

PD-ABP-961

95947



INSTITUT SENEGALAIS DE RECHERCHES AGRICOLES
NATURAL RESOURCES-BASED AGRICULTURAL RESEARCH PROJECT
(NRBAR)

**MONITORING AND EVALUATION PLAN
FOR THE NRBAR PROJECT**

JUNE, 1994

DRAFT FOR FINAL REVIEW

in collaboration with
The United States Agency for International Development (USAID)
USAID Project Number: 685-0285
and
The Consortium for International Development (CID)
USAID Contract Number: 685-0285-C-00-2329-00

~~ISRA Document Number 94/~~

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EXECUTIVE SUMMARY

This document presents the Monitoring and Evaluation Plan (MEP) for the Natural Resources-Based Agricultural Research (NRBAR) project, led by the Institut Sénégalais de Recherches Agricoles (ISRA), in collaboration with the Consortium for International Development (CID) and the USAID Senegal. The main objective of the project is to strengthen and enhance the capacity of ISRA as an institution, where innovative, applied and effective natural-resources based research will occur at an accelerated rate. Through ISRA the project addresses Senegalese farmers' needs for low-cost, natural resources-based agricultural technologies, that will result in sustainable productivity increases in their cereals-based cropping (and other production) systems.

Research that leads to the identification, development, and diffusion of technologies or practices that promote long-term increases in natural resources-based production systems is one of the key elements in achieving the goal of improved quality of life and standard of living for rural Senegalese. For this reason, the NRBAR MEP is organized in terms of a Strategic Framework for technology development and transfer recently developed by USAID Washington, which incorporates the findings of recent studies by the World Bank and International Agricultural Research Centers. The Strategic Framework is organized into five successive levels that can serve as a reference for planning, monitoring and evaluating agricultural projects and programs. Level 1 (the capacity to develop/adapt technology) and Level 2 (the accelerated development and transfer of agricultural technology) represent the areas targeted by NRBAR project activities. Together, these levels constitute an "enabling environment" that logically precedes the widespread adoption of technology by the end users (producers, processors, or storage/merchants) that constitutes Level 3. Over time, and as the adoption of appropriate technologies spreads, there will be corresponding positive changes in the biophysical environment (Level 4). An improved or stable biophysical environment in which appropriate technologies are used will result in improved potential for long-term increases in productivity and income (Level 5). One benefit of conceptualizing the NRBAR project in this framework is that it facilitates the design of a MEP that will generate information to meet the needs and concerns of numerous decision makers in ISRA/NRBAR, USAID Senegal & Washington, and the Government of Senegal.

For each of these levels the MEP suggests appropriate indicators to organize the collection of information that can be used to measure progress as well as the impact of project activities. Likewise, a system is recommended for the circulation of information that specifies who is responsible for putting into an accessible form, and when it will be available. For each level there are slightly different baseline requirements. Suggestions are made for how and when the gaps in the baseline are to be filled. The MEP is not a

rigid plan. Rather, it sets a framework that is flexible enough to encourage ongoing assessments that can capture the "lessons learned" from project implementation. It also provides a framework for future project evaluations that will determine the character and magnitude of project success and impact.

The M&E system is designed for use by ISRA staff, with the collaboration of NRBAR technical assistance personnel. It is hoped that the NRBAR monitoring and evaluation system will serve as a model for what could develop for other projects, and for ISRA as a whole. By 1995 efforts to improve ISRA's capability to monitor project and program activities in relation to ISRA's overall goals will be well established. In the meantime, it is hoped that as ISRA collaborators participate in the NRBAR M&E system some of the important issues for monitoring ISRA activities will be developed.

TABLE OF CONTENTS

Executive Summary	i
Introduction.	1
Goals of Monitoring and Evaluation	3
Evaluation	4
The Framework for Monitoring and Evaluation.	5
The Monitoring Plan.	9
Level 1 - Capacity to Develop and Adapt Technology.	10
Researcher Planning Program.	10
Natural Resources Management Program	13
Outreach Program	14
Financial Management Program	15
Research Grants Program.	16
Monitoring Program Activities.	18
Baseline for Level 1	20
Recommendations for Collection of Level 1 Baseline Data.	21
Level 2 - Accelerated Development and Transfer of Agricultural Technology and Conditions that Encourage Adoption.	22
Level 2 Monitoring	24
Recommendations for Collection of Level 2 Baseline Data.	25
Level 3 - Diffusion and Adoption of Technology by People	26
Level 3 Monitoring	27
Recommendations for Collection of Level 3 Baseline Data.	28
Level 4 - Biophysical Changes in Natural Resource Base.	29
Monitoring Level 4	29
Level 5 - Improve Potential for Long-term Increases in Productivity and Income.	30
Monitoring Level 5	30
Data Management and Geographic Information Systems.	31
Implementation Plan and MEP Summary	32
Bibliography.	37
Acronyms.	40

