Distribution Unit, PO Box 25171, Nairobi, Kenya.

OF SOILS AND SEEDS
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Collaboration in Development
Bird Building
Western Carolina University
Cullowhee, North Carolina
28723-9056
USA

Address Correction Requested

Améliorer la qualité des semences de
mil à la récolte



Sponsorisé par On Farm Seed Project
Traduit par On Farm Productivity Enhancement Project
(OFPEP) Septembre, 1995

133 -

Améliorer la qualité des semences de mil à la récolte

Le mil est une culture de pollinisation croisée qui exige un certain traitement à la récolte pour maintenir la qualité génétique et la haute densité de levée de la semence.

1. Avant la récolte

Identifiez les meilleurs plantes à partir de la section centrale de la parcelle pour récolter les semences. Identifiez les plantes qui sont mures avec les épis bien développés, mais qui ne tombent pas, et qui ont une tallage modéré.

Il est très important que ces plantes n'aient pas des maladies parce que les maladies sont transmises à partir de la semence aux plantes l'année prochaine. Il est important de commencer la sélection des semences avant la récolte pour que la sélection soit fait sur la base des caractéristiques de l'épis et de la plante. En sélectionnant à partir du milieu de la parcelle on peut s'assurer que les autres plantes ont été fécondées par les autres plantes dans la même parcelle.

2. La récolte

Récoltez les semences des plantes que vous avez identifiées avant que vous ne récoltiez la reste de la parcelle. En faisant

cela, vous protégez les semences de ces plantes de la détérioration du soleil, les insectes, les oiseaux ou des maladies.

3. Le séchage

Les pis de semence doivent être enlevés de la parcelle pour le séchage qui est fait de préférence à la maison où ils seront mieux protégés des insectes. Le séchage est fait sur des plateformes élevées qui permettent la circulation libre de l'air sur les épis. Ceci pourra empêcher la formation de la moisissure. Les épis doivent être retournés souvent s'ils sont séchés au soleil en vue d'éviter le chauffage des semences.

4. Stockage

Le stockage de type traditionnel en bottes permettra aux semences de se sécher une fois en stock. La protection des insectes est important bien que habituellement les pertes dues aux insectes ne soient pas aussi fréquentes chez le mil.

Après avoir séché jusqu'au moins 10% de contenu en humidité, il peut être battu puis mis en pots, en bocaux ou en sachets pour stockage. Ou bien les semences peuvent être gardés sous forme épis s'ils sont bien protégés des rongeurs.

La fabrication du compost

Guide illustré par le Programme de Vulgarisation Agricole en Milieu
Paysan

(On-Farm Productivity Enhancement Program OFPEP)

N° 11B Rue 3 Angle C, Point E

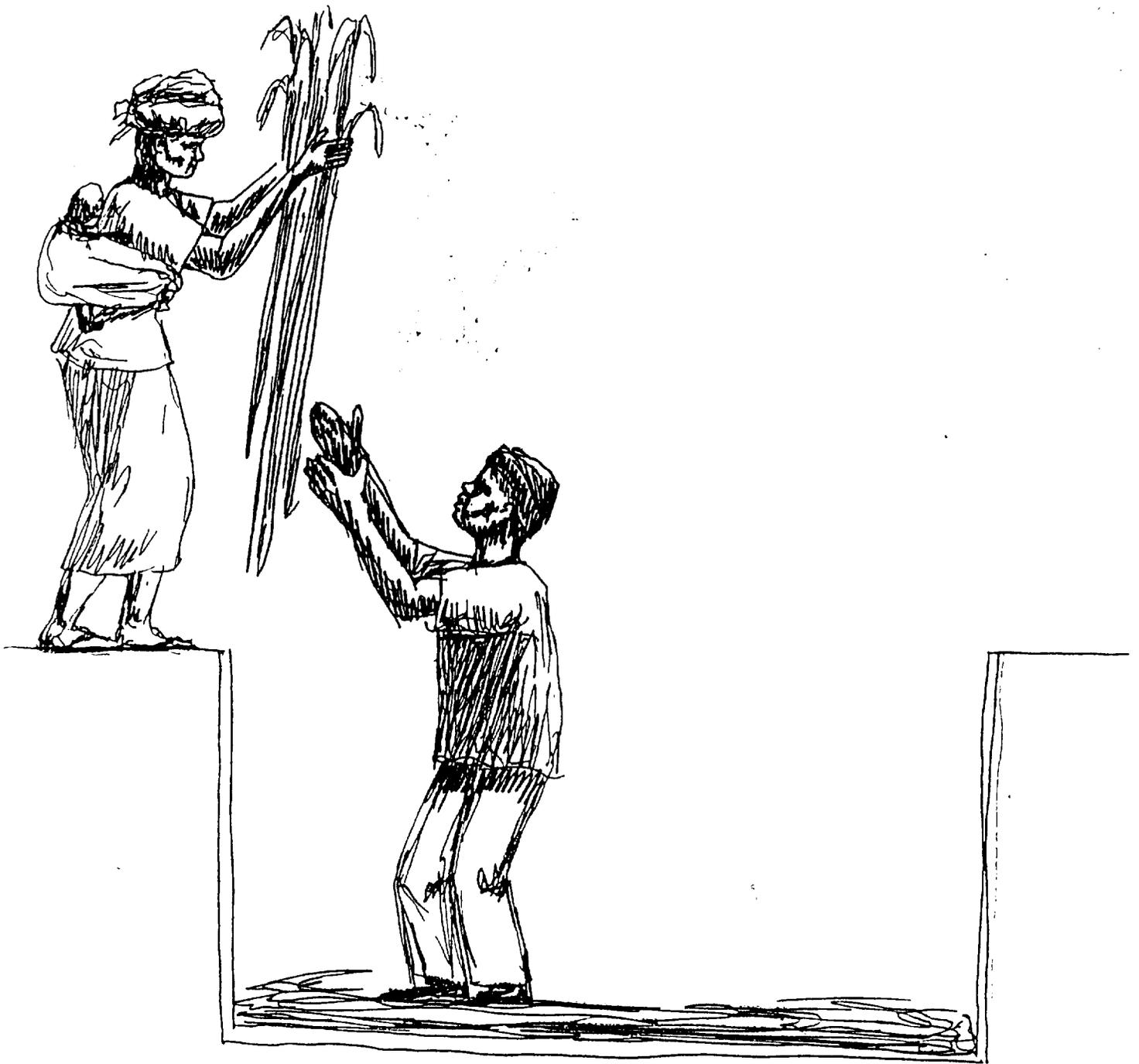
B.P 3746 Dakar

Tel/Fax: 24.19.19

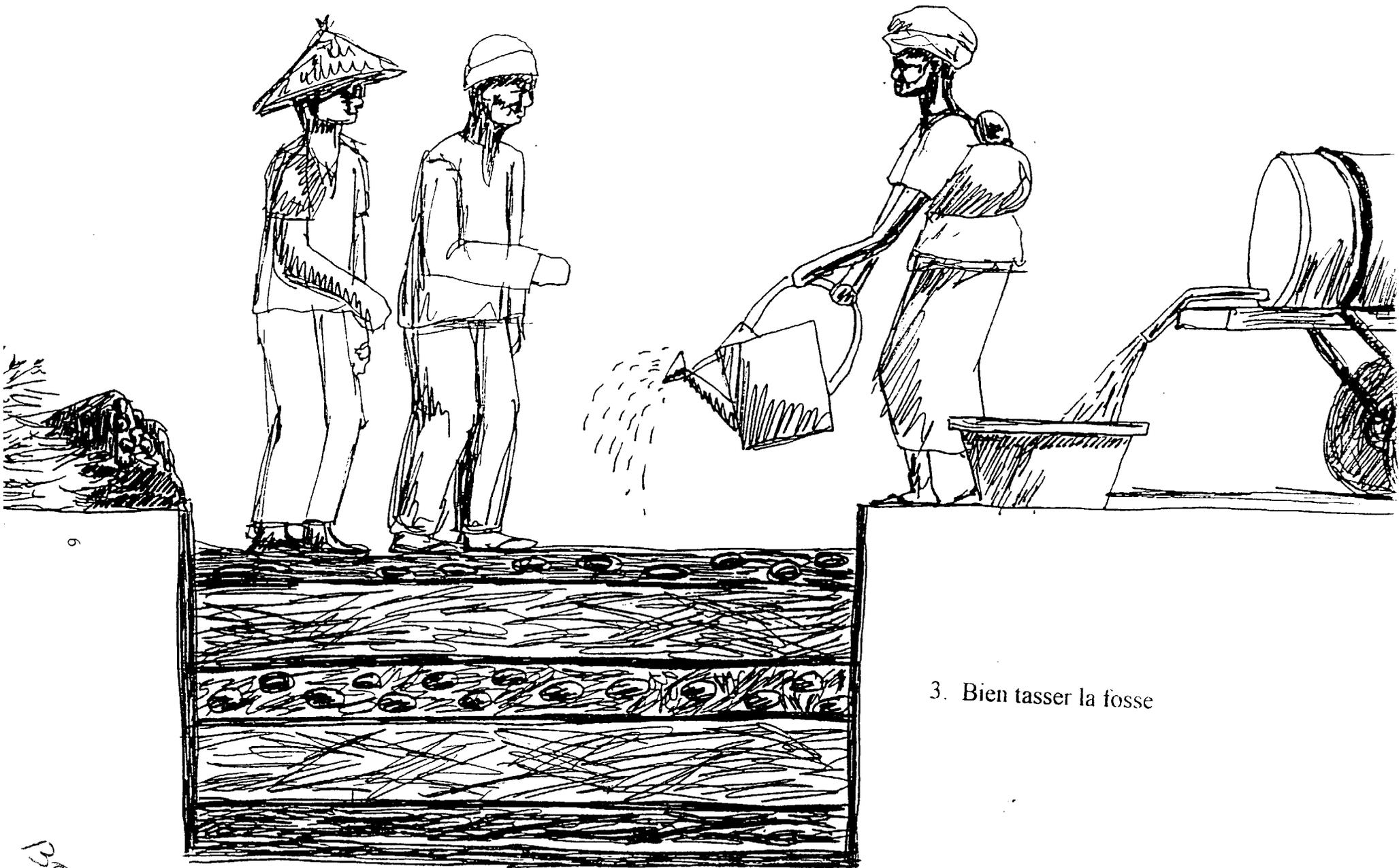
Septembre, 1995



1. Creusage de la fosse



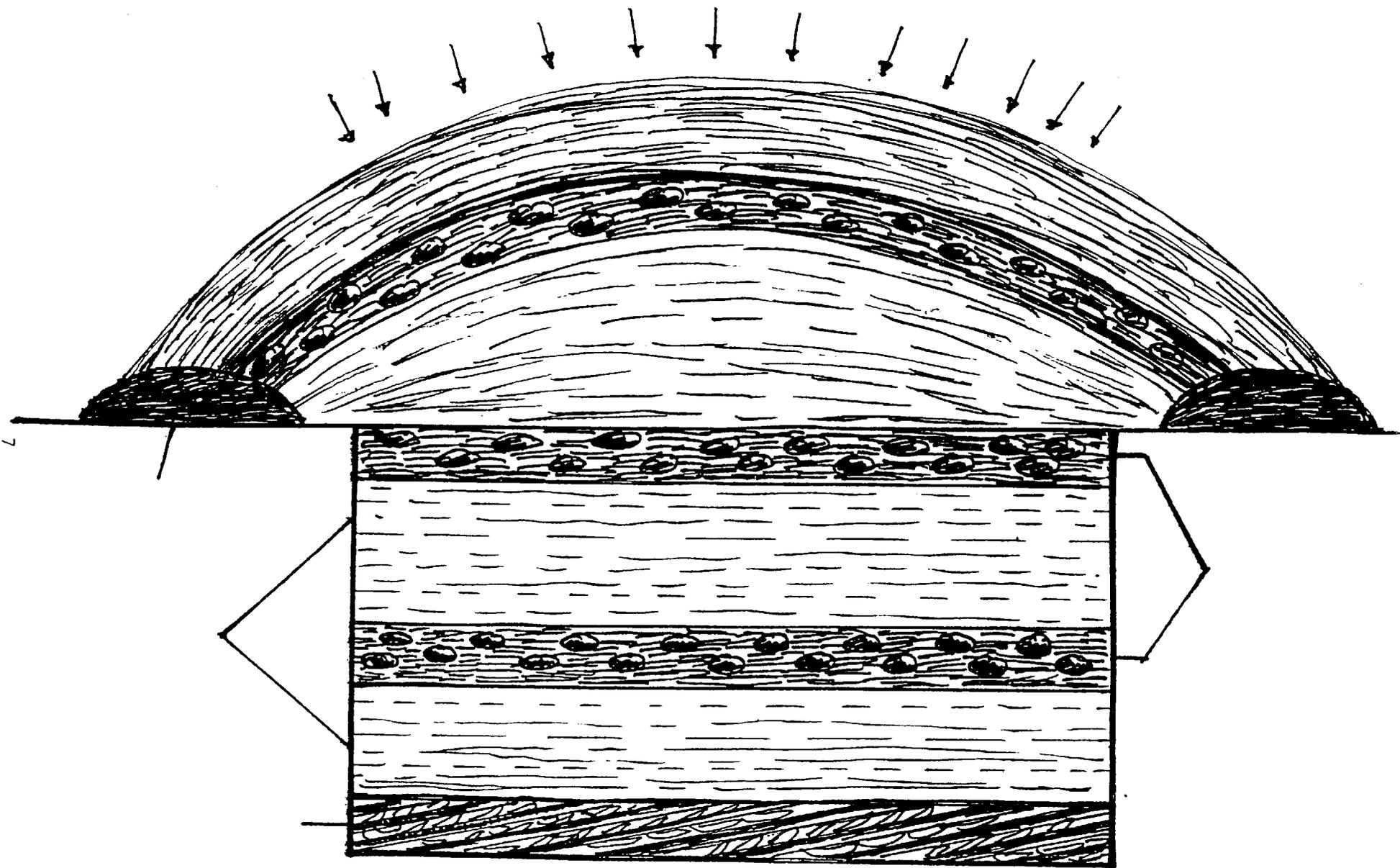
2. Début de remplissage de la fosse



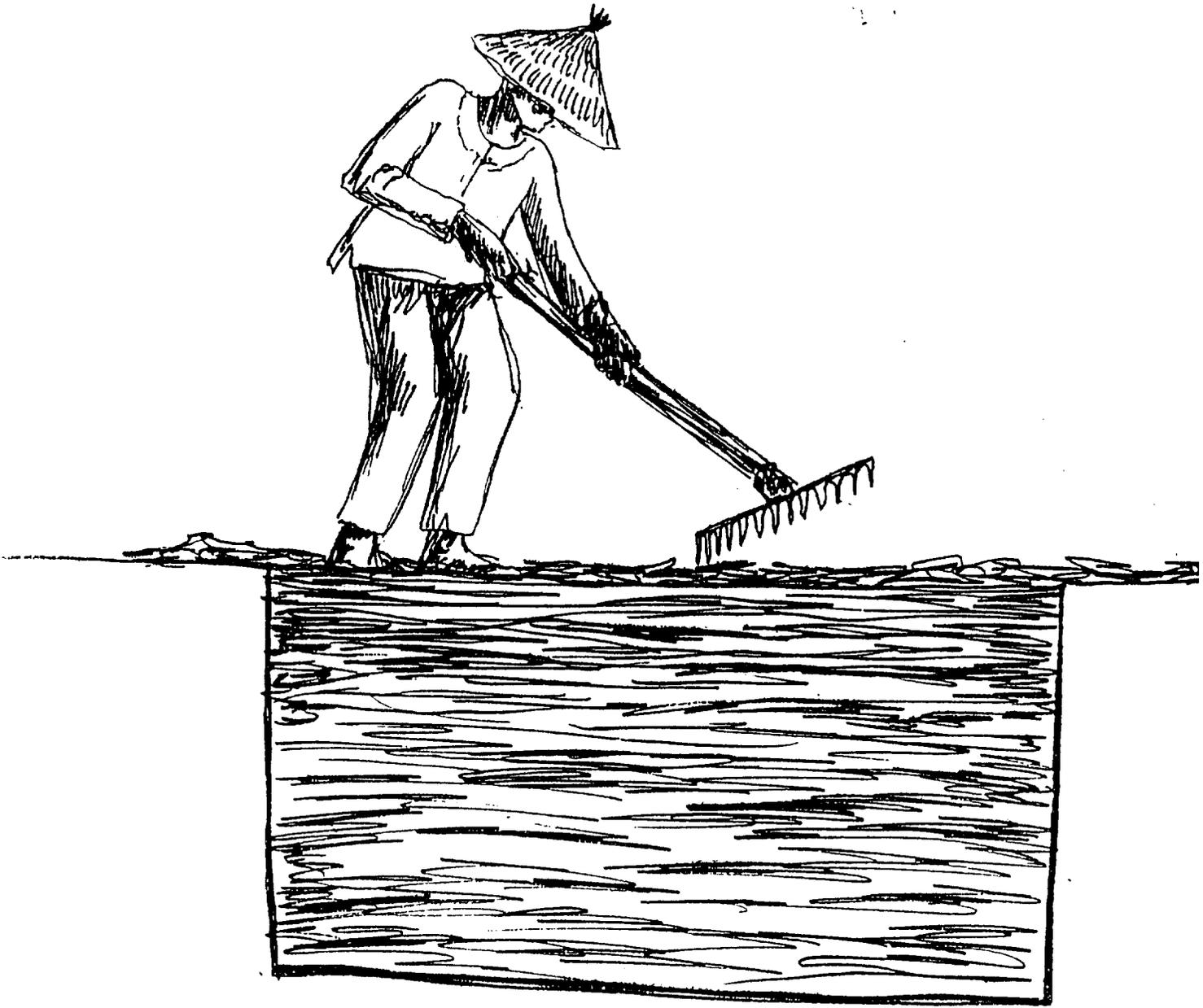
9

3. Bien tasser la fosse

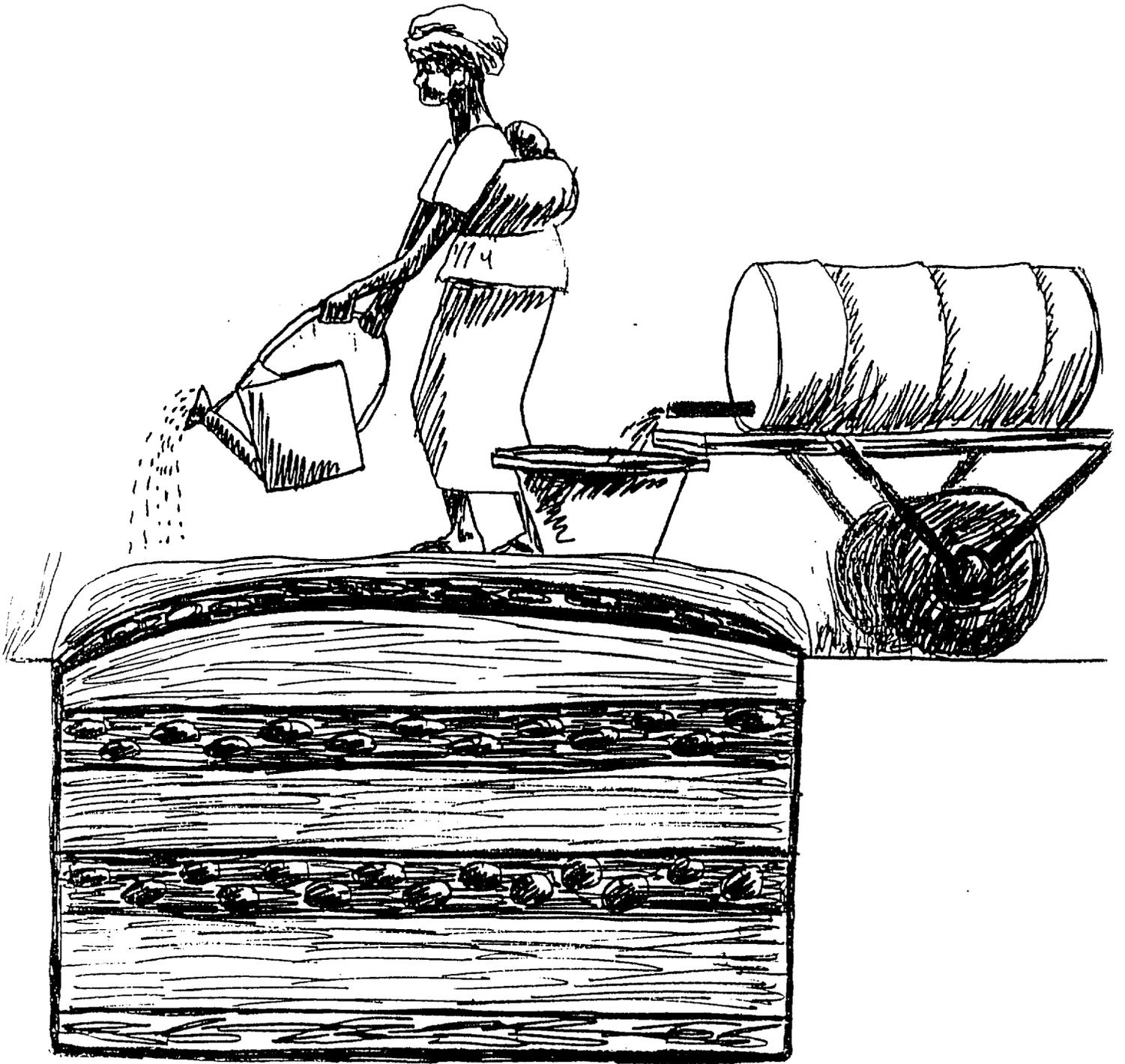
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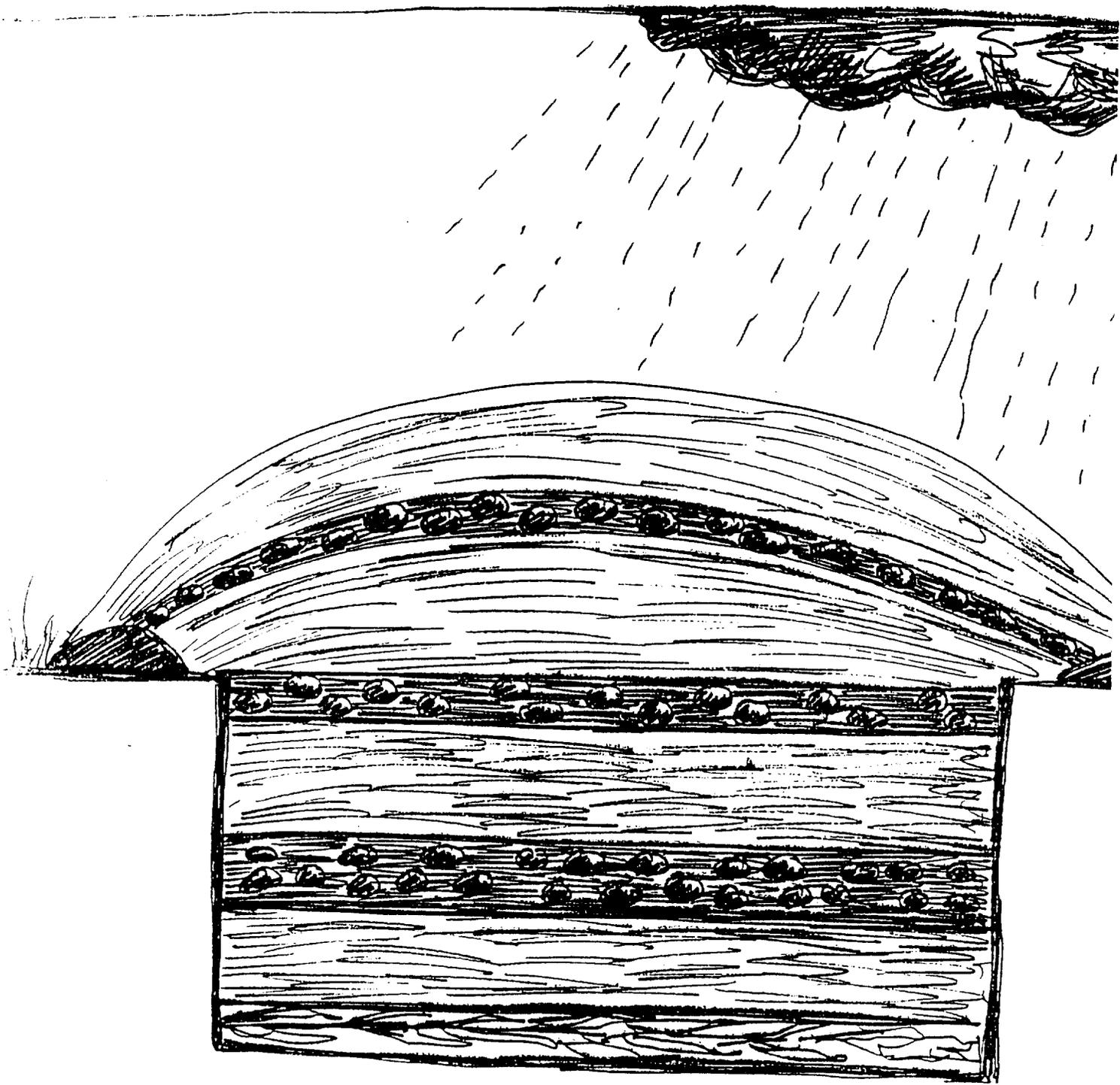
4. Fosse bien rempli



5. Retournement de la fosse

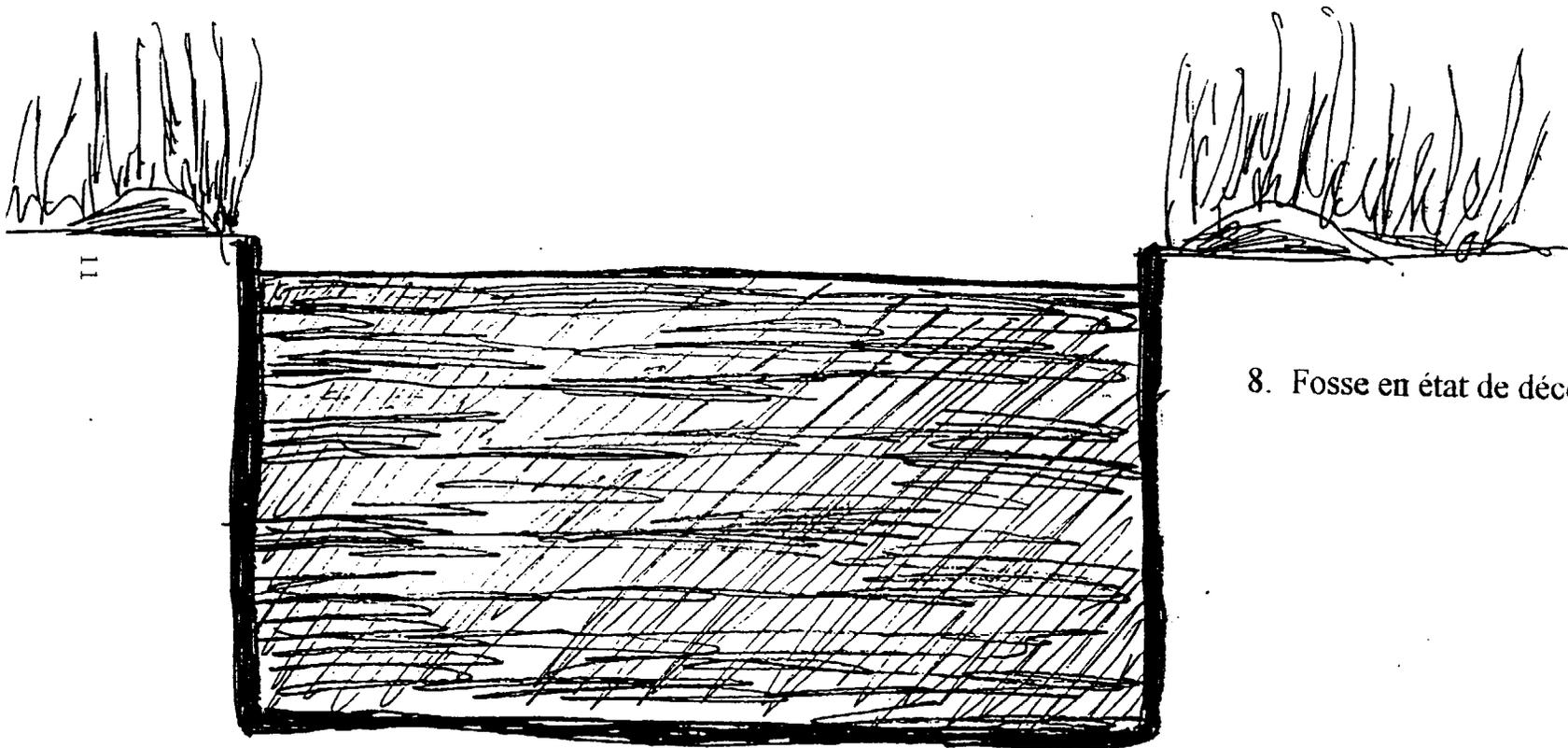


6. Arossage de la fosse



7. Arossage de la fosse par la pluie

142



8. Fosse en état de décomposition



9. Evacuation de la fosse

144

Appendix E

Uganda Impact Monitoring Tools

ON-FARM PRODUCTIVITY ENHANCEMENT PROGRAM (OFPEP)-UGANDA

IMPACT REPORT

SEASON (FIRST/SECOND) _____ YEAR _____ DATE OF REPORTING _____ DISTRICT _____

OBJECTIVES	INDICATORS	SEASON'S TARGET (UNITS)	LEVEL ACHIEVED	PERCENTAGE OF TARGET	SALES PRICES	PURCHASE PRICES (OF INPUTS)	COMMENT ON ACHIEVEMENTS
1. Increase Production of soybeans.	i. Amount of Nam 1 produced by -Men -Women						
	ii. Amount of rhizobia used.						
	iii. Amount of manure used: -compost -Animal -Animal +compost.						
	iv. Amount of inorganic fertilizer used.						
	v. Amount of Nam 2 produced by -men -women.						

OBJECTIVES	INDICATORS	SEASON'S TARGET (UNITS)	LEVEL ACHIEVED	PERCENTAGE OF TARGET	SALES PRICES	PURCHASE PRICES (OF INPUTS)	COMMENT ON ACHIEVEMENTS
	vi. Amount of local variety produced by -men -women.						
	vii. Number of adoptors of Nam 1 -men -women						
2. Increase Production of MCM5001 beans.	i. Amount of MCM5001 produced by -men -women						
	ii. Amount of rhizobium used.						
	iii. Amount of manure used: -compost -animal -animal+compost.						
	iv. Amount of inorganic fertilizer used.						

2

16

OBJECTIVES	INDICATORS	SEASON'S TARGET (UNITS)	LEVEL ACHIEVED	PERCENTAGE OF TARGET	SALES PRICES	PURCHASE PRICES (OF INPUTS)	COMMENT ON ACHIEVEMENTS
	v. Amount of other bean varieties produced by -men -women						
	vi. Number of adoptors of MCM5001 beans by -men -women						
	vii. Sales by -men -women						
3. Increase production of groundnuts.	i. Amount of g/nuts produced by -men -women						
	ii. Amount of rhizobium used.						

OBJECTIVES	INDICATORS	SEASON'S TARGET (UNITS)	LEVEL ACHIEVED	PERCENTAGE OF TARGET	SALES PRICES	PURCHASE PRICES (OF INPUTS)	COMMENT ON ACHIEVEMENTS
	iii. Amount of manure used: -compost -animal -animal+compost.						
	iv. Amount of inorganic fertilizer v. Sales used by -men -women						
4. Increase production of maize.	i. Amount of Longe 1 maize produced by -men -women						
	ii. Number of adoptors of longe 1 by -me, women						
	iii. Amount of other variety of maize produced by -men -women						
	iv. Amount of manure used: -compost -animal -Animal+compost						

4

1-19

OBJECTIVES	INDICATORS	SEASON'S TARGET (UNITS)	LEVEL ACHIEVED	PERCENTAGE OF TARGET	SALES PRICES	PURCHASE PRICES (OF INPUTS)	COMMENT ON ACHIEVEMENTS
	v. Sales by : -men -women						
5. Increase production of sorghum	Amount of seredo sorghum produced by -men -women						
	ii. Amount of other variety of sorghum produced by -men -women						
	iii. Amount of manure used -compost -animal -animal+compost						
	iv. Amount of inorganic fertilizer used						
	v. Number of adoptors seredo sorghum by -men -women						

OBJECTIVES	INDICATORS	SEASON'S TARGET (UNITS)	LEVEL ACHIEVED	PERCENTAGE OF TARGET	SALES PRICES	PURCHASE PRICES (OF INPUTS)	COMMENT ON ACHIEVEMENTS
6. Increase production of cassava	i Total acreage planted by- -men -women						
	ii. Acreage planted with NASE 1 by -men -women						
	iii. Acreage planted with NASE 2* by men by women						
	iv. Total amount of cassava harvested by -men -women						
	v. Sales by -men -women						

15

OBJECTIVES	INDICATORS	SEASON'S TARGET (UNITS)	LEVEL ACHIEVED	PERCENTAGE OF TARGET	SALES PRICES	PURCHASE PRICES (OF INPUTS)	COMMENT ON ACHIEVEMENTS
7 Increase production of millet	i. Total acreage planted by -men -women						
	ii. Total amount of millet harvested -for men -for women						
	iii. Total sales of millet -by men -women						
*Newly released mosaic resistant variety.							

7

152

OBJECTIVES	INDICATORS	SEASON'S TARGET (UNITS)	LEVEL ACHIEVED	PERCENTAGE OF TARGET	SALES PRICES	PURCHASE PRICES (OF INPUTS)	COMMENT ON ACHIEVEMENTS
8. Increase soil conservation	i. Number of terraces made						
	ii. Length of terraces made (metre)						
	iii. Number of stone barriers made.						
	iv. length of stone barriers made.						
	v. Number of grass strips made						
	vi. length of grass strips made (meters)						

OBJECTIVES	INDICATORS	SEASON'S TARGET (UNITS)	LEVEL ACHIEVED	PERCENTAGE OF TARGET	SALES PRICES	PURCHASE PRICES (OF INPUTS)	COMMENT ON ACHIEVEMENTS
	vii. Number improved drainage established.						
	viii. length of improved drainage channels (meters)						
	ix. Number of grass-stabized terraces.						
	x. length of grass-stabilized terraces(meters).						
9. Increase on-farm seed selection.	i. Number of farmers who planted own seeds of improved varieties. -of which Nam 1 -MCM5001 beans -Longe 1 maize -RMP12 g.nuts -Seredo sorghum -Nase 1,2 cassava.						
10. Increase the number of people trained in the OFPEP technologies	i. Number of collaborating NGO staff trained ii. Number of local leaders trained.						

6

152

Appendix F

Baseline Survey Questionnaire - Kenya

APPENDIX E. A form for OEPEP Kenya Baseline Survey for Soil Conservation and Soil Fertility.

1. FARMERS' GROUPS.

- 1.1. Date of Survey 1.2. Name of Farmers' Group
 1.4. Number of Farmers attending this group interview 1.3. Number of Members
 1.5. Name of village
 1.6. Name of Sub-Location
 1.7. Name of Location Division District

TECHNICAL INFORMATION FROM THE GROUP - SOIL CONSERVATION.

- 1.8. How many farmers practice any form of soil conservation on their land? % of total present
 1.9. Specify the type of conservation. How many practice it?:
 i) Any kind of terracing % of total present
 ii) Grass stripping % of total present
 iii) Contour plowing % of total present
 iv) Other methods % of total present

TECHNICAL INFORMATION FROM THE GROUP - SOIL FERTILITY.

- 2.0. How many farmers think they have soil fertility problem on their land? % of total present
 2.1. How do they attempt to overcome it?
 i) Use of animal manure % of total present
 ii) How many have livestock (Cattle, goats, sheep, donkeys etc) % of total present
 iii) How many have livestock but do not use their manure? % of total with livestock
 iv) Use of compost % of total present
 v) Use of any of the AF technologies % of total
 vi) Use of any of the AF technologies % of total
 vii) Use of Rhizobial inoculants % of total
 viii) Use of Inorganic fertilizers % of total

INDIVIDUAL INTERVIEWS ON SOIL FERTILITY AND CONSERVATION.

1. Name of individual
 2. Position of individual
 3. Location of the Individual
 4. Is low soil fertility a serious problem in this area?
 Not serious Serious very Serious
 4.1. What are the main causes of low soil fertility in this area?
 a) b)
 c) d)
 4.2. Has any government agency or NGO addressed this issue of low Soil fertility in this area? Yes/No if yes, when and how
 5. Is soil degradation due to erosion a problem in this area?
 Not Serious Serious Very Serious
 5.1. What are the main causes of soil erosion in this area?
 a) b) c)
 5.2. Has any government agency or NGO addressed this issue of soil erosion in this area? Yes/No if yes, when and how? a) b) c) d)

THE SURVEY TEAM'S ASSESSMENT OF SOIL FERTILITY AND CONSERVATION.

1. Crop Performance:
 1.1. Cereals (Maize, Sorghum, rice) - Poor Very Good
 Good
 1.2. Legume crops (beans, groundnuts, cowpeas) - poor
 1.3. Root crops (cassava, sweet potatoes) - poor
 2. Soil Conservation: Practiced % Main methods:
 a) b) c)
 3. Land topography: Hilly Plain valleys Slope (%)

Appendix G

Results of Soil Analysis and Demonstrations - Kenya

APPENDIX G. Results of laboratory analyses of soils from the soil surveys

LAB NO	DISTRICT	LOCATION	pH	Na	K	Ca	Mg	CEC	P	OM	N
				m. g %				ppm		%	%
Minimum Required			0.1	0.2	4.0	1.0	20.0	20.0	4.0	0.2	
001	Kisumu	Oboch	6.4	0.27	2.30	10.8	4.9	16.17	34	1.35	0.13
002	Kisumu	Oboch	6.0	0.27	1.48	13.4	5.4	21.53	39	4.31	0.17
003	Kisumu	Oboch	6.8	0.23	2.09	10.8	6.0	12.86	39	4.33	0.19
004	Kisumu	Oboch	5.4	0.33	1.12	2.6	4.9	9.75	12	3.51	0.16
005	Siaya	S. Ugenya	5.2	0.27	0.48	4.9	6.3	9.19	11	3.56	0.41
006	Siaya	S. Ugenya	5.6	0.06	0.29	6.3	1.7	4.55	5	1.85	0.10
007	Siaya	S. Ugenya	5.6	0.01	0.14	1.3	2.4	4.95	10	1.76	0.07
008	Siaya	S. Ugenya	5.2	0.06	0.20	2.4	1.1	2.71	4	1.57	0.09
009	Kisumu	E. Kolwa	5.4	0.35	0.54	1.1	5.1	16.36	11	1.78	0.12
010	Kisumu	C. Kisumu	6.0	0.77	0.54	5.1	3.9	14.80	26	1.94	0.11
011	Kisumu	C. Kisumu	6.6	0.27	0.37	9.0	3.9	13.39	45	2.07	0.13
012	Kisumu	C. Kisumu	6.0	0.06	0.93	3.6	2.9	15.49	23	4.15	0.16
013	Kisumu	C. Kisumu	5.2	0.08	0.85	5.1	1.3	9.10	78	2.35	0.13
014	Kisumu	E. Kolwa	6.8	2.49	1.50	16.7	6.7	36.14	61	5.59	0.20
015	Kisumu	Sigoti	6.0	0.23	2.05	10.4	3.9	19.43	42	4.77	0.18
016	Kisumu	Sigoti	5.4	0.20	1.60	7.1	2.6	16.80	25	5.04	0.21
017	Kisumu	Sigoti	6.2	0.21	2.41	11.4	4.2	12.31	44	4.77	0.15
018	Kisumu	S. Nyakach	6.2	0.21	2.62	9.7	3.9	17.66	40	4.47	0.19
019	Kisumu	S. Nyakach	6.0	0.33	1.63	11.3	5.6	24.24	35	3.06	0.17
020	Kisumu	S. Nyakach	6.2	0.20	1.94	9.8	11.1	16.11	36	4.77	0.15
021	Kisumu	Oboch	6.0	1.11	0.38	11.1	1.6	25.03	29	4.29	0.14
025	Vihiga	Lugaa	5.8	0.23	0.50	5.5	1.6	10.59	24	3.12	0.14
029	Vihiga	Lugaa	5.8	0.23	0.34	7.5	1.3	12.43	29	2.51	0.17
030	Siaya	Wagai	5.6	0.23	0.27	4.9	5.4	14.26	14	1.16	0.10
031	Siaya	Ugunja	6.0	0.27	0.48	3.6	1.3	7.35	8	3.06	0.10
037	HVbay	W. Kanyada	6.0	0.30	1.05	24.0	10.1	47.05	176	4.92	1.86
038	HVbay	W. Kanyada	6.1	0.09	0.70	16.0	11.3	11.46	105	4.42	1.46
039	HVbay	E. Kanyada	6.6	0.33	0.53	11.0	9.1	25.55	76	3.42	1.76
040	HVbay	E. Kanyada	6.4	0.37	0.42	14.4	6.7	25.03	59	3.10	1.53
041	HVbay	Kanyamba	6.6	0.72	0.77	30.2	9.8	51.50	168	7.02	2.76
042	Siaya	Nyan'goma	6.3	0.16	0.50	5.4	1.7	10.33	26	2.08	0.14
043	Siaya	Bar Agulu	5.4	0.22	0.37	3.7	2.4	12.75	15	2.75	0.12
044	Siaya	Ugunja	5.1	0.18	0.17	2.0	1.6	3.30	6	1.34	0.05
045	Siaya	Ndega	5.5	0.64	0.15	15.2	12.0	26.50	21	6.35	0.50
046	Siaya	Ndega	5.2	0.24	0.46	7.6	5.5	10.65	15	3.96	0.29
047	Siaya	Seqa	5.7	0.17	0.19	3.6	2.3	5.05	10	2.08	0.08
048	Siaya	Ran'gala	5.3	0.15	0.05	1.9	1.0	1.30	6	1.05	0.04
049	Siaya	Ran'gala	5.1	0.15	0.04	2.0	1.2	2.90	6	1.15	0.05
050	Siaya	Nyawara	5.4	0.19	0.33	7.1	3.7	9.55	22	4.21	0.23
051	Siaya	Ulumbi	5.9	0.29	0.36	6.9	3.3	6.30	57	2.43	0.13
052	Siaya	Ludha	5.9	0.21	0.16	6.5	4.2	6.60	22	2.30	0.11
053	Siaya	Nyagoko	6.7	0.27	0.99	15.4	9.2	16.65	120	4.05	0.16
054	Siaya	Omia Hwalo	7.3	0.89	0.32	21.1	5.6	20.50	61	4.73	0.20
055	Siaya	Omia Hwalo	7.2	0.45	0.94	10.5	14.3	5.65	250	2.24	0.15
056	Siaya	Karwa	6.9	0.39	0.90	9.1	15.8	15.05	137	2.60	0.27
057	Siaya	Kukwiri	6.0	0.49	1.44	13.4	7.1	24.55	214	1.97	0.06
058	Siaya	Ajiro	6.3	0.64	0.33	12.6	5.1	5.95	50	3.25	0.14
059	Siaya	Bar Chando	5.9	0.21	0.97	9.1	6.2	7.10	32	2.53	0.12
060	Siaya	Kaudha	5.3	0.20	0.13	6.1	1.2	7.15	14	3.22	0.10
061	Siaya	Kanyadet	6.1	0.23	0.34	7.1	3.7	9.35	25	3.02	0.11
062	Siaya	Kambure	5.7	0.12	0.32	5.3	3.3	5.55	14	2.43	0.08
063	Siaya	Combe	5.9	0.34	0.30	7.6	3.5	14.35	8	2.56	0.09
064	Siaya	Kuranda	5.5	0.08	0.57	3.1	3.7	5.55	15	1.71	0.07
065	Siaya	Got Ramogi	5.5	0.13	0.75	5.7	3.9	13.45	23	2.37	0.12
066	Siaya	Got Ramogi	6.2	0.27	0.40	5.5	7.6	17.74	33	2.67	0.15

158

APPENDIX G. OFPEP DEMONSTRATIONS IN THE LONG RAINS OF 1995.
 RANKING OF PERCENT GERMINATION OF CROP VARIETIES AT VARIOUS
 DEMONSTRATION SITES IN WESTERN KENYA.

SOIL FERTILITY

TREATMENT	CROP		GERMINATION %	RANKING
COMPOST	MAIZE (MDC)	(N = 17)	73.6	1
CONTROL	,,	(N = 21)	71.9	2
ANIMAL MANURE	,,	(N = 15)	68.4	3
A.M./DAP	,,	(N = 4)	60.6	4
DAP	,,	(N = 21)	57.4	5
COMPOST/DAP	,,	(N = 6)	49.8	6
			63.6	
CONTROL	SEREDO SORGHUM	(N = 20)	82.1	1
ANIMAL MANURE	,,	(N = 15)	76.9	2
COMPOST	,,	(N = 16)	76.5	3
COMPOST/DAP	,,	(N = 5)	61.7	4
DAP	,,	(N = 20)	61.0	5
AM/DAP	,,	(N = 4)	55.2	6
			68.8	
CONTROL	FOOD BEANS (GLP 92)	(N = 6)	53.4	1
ANIMAL MANURE	,,	(N = 5)	47.7	2
AM/DAP	,,	(N = 1)	38.5	3
COMPOST	,,	(N = 3)	36.5	4
DAP	,,	(N = 6)	26.2	5
COMPOST/DAP	,,	(N = 1)	19.1	6
			36.7	
CONTROL	SOYBEANS (NAM 1)	(N = 7)	61.9	1
INOCULANT/AM	,,	(N = 1)	60.7	2
INOCULANT	,,	(N = 8)	56.2	3
COMPOST	,,	(N = 4)	41.8	4
ANIMAL MANURE	,,	(N = 7)	40.2	5
INOCULANT/DAP	,,	(N = 1)	36.8	6
COMPOST/DAP	,,	(N = 1)	31.0	7
DAP	,,	(N = 7)	19.7	8
INOCULANT/COMPOST	,,	(N = 1)	3.0	9
			35.5	
CONTROL	GROUNDNUTS (UGANDA RED)	(N = 4)	38.6	1
COMPOST/DAP	,,	(N = 1)	36.3	2
COMPOST	,,	(N = 2)	24.0	3
ANIMAL MANURE	,,	(N = 3)	20.5	4
DAP	,,	(N = 3)	4.4	5
ANIMAL MANURE/DAP	,,	(N = 1)	3.3	6
			21.2	

OFPEP DEMONSTRATIONS IN THE LONG RAINS OF 1995.
 RANKING OF PERCENT GERMINATION OF CROP VARIETIES AT
 VARIOUS DEMONSTRATION SITES IN WESTERN KENYA.

PRODUCTIVITY.*

CROP	VARIETY		IMPROVED	LOCAL	GERMINATION %	RANKING
MAIZE	H625	(n = 8)	YES	NO	65.8	1
	H512	(n = 22)	YES	NO	64.8	2
	MDC	(n = 21)	YES	NO	61.0	3
	LOCAL WHITE	(n = 19)	NO	YES	53.0	4
	LOCAL YELLOW	(n = 18)	NO	YES	45.9	5
					58.1	
SORGHUM	ANDIWO RED	(n = 1)	NO	YES	88.1	1
	GOPERI	(n = 1)	NO	YES	81.7	2
	SEREDO	(n = 20)	YES	NO	69.0	3
	MTAMA-1	(n = 15)	YES	NO	55.5	4
	ANDIWO-2	(n = 19)	NO	YES	51.2	5
	OCHUTI	(n = 4)	NO	YES	39.9	6
	RABUOR	(n = 1)	NO	YES	22.6	7
					57.6	
FOOD BEANS	GLP 92	(n = 12)	YES	NO	38.7	1
	MCM 5001	(n = 12)	YES	NO	29.1	2
	LOCAL	(n = 8)	NO	YES	28.5	3
					32.1	
SOYBEANS	NAM-1	(n = 12)	YES	NO	36.1	1
	LOCAL	(n = 12)	NO	YES	23.5	2
					29.8	
GROUNDNUTS	HOMA-BAY	(n = 11)	YES	NO	47.1	1
	UGANDA RED	(n = 11)	YES	NO	41.4	2
					44.3	

* All plots were planted with DAP fertilizer, and that is why the germination percentages are rather low because the rains were very erratic on the onset.

Appendix H

Attendees at Training of Trainers Session - Kenya

APPENDIX H. PARTICIPANTS AT THE OFPEP-KENYA TRAINING OF TRAINERS WORKSHOP HELD
TOM MBOYA LABOUR COLLEGE FROM 16TH - 18 JULY, 1995

	N A M E	INSTITUTION	ADDRESS	TELEPHONE
1.	ERIC OCHIENG ODUOL	RC& FDP RANGALA PROJECT	BOX 322 SIDINDI	111 UGUNJA
2.	ALEX MBOTO	ONGIRA WOMEN GROUP	BOX 33 BAR OBER	-
3.	TOBIAS OCHUKA	KEYO WOMEN GROUP	BOX 8041 KISUMU	-
4.	WYCLIFFE OTWAL	MENR - FOREST DEPT	BOX 1048 KISUMU	-
5.	JAPHETH OGUTU	CMAD PROGRAM	BOX 386 SARE AWENDO	0387-43231
6.	DISMAS A ONYANGO	CMAD PROGRAM	BOX 386 SARE AWENDO	0387-43231
7.	CHARLES NYAKORA	CMAD PROGRAM	BOX 386 SARE AWENDO	0387-43231
8.	OYONDI EPHRAIM	MUHANDA PRIMARY SCHOOL	BOX 49 MARAGOLI	-
9.	OTIENO GEORGE B	MENR - FOREST DEPT	BOX 646 HOMA BAY	0285-22616
10.	GEORGE AWITI	CCF-RERA	BOX 124 AKALA	-
11.	JOHN OKELO	CCF-RERA	BOX 124 AKALA	-
12.	MOSES SIGUDA	CARE-AE	BOX 606 SIAYA	0334 21384
13.	SILVESTER O K'OBARE	CARE-AE	BOX 606 SIAYA	0334-21384
14.	ELISHA O OSOYA	K.F.D.P.	BOX 1220 KISUMU	-
15.	JAPHETH OUKO	WORLD VISION	BOX 1240 KISUMU	035-41876
16.	FREDRICK GWEYO	CARE-KENYA	BOX 526 HOMA BAY	0385-22793/5
17.	DISMAS OKELLO	SCODP	BOX 65 UKWALA	21 UKWALA
18.	AUGUSTINE MUMMA	KAWONDA WOMEN GROUP	BOX 1 SIGOTI	-
19.	ROSALIA OGWEL	GRALL	BOX 70 DARAJA MBILI VIA KISUMU	035 51438
20.	SABINAH A ONYANGO	K'ONYANGO WOMEN GROUP	BOX 902 KISUMU	-
21.	MARTIN MADARA	CISS	BOX 76 KISUMU	035-44635
22.	ANDREW O MAGUNGA	Y.M.C.A ORONGO	BOX 6481 KISUMU	-
23.	SELAH OSITA	MUHANDA PRIMARY SCHOOL	BOX 49 MARAGOLI	-
24.	KISERAH ISAAC	GILWATSI SEC SCHOOL	BOX 3 MASANA	-
25.	JOSEPH AGUNDA	CARE-KENYA	BOX 606 SIAYA	0334-21071 0334-21384

162

Appendix I

Minutes of TAT Meeting - Kenya

APPENDIX I. MINUTES OF THE 2ND TECHNICAL ADVISORY MEETING HELD ON JUNE 7TH, 1995.

PRESENT

Rose Sigar - OFPEP - Chairperson
Joseph Agunda - CARE - Siaya
George Awiti - C.C.F. - Rera
Shadrack Malanda - N.S.R.C - Kibos
Japheth Ouko - WV - Kisumu
Njoroge Maina - CARE - Hombay
Erick Ochieng - C.C.F. - Rang'ala
Dr. Moses Onim - OFPEP/
LAGROTECH - East Africa Co-ordinator
Nelson Omondi - OFPEP - Kenya
Christpine Okoth - OFPEP - Kenya
Robert Ondigo - OFPEP - Kenya - Secretary

ABSENT WITH APOLOGY

Chris Andrews - PCV
Charles Nyakora - HAD

ABSENT WITHOUT APOLOGY

Dan Ochieng' - CISS
John Praisewater - PCV
Kimberly Tongate - PCV
Denis Brantigan - PCV

AGENDA

1. Review of Previous Minutes
2. Report on Progress made on Program Activities
3. Collaborating Partners report
4. OFPEPs' Plans for the next 6 months
 - a) Training of Trainers
 - b) Training of Farmers
 - c) Baseline Survey
 - d) Monitoring and Evaluation of Demonstration Plots
 - e) Introduction of New Interventions - Cassava.
5. A.O.B.

The meeting started at 10.45 am 45 minutes late according to the schedule with the chairperson welcoming and introducing the members who had arrived.

MIN 1/95 REVIEW OF PREVIOUS MINUTES

After discussing and going through the previous minutes, a few mistakes were detected and corrected as follows:-

- Minute 4/94 " The main mandates of OFPEP" should read minutes 5/94.
- Minutes 5/94 "Planning for 1st Rainy Season of 1995 should read minutes 6/94.
- On page 4 last line delete words or and for
- On page 5, paragraph 3 second sentence "She said KARI that soil laboratory -delete the word "that"

The minutes were then confirmed and signed as true records.

MIN. 2/95 REPORT ON PROGRESS MADE ON PROGRAM ACTIVITIES

a. OFPEP farmers recruitment and soil surveys

The Chairperson informed the members that the collaborating agents did a good job to organize the farmers groups which made it possible for OFPEP to conduct soil survey and recruitment. These activities were concluded in OFPEP districts as follows.

District	No of groups	Total Group membership	Attendance			Total Present	% Present
			Women	Men	Youths		
Kisumu	11	991	173	23	0	201	20.3
Siaya	4	182	66	6	1	73	40.1
Vihiga	1	33	6	5	1	12	36.4
Homa Bay	1	40	4	1	0	5	12.5
Kakamega	0	0	0	0	0	0	0.0
Migori	0	0	0	0	0	0	0.0
Total	17	1246	249	40	2	291	109.3
Mean	2.8	207.7	41.5	6.7	0.3	48.5	18.2

It was noted that survey was not carried out in Kakamega and Migori Districts but members were informed that it will be done during the second phase of survey.

b. Soil conservation practices by OFPEP farmers groups.

A long side soil survey farmers recruitment, soil conservation practices by Farmers Groups was also concluded and the outcome was as follows:-

Soil conservation practices.

NAME OF FARMER GROUP	NUMBER PRACTICING					% PRACTISING CONSERVATION
	TERRACING	STRIP GRASS	CONTOUR PLOUGHING	STONE TERRACING	WINDROWING MULCHING	
MAHITAJI	2	1	12	0	1	23
MUHANDA	11	0	11	0	0	36
KAWUONDA	6	0	4	0	0	10
KASANGO	4	1	5	0	0	20
ST. CHRISTINE	12	0	12	0	0	30
KASONYE	0	8	14	0	0	11
KONYANGO	0	0	0	0	0	0
ORONGO	0	0	0	0	0	0
GOT OLUOWA	3	2	16	13	0	43
RAE	0	0	0	0	0	0
SANGO	8	5	14	0	1	36
NG'ATO	6	2	16	0	0	33
SIDINDI	2	3	11	0	1	23
LUANDA	4	0	10	0	1	10
TECHNOLOGY TOTAL	60	22	125	13	4	260
TECHNOLOGY MEAN	4.3	1.6	8.9	0.9	0.3	20

Soil fertility improvement

During soil survey exercise, the members were informed that all farmers groups interviewed strongly stated that they have problem with soil fertility. This prompted to find out practices used by farmers in soil improvement. The method to conduct the survey is shown below.

Soil improvement practices in Kenya OFPEP districts.

NAME OF GROUP	% Farmer Suffering Low soil Fertility	% with live stock	% U S I N G					
			Animal Manure USE	Not use But Have Live stock	Compost	Agro-Forestry fertilizer	Inorganic fertilizer	Rhizobial Inoculant
MAHITAJI	100.0	92.9	61.2	38.5	0.0	0.0	0.0	0.0
MUHANDA	100.0	72.7	100.0	0.0	100.0	0.0	9.1	0.0
KAWUONDA	100.0	90.0	61.1	38.9	0.0	0.0	0.0	0.0
KASANGO	100.0	60.0	100.0	0.0	10.0	0.0	0.0	0.0
ST.								
CHRISTINE	100.0	75.0	91.0	8.3	0.0	0.0	50.0	0.0
KASONYE	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0
KONTANGO	100.0	66.7	21.4	78.6	0.0	0.0	0.0	0.0
ORONGO	26.3	78.9	0.0	100.0	0.0	0.0	0.0	0.0
GOT OLUOWA	100.0	81.3	69.2	30.8	6.2	0.0	0.0	0.0
RAE	100.0	47.8	27.3	72.7	0.0	0.0	0.0	0.0
SANGO	100.0	53.0	62.5	37.5	80.0	0.0	0.0	0.0
NG'AYO	100.0	87.5	28.6	71.4	93.8	0.0	0.0	0.0
SIDINDI	100.0	58.3	71.4	28.6	66.7	0.0	0.0	0.0
LUANDA	100.0	20.0	100.0	0.0	40.0	0.0	0.0	0.0
TECHNOLOGY								
TOTAL	1326.3	984.4	694.0	505.0	396.7	0.0	59.1	0.0
TECHNOLOGY								
NS %	94.7	70.3	63.9	36.1	28.3	0.0	4.2	0.0

From the above data, it was noted that many farmers had livestock but some do not use the animal manure at all. For Agroforestry, it was confusing because many farmers have indigenous trees on their farms from where they get wood fuel and do not realize that these trees also conserve soil. Regarding inorganic fertilizers, members felt that farmers did not tell the truth as this can be seen on crops growing that fertilizers were used. The Rhizobia inoculant was totally unknown to the farmers. The chairperson, therefore informed the members that OFPEP has carried out several demonstrations on farmers groups plots in the OFPEP districts using various fertilizers and manure for farmers to see for themselves and choose which method fertilizer/manure they should use.

c. Soil samples for laboratory test

Since all farmers interviewed during soils survey exercise indicated that they had problem with soil fertility, OFPEP arranged to take soil samples from different demonstration sites for laboratory test. The soil samples were taken from fifty five (55) sites from the six OFPEP district and taken to KARI at Kibos National Research Station for laboratory test. The test was to determine the amount of organic matter, phosphorous, nitrogen and other important plant nutrient bases. The KNSRS did a commendable job within a short period and gave the results as shown in the table below.

160

SOIL CONTENTS OF ORGANIC MATTER, PHOSPHOROUS, NITROGEN AND IMPORTANT NUTRIENTS BASES IN OFPEP DISTRICTS.

DISTRICT	%			Bases (me/100g)			
	O.M	N	P(ppm)	K	Na	Ca	Mg
Deficient if:	<4.0	<0.2	<20.0	<20.0	<0.1	<4.0	<1.0
Kisumu (n=17)							
Deficient	6	15	2	0	2	3	0
Adequate	11	2	15	17	15	14	17
% Deficient	35.3	82.4	11.6	0.0	11.8	17.6	0
Siaya (n= 6)							
Deficient	6	4	6	1	3	3	0
Adequate	0	2	0	5	3	3	6
% Deficient	100.0	66.7	100.0	20.0	50.0	50.0	50.0
Homa Bay (n=5)							
Deficient	-	-	0	-	-	0	0
Adequate	-	-	5	-	-	5	5
% Deficient	-	-	0.0	-	-	0.0	0.0
Vihiga (n= 5)							
Deficient	2	2	0	0	0	0	0
Adequate	0	0	2	2	2	2	2
% Deficient	100.0	100.0	0.0	0.0	0.0	0.0	0.0

Note that Higori and Kakamega districts have not yet been sampled.

From the table above it was noted that: Siaya district lacked OM, N, P, Na and Ca and most seriously organic matter, Phosphorous and Nitrogen which must be addressed. Kisumu district lacked Nitrogen and Organic and other nutrients a lesser degree. Vihiga district with two sites showed that there was lack of organic matter and nitrogen while Homa Bay showed it was sufficient in phosphorous, calcium and magnesium.

d. Demonstration sites

During the previous six months, the members were informed that OFPEP collaborating with CARE, CCF PCs, and the Ministry of Agriculture Livestock Development and Marketing planned and staged 24 demonstration sites to test for productivity using different varieties of seeds and applying DAF to all of them. For fertility using same variety of seed but different treatment with DAP, Animal manure, Compost, Inoculant and Control. There is one site for Agro-forestry planted with Sesbania to improve fallow land. This is to bring wide range of technology in soil improvement to enable farmers choose which method they prefer. The demonstration sites are distributed in the OFPEP districts as follows:-

OFPEP DEMONSTRATION SITES

DISTRICT	PRODUCTIVITY	FERTILITY	AGRO-FORESTRY	TOTAL
SIAYA	8	8	0	16
VIHIGA	2	2	0	4
KISUMU	7	7	1	15
HOMABAY	6	3	0	9
HIGORI	0	1	0	1
KAKAMEGA	1	1	0	2
TOTAL	24	22	1	47

e. **Training**

During the last six months OFPEP has conducted two trainings in upper Nyakach and Huhanda Primary School for both Trainers and farmers which were attended by 217 people with the breakdown as follows:-

DATE	VENUE	A T T E N D A N C E				
		Trainers	Men	Women	Youth	Total
13.12.91	Oboch Health Center Upper Nyakach	5	5	35	0	45
31.5.95	Huhanda Pr. School Vihiga	11	15	20	126	172
Total		16	20	55	126	217

The training exercise is still continuing

f. **Monitoring/Evaluation**

Members were informed that OFPEP staff have gone round all the six district during the months of March, April and May monitoring seed germination and plant performance in regard of treatment used. During the exercise, OFPEP reported that there was generally poor germination particularly in plots where DAP was applied and also farmers seeds showed poor germination. The poor germination could have been contributed due to dry weather, poor seeds and DAP not being thoroughly mixed with soil before placing the seeds in the hole. The ranking of percent germination of crops varieties and fertilizers used are given below.

OFPEP-KENYA RANKING OF PERCENT GERMINATION OF TREATMENTS USED AT VARIOUS DEMONSTRATION SITE IN THE LONG RAINS OF 1995

Treatment	crop	germination %	Ranking
AH/DAP	MAIZE (MDC) (n=17)	73.6	1
CONTROL	(n=21)	71.9	2
COMPOST	(n=15)	68.4	3
DAP	(n=24)	60.6	4
ANIMAL MANURE	(n=21)	57.4	5
COMPOST/DAP	(n=6)	43.6	6
CONTROL	SORGHUM SEEDS (n=20)	62.1	1
COMPOST	(n=15)	76.5	2
AH/DAP	(n=16)	76.5	2
COMPOST/DAP	(n= 5)	61.7	3
ANIMAL MANURE	(n=20)	61.0	4
DAP	(n=24)	55.2	5
CONTROL	FOOD BEANS GLF 92 (n= 6)	53.4	1
ANIMAL MANURE	(n= 5)	47.7	2
AH/DAP	(n= 1)	35.7	3
COMPOST	(n= 3)	36.5	4
DAP	(n= 6)	26.2	5
DAP/COMPOST	(n= 1)	15.1	6
CONTROL	GROUNDNUTS UG. RED(n= 4)	35.6	1
INOCULANT/AH	(n= 1)	36.3	2
INOCULANT/DAP	(n= 2)	24.0	3
COMPOST/DAP	(n= 3)	20.0	4
DAP	(n= 3)	4.4	5
INOCULANT/COMPOST	(n= 1)	3.3	6

101

From the above tables the members noted that plots planted with DAP and inoculant generally have poor germination as compared to the control plots. They therefore, remarked that with the use of any manure, be it commercial fertilizer or organic manure, if not applied properly will lower the germination of seeds. The farmers must, therefore be trained on how to apply them as follows;

- Commercial fertilizers, (DAP, TSP, DSP) use correct amount and thoroughly mixed with soil before placing seeds.
- Inoculant when mixed in sugar solution together with the seeds, this should be done under shade and planted immediately when the soil is wet. In dry soil the sugar will pull water from the seed which will affect germination.
- For Organic manure, this must be tested for readiness, and if ready then correct amount put in the hole mixed with soil before planting. Action OFFEP/Collaborating Agents.

MIN. 3/95 COLLABORATORS REPORTS

The CARE team reported that at the launching of the OFFEP they were worried that OFFEP would provide farmers with the required farm inputs while they CARE does not do that which they thought would interfere with their operations. Later they realized that everything was running smoothly hence promised to collaborate effectively and work hand in hand with OFFEP. They also commended OFFEP and KARI for having carried out soil survey and tests whose results were ready at the time of the meeting. After along discussion on collaborators reports, the following agreements were reached and resolutions passed that;

- The Collaborators are advisors of the OFFEP and should be the implementers.
- The collaborating agents should exchange visits among themselves to learn from one another.
- Training of Trainers should be Residential and last for at least two (2) days.
- Farmers Training to be held at their place or farm and should be for a day only.
- Four demonstration plots (sites to be reported and those successful ones to go on for adaption).
- For demonstration plots OFFEP will provide packages and collaborators will use their extension agents to do the planting and later monitor the performance of the crops. But they (extension agents) must be trained and given the lay out of the plots. Such trainings must be carried out and farm lay out be given out in good time to avoid late planting.
- Collaborators should select good areas not necessarily fertile soil but where there are no trees in the field, avoid ant hills and deep valleys as such would affect the performance of the crops. If possible the sites should be near the roads where people passing can be able to see the crops growing.
- Visitors books should be provided and be used by the farmers to record people who visit their plots.

MIN. 4/95 OFFEP PLAN FOR THE NEXT 6 MONTHS

OFFEP informed the members that during the next six (6) months it will carry out the following activities.

- Training of Trainers to held in July which will be mainly on seed selection and storage soil conservation, use of A frame, Soil fertility Agroforestry and composting.
- Training of farmers at their farms to go on during the months of June and July 1995.
- Baseline survey to continue and collaborators to assist as the CCF had already collected nutritional data.
- Monitoring and evaluating the performance of the crops on the demonstration plots to continue and assisted by the collaborators.
- Carry out the harvesting, threshing and weighing grains from the demonstration plots.
- In addition to the existing crops used in the demonstration plots, OFFEP felt that Cassava should be introduced as it is one of the major food crops in Siaya and Boma- Bay and is being affected by Cassava Mosaic.

AGB

- World Vision staff from Kisumu informed the members that Kano Koba was being flooded due to heavy rains. The members requested OFFEP to check with the Ministry of Agriculture Livestock Development and Marketing how serious the situation is and find ways of handling it.

There being no other business, the meeting ended at 3.00 p.m.

The next Technical Meeting will be held in three (3) months time, that is September, 95.

Chairman Secretary
Date

169



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The Country co-ordinator, On-Farm Productivity Enhancement Program (OFPEP), Mr Ben Ekkoor (right with a book), handing over a bicycle to the lead farmer, Mr Musa Muwambi (left), of Ngogwe sub-county at Ngogwe Gombolola Headquarters, Mukono district on Saturday. This was after a two months agricultural competition organised by Uganda Association for Social Economic Progress (USEP) a local NGO. The competition emphasised homestead improvement, disease and pest control, soil conservation, family life standards, and extension record keeping.

Appendix J

Organizations and Institutions Collaborating with OFPEP

Organizations, Institutions Collaborating in OFPEP Implementation.

Entity	Senegal	Gambia	Uganda	Kenya	Ethiopia
Winrock International	L	•	•	L	•
PVO/University Center	•	•	•	•	•
Rodale International	•				
Christian Childrens' Fund	•		•	•	•
World Vision	•		•	•	•
Senegal Institute for Agr. Research (ISRA)	X	X			
Diapante	•				
Anambe Farmer's Association	•				
West Africa Rice Development Assn. (WARDA)	X	X			
IITA	X	X			
Agr. Cooperative Dev. Intl. (ACDI)			L		
Multipurpose Trg. & Empl. Association			•		
Buzaama Growers Coop. Society			•		
Makerere University	X		X		
U.S. Peace Corps			•		
Talent Calls Club			•		
Assn. for Social & Econ. Prog.			•		
CIAT	X		X		
CIMMYT			X		
IITA			X		
National Agr. Research Org. (NARO)			X		
CARE			•	•	
Mobilizing Against Desertification				•	
Int. Center for Res. in Agroforestry (ICRAF)			X	X	
Grail Community				•	
Lagrotech				•	
Food Industry Crusade Against Hunger (FICAH)				•	
Kenya Agric. Res. Institute (KARI)				X	
Catholic Relief Services		•			•
Save the Children		L			•
Africa Village Academy					L
Sasakawa/Global 2000					•
VOCA					•
Oromya Agr. Dev. Bureau					•
Agri-Services					•
Tech. & Service Commission					•
Freedom from Hunger Campaign		•			
ActionAid		•			
Assn. Farmers, Educators, & Trainers		•			
Good Seed Mission		•			
FORUT		•			
People-in-Action		•			
Worldwide Intl. Foundation		•			
Gambia Rural Dev. (GARDRA)		•			
Gambia Rural Dev. (GARUDA)		•			
Gambia Research Institute		X			
ILRI					X

• = implementing organization/NGO

L = country lead agency

X = research institution

Appendix K

Report on Survey on Improved Rice Seed and Technology Adoption Rate

FOOD PRODUCTION SECTOR

REPORT ON

SURVEY ON IMPROVED RICE SEED

AND

TECHNOLOGY ADOPTION RATE

COMPILED BY: ALHAJI BAH
APRIL, 1995

174

INTRODUCTION

This is a follow-up survey report to the one which was done in May, 1993. This covers 9 rice growing communities within the impact area. A random sample of 227 farmers was selected and interviewed on technology and seed adoption rates. A list of rice growers for each of the nine villages was used to draw a 15 percent random sample of farmers. For the distribution of respondents by community refer to figure 1.

DATA COLLECTION

Four enumerators plus a supervisor were contracted from the Central Statistics Department to carry out the survey in these villages. A one day training was carried out by the Food Production Coordinator aided by the Monitoring and Evaluation Officer. The enumerators who were very familiar with the interview techniques were introduced to the local variety names for improved rice varieties and also mock interviews were carried out to translate the questionnaire into Mandinka.

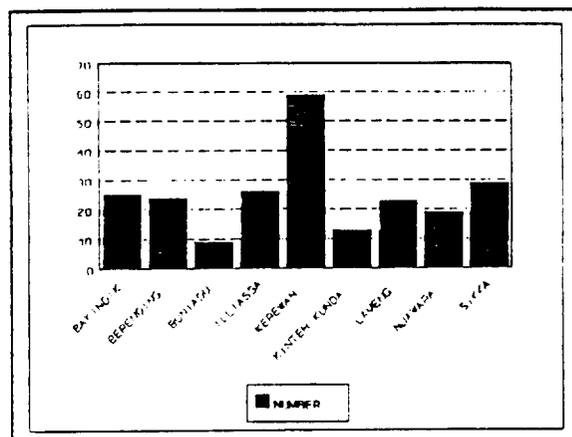


Figure 1 NUMBER OF RESPONDENTS BY VILLAGE

RESULTS

This survey unlike the baseline has some background information about the individual rice growers. This is necessary to build a profile of each farmer in order to be able to gauge any impact that may occur in the living standards of the beneficiaries over time. Consequently data on household members have been gathered i.e number of children attending schools by gender and also the number that is not attending school. For the 227 farmers interviewed there is a total of 479 male household members and 642 female members. The number of children not attending school is 1068 and out of those 614 are girls. This is not a surprising finding since more boys are generally being sent to school.

The 227 farmers have cultivated a total of 1,717 plots compared to 1,325 plots in 1993 by 256 farmers. These plots are of varying sizes but mostly they are less than one hectare. The average number of plots per farmer in 1995 is 8 compared to 7 in 1993.

TECHNOLOGY ADOPTION

From 1,717 plots, 551 are claimed to be planted with improved varieties which represents 32 percent of the plots. Compared to the baseline this a significant increment because in 1993 only 18 percent of the plots were planted with improved varieties.

In the 1995 survey, 9 percent are growing Peking compared to 44 percent in the baseline survey, this is a dramatic drop in two years but a possible explanation is the suitability of certain varieties for specified ecologies and also the availability of more improved varieties now than two years ago. The agency also in an attempt to disentangle itself from the continuous reliance on it for seeds Save the Children is not multiplying Peking any more. There is an increment in the number of people growing Rock 5, in 1995, twenty one percent are growing Rock 5 compared to 12 percent in 1993. Due the Agriculture Natural Resource (ANR) intervention water retention in the rice fields has increases making the ecology suitable for long maturing varieties like Rock 5. BG-90 have registered a drop of 3 percent in the number of farmers adopting it.

Out of the 227 women interviewed 48 percent are row seeding compared to 44 percent in the baseline survey. This is a slight increase in the number of farmers row seeding within a two year period. Fifty percent claimed to be seeding by broadcasting, compared to the baseline there is a drop in the number of people broadcasting. Asked why they are not row seeding 62 percent claimed that they don't have machines compared to the baseline when only 47 percent advanced that reason. In 1995, nine percent of the respondents claimed that the ecology will not allow them to row seed, this compares favourably to the baseline figure of 1993. As ANR expands water retention capacity in the lowland is likely to increase thus affecting row seeding but increasing transplanting. Eighteen percent of the respondents in 1995 claimed that they don't know about the technology, compared to the 27 percent in 1993, there is drop in that category of people stating ignorance as a hinderance to row seeding.

Sixty-eight percent of the respondents are convinced that row seeding yields more. This percentage remains the same even after two years. There is still 27 percent who are convinced that broadcasting yields more. Compared to the baseline there is two percentage points increment over the period under review. Seven percent of the respondents are not still convinced which of the two technologies yields more. It should be noted that the ultimate objective of the promotion of row seeding is easy field management not because of yields since this is yet to be proved scientifically.

Regarding weeding most of them agree that row seeding is easier to weed (93%) compared to 92 percent in the baseline. Since 17 percent

in 1993, and 33 percent in 1995 claimed that weeds is a limiting factor to their productivity therefore special attempts should be made to convince rice farmers to adopt the row seeding technology otherwise food security will be difficult to achieve. Four percent of the respondents claimed that broadcasting is easier to weed compared to 3 percent in 1993. Asked what their plans are since row seeding reduces labour demand than broadcasting. Sixty nine percent indicated their willingness to row seed next year, the rest are not going to row seed because of lack of machine (53), no money to hired machines (7%) and 2 percent advanced ecological reasons and the rest are undecided about the technology.

In the 1995 survey, attempts were made to find out whether people attended the demonstration trainings that the agency conducts. Nine percent of the women interviewed claimed that their husbands attend demonstration trainings, 42 percent of the women claimed to have attended demonstration trainings whilst 49 percent was other family members attending. It is apparent that not many husbands attend the demonstration trainings, which can be interpreted as low level of male participation in rice growing. This is reinforced by the finding that 10 percent of the husbands don't assist their wives because it is felt that rice growing is essentially for women. This attitude will certainly negate against the attending of rice growing demonstration trainings.

Due to the fact that the promoted technology requires animal traction the women were asked whether their husbands assisted them in the rice fields. Compared to the baseline survey there is a drop of 3 percentage points in the percentage of husbands who assist their wives in the rice fields. It is apparent that the level of assistance that husband give to their wives is on the decline as can be seen from the pie chart.

An interesting finding is that 27 percent of the women are not stating whether they received assistance from their husbands. This points to the cultural difficulties that women have in stating the truth about their husbands especially to a relative stranger. As was lamented in the baseline survey " a women remarked that men are confined to their farms and women to their faros(rice fields), that is why they will never help us." Asked why their husbands will not assist them

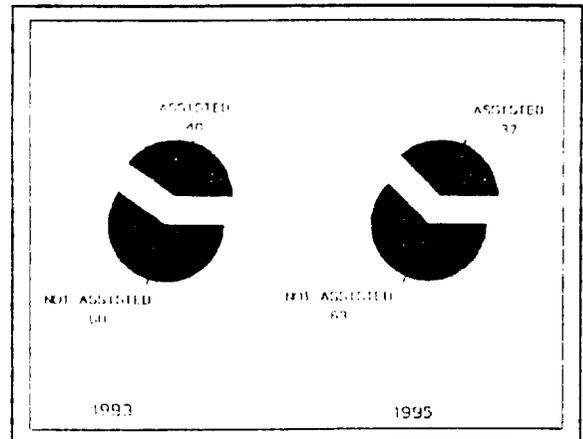


Figure 2 ASSISTANCE RENDERED WOMEN BY THEIR HUSBANDS ON THE RICE FIELDS

74 percent stated no reason, 11

percent highlighted that their husbands are busy, and 5 percent stated their husbands are too old, whilst 10 percent stated it is a woman's work.

Compared to the baseline where 35 percent were claiming that they are not receiving assistance because their husbands are busy, in the 1995 survey only 10 percent are giving that reason. This is a significant reduction within a two year period but what is conflicting is that 74 percent are not stating the reason why their husbands are not assisting them.

In regards to the varieties promoted by Save the Children, Peking and Parasana are very popular among the rice growers. Twenty three percent have adopted Peking and Parasana, this may be because Peking and Parasana are typical upland varieties that are early maturing and are less affected by salt intrusion. Asked why they have adopted the varieties 76 percent claims that these varieties yield more, 9 percent stated that it taste good, 12 percent stated that the varieties are early maturing.

It is apparent that the rice farmers are highly interested in varieties that yield more to increase their food security. The yield aspect ranks higher than any other quality of the two varieties. This is followed by maturing date as can be seen from the graph. It is unfortunate that there is no similar information from the baseline for comparison.

Regarding the source of information for these varieties 34 percent claimed SCF, 45 percent neighbours, 21 percent others (Agric). It is pleasing to note that the neighbour of the farmer is an important source of information about improved varieties. This is a celebrated development within the food sector and paves the way for sustainability. It can be safely assumed that if neighbours are leading in the provision of information on improved seeds they are likely to be effective distributors of seeds if they attain food security levels.

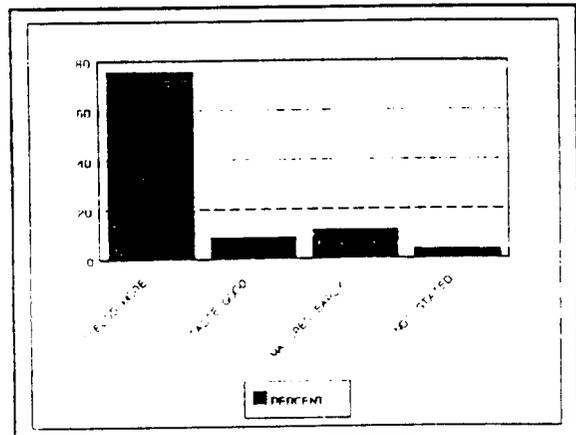


Figure 3 REASONS FOR ADOPTING A VARIETY

Regarding source of seeds, 45 percent are obtaining their seeds from Save the Children compared to 52 percent in the baseline; 24 percent are relying on the Agriculture compared to the 11 percent in the baseline. A total of 29 percent are obtaining their seeds from the village compared to 22 percent in 1993. Overall there is

178

a reduction on the reliance on the Save the Children for yearly seed requirement (7 percentage points), but on the other hand there is an increased reliance on the Agriculture Department from 11 percent to 24 percent which is very significant. The village is continuing to be the second highest source of seeds apart from Save the children.

The issue of storage is a difficult one especially if farmers have to attain food security level. They will mostly keep seeds but once they are hit by the hungry season they are likely to consume the seeds since the seeds which are mostly kept in a local store which is very accessible to them. This is supported by the finding that 95 percent of them claim to be keeping their annual seed requirement, yet still there is a heavy reliance on Save the Children and Agriculture for seeds. Even from the baseline, 99 percent claimed to keep their own seeds and in that year there was more reliance on the agency for seeds than now.

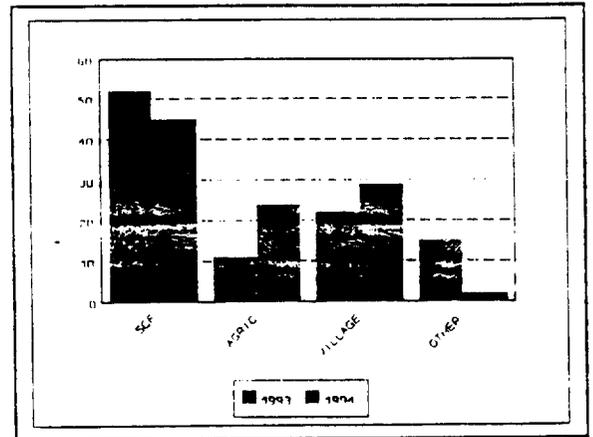


Figure 4 SOURCE OF IMPROVED SEEDS

Asked whether they know some farmers who reside outside of the community and have adopted improved varieties promoted by Save the Children, 36 percent stated yes. Asked how many, a total of 3,108 farmers were reported to having adopted improved varieties of rice. Compared to the baseline were only 89 farmers adopted the variety outside of the village, this is a very significant increment within a time span of two years. This reveals a significant impact beyond our area of operation.

Regarding factors limiting production, 28 percent (1995) claimed that salt water intrusion compared to 21 percent in the baseline; animal traction was cited as another factor limiting productivity 23 percent compared to 29 percent in the baseline survey. In the post baseline survey weeds have been identified as a major factor affecting productivity 33 percent compared to 17 percent in the baseline survey. It should be noted that weeds ranks higher on the factors which affects productivity followed by salt water intrusion. Animal traction still features as a problem but it has reduced from 29 percent to 23 percent. The issue of weeds may be easier to tackle than the issue of animal traction and combating salt water intrusion.

Regarding what conservation practices they are doing at their level to combat salt water intrusion, 90 percent stated that they construct local dikes as a measure to enhance water management and

control salt intrusion in their rice fields. The remaining 10 percent indicated that they don't know what to do to conserve the soil.

For 227 respondents interviewed the total yields reported and converted into Kilograms is 125,163. This is a dramatic improvement over a two year period compared to 15,928 kgs which was the total yields in 1993. The average yield per interviewed farmer is 551kgs in 1995 compared to 58 kgs in 1993.

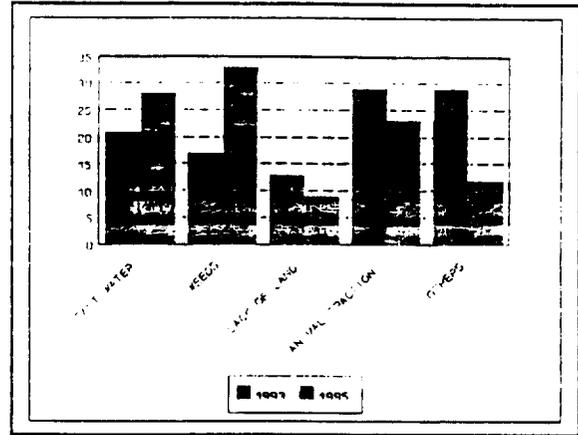


Figure 5 FACTORS LIMITING PRODUCTION OF RICE

In two of the Agriculture and Natural Resource intervention villages, Bakindik and Kerewan average yields per sampled farmer has increased significantly within the two year period. In Bakindik alone average yields has increased from 100kgs per sampled farmer in the baseline to 365kg after two years, similarly in Kerewan average yields per farmer has increased from 69 kgs to 634 kgs per sampled farmer. For Njawara the average yield per sampled farmer is 726 kgs this is very significant since Njawara was at zero yields during the baseline survey. The reason for low production in Bakindik can be attributed to late start in rice cultivation due to the fact that the women were using the same site to grow vegetables. These 3 communities alone accounted for 48 percent of the total yields from these 9 communities, therefore it is abundantly clear the ANR intervention can significantly improve food security level within a short period of time.

In attempt to assess the food security levels farmers were asked for how long will their yields last them. It is interesting to note that compared to the baseline there is more enhanced food security now than during the baseline survey.

As can be seen from the graph in 1993, 38 percent claimed that their produce will last them between 4- 6 months, in 1995 that percentage has increased to 46 percent. Similarly in 1993, 14 percent were claiming that their produce will last from 7- 9 months this figure has doubled in 1995. This is a tremendous improvement within a two year span. Overall 31 percent of the farmers have produced rice that will last them from 7- 12 months in 1995 compared to 15 percent in 1993. This finding is corroborated by the Focus discussion finding were farmers cited that their produce will last them for at least 6 months. It is apparent that complete food security is not attained but farmers are moving rapidly towards attaining that. Comparison was made among the Agriculture and Natural Resource intervention villages of

180

Bakindik, Kerewan and Njawara. These 3 communities alone accounted for 48 percent of the total yields realised this year. The community of Kerewan registered a total of 634 kgs per sampled farmer, this is very significant compared to 69kgs during the baseline. Similarly Bakindik was 101kgs per farmer and after two years it is 365kgs per sampled farmer. Njawara is a special case in that no rice was being grown in Njawara before the intervention and they registered a total of 727kgs per farmer.

Regarding other crops that women grow apart from rice 70 percent reported that they grow vegetables as a cash crop during the dry season and 30 percent grow cassava and pumpkins as a source of income since they don't monetised the rice. Asked whether they have any savings in the bank, 4 percent of the interviewed women stated that they have savings amounting to D10,600.

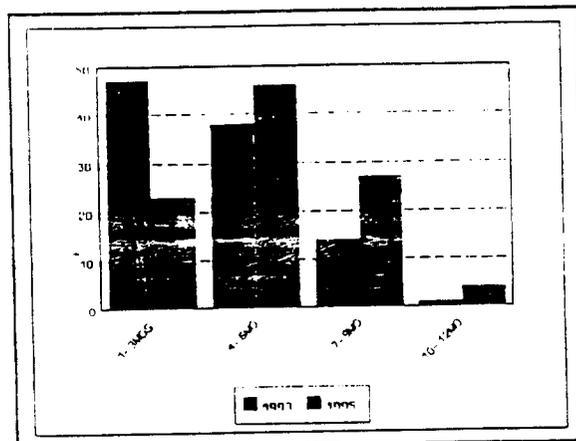


Figure 6 NUMBER OF MONTHS WHICH RICE PRODUCED CAN MEET CONSUMPTION

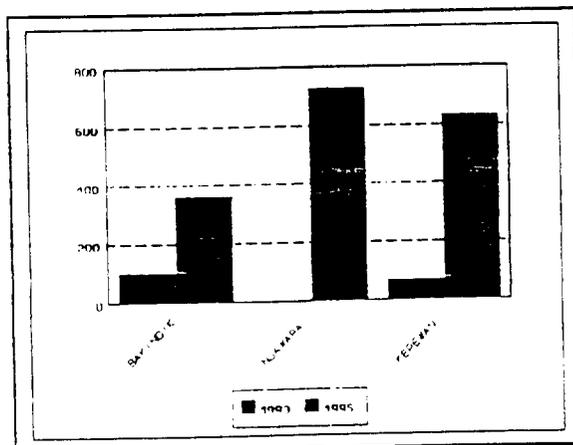


Figure 7 AVERAGE YIELDS PER SAMPLED FARMER FOR 1993 AND 1995

CONCLUSIONS

1. Food security level has increased rapidly over the two year period especially in the intervention villages. 31 percent of the farmers have produced enough rice to last them between 7 to 12 months compare to 15 percent in the baseline.
2. 48 percent of the women interviewed are row seeding compared to 44 percent in the baseline.
3. More farmers (62%) are claiming that they are not row seeding because of lack of machine. Compared to the baseline this figure has increased by 17 percentage points.
4. More fields are planted with improved varieties of rice.
5. 69 percent of the farmers have plans to row seed next year despite all the constraints associated with the technology.
6. More farmers are opting for the varieties that yield more and also early maturing.
7. Compared to the baseline there is a reduction in the reliance on SCF for yearly seed requirement. The farmer to farmer exchange accounts for 29 percent this has also increased compared to the baseline.
8. Many people beyond the impact area have adopted improved varieties over 3,108 farmers compared to the baseline were only 89 adopted the varieties outside of the village this is very significant increment within a time span of two years.

RECOMMENDATIONS

1. It is critical for the agency to encourage farmers to safely store their seeds in a place that is away from their house to minimize the danger of consuming them before the rainy season. This could be achieved if they make use of the existing stores in most of these villages instead of keeping the seeds in their local stores.
2. The need for animal traction for women is paramount and the sector needs to seriously look at possible ways of making it accessible to women even if it is on a loan basis.
3. More emphasis should be laid on motivating husbands to assist their wives on the rice fields since this is still lacking as a short term solution to the lack of machines.
4. More farmer trainings should be organised and husbands of rice farmers should be motivated to attend since this can eventually change their attitude towards rice growing.

5. Since 17 percent in 1993, and 33 percent in 1995, claimed that weeds is a limiting factor to their productivity therefore special attempts should be made by the Food Sector to convince rice farmers to adopt the row seeding technology otherwise food security will be difficult to achieve.