ANNEXES

Annex 1 - Notes on Participation	
Annex 2 - Notes on Project Logframe	
Annex 3 - Example of Impact Indicators for NR Technology	
Annex 4 - Questions for Progress on Process for Monthly Reports	
Annex 5 - Terms of Reference	

TABLES

Table 1 - NRBAR Logframe, Part 1	6
Table 1 - NRBAR Logframe, Part 2	7
Table 2 - Indicators for Improved Management of Research, Finances and Human Resources	11
Table 3 - Indicators for Strengthened Institutional Linkages	12
Table 4 - Indicators for Improved Staff Skills	13
Table 5 - Indicators for Effective Adaptive Research Program.	13
Table 6 - Indicators for Improved Research Extension Linkages	15
Table 7 - Indicators for Improved Financial Management	16
Table 8 - Organizational Framework for Monitoring Project Programs	19
Table 9 - Baseline Information for Level 1 - Capacity to Develop and Adapt Technology.	20
Table 10 - Indicators for Improved Technologies Available from ISRA.	23
Table 11 - Indicators for Improved Stewardship of ISRA Generated Technologies.	23
Table 12 - Indicators for Increased Knowledge about Technology Available	24
Table 13 - Baseline Information for Level 2 - Accelerated Development and Transfer of Agricultural Technology and Conditions that Encourage Adoption	25
Table 14 - Indicators for Intermediate Impact of Technology Adoption.	26
Table 15 - Baseline Information for Level 3 - Diffusion and Adoption of Technology by People.	28
Table 16 - Indicators for Intermediate Impact of Biophysical Changes.	29
Table 17 - Indicators for Long-Term Impact on Changes in Productivity.	30
Table 15 - Monitoring and Evaluation Summary Table, Part 1	33
Table 15 - Monitoring and Evaluation Summary Table, Part 2	34
Table 15 - Monitoring and Evaluation Summary Table, Part 3	35
Table 15 - Monitoring and Evaluation Summary Table, Part 4	36

FIGURES

Figure 1 - Le Sénégal: Zones Agro-Ecologiques	2
Figure 2 - Framework for Organizing Natural Resources- Based Agricultural Research Project Objectives for Technology Development and Transfer.	8

Introduction

The Natural Resources-Based Agricultural Research (NRBAR) project is the outcome of the USAID Senegal's continued commitment to develop the Institut Sénégalais de Recherches Agricoles (ISRA) as an effective national agricultural research institution. The main objective of the project is institutional strengthening and capacity building for ISRA. Through ISRA, the project addresses Senegalese farmers' needs for low-cost natural resources-based agricultural technologies that will increase the productivity of their cereals-based cropping (and other production) systems (see figure 1). Strengthening ISRA as an institution while expanding and improving natural resources-based research are essential components of what has been termed the "enabling environment" necessary for sustainable productivity increases from natural resources. / According to the logic, improved agricultural and forestry production practices associated with better natural resource-based technologies, will in turn contribute to increased income and improved food security for rural farm families.

Towards this end, ISRA is collaborating with the USAID/Senegal and the Consortium for International Development (CID) in NRBAR project implementation. The project's objectives, as stated in the Project Paper and Grant Agreement between the Government of Senegal (GOS) and USAID, have been summarized as follows:

- 1) develop an improved natural resources-based research program in ISRA,
- 2) develop validated natural resources-based technologies available for adoption,
- 3) develop a strong farmer-participatory research system for designing, testing, and validating research, and
- 4) improve research and financial management.

This Monitoring and Evaluation Plan (MEP) presents an initial framework with which to monitor project progress towards achieving the objectives listed above. It begins with a brief discussion of the rationale underlying monitoring and evaluation (M&E). This is followed by a discussion about the different but integrated levels for monitoring and evaluating the project. The project is expected to be monitored at both the project and program level. The principal responsibility of the project team is to monitor project implementation. Concurrently, the project plans to provide assistance for the

¹/ See Strategic Framework for Agricultural Technology Development and Transfer in Sub-Saharan Africa and Strategic Framework for Natural Resources Management available from Bureau for Africa ARTS/FARA offices, Washington, D.C.

improvement of ISRA's monitoring and evaluation system for this and other projects. The M&E indicators have been selected to provide sufficient information for the monitoring and evaluation concerns of ISRA project managers, NRBAR staff, and the USAID project and program managers.

Goals of Monitoring and Evaluation

Monitoring is the process by which pertinent project implementation information is collected so that project personnel can make informed decisions in order to achieve project goals. In this sense, monitoring provides information for the ongoing assessment (evaluation) of a project's progress by managers, so that they can efficiently plan for more effective future activities. A monitoring system that provides timely and relevant information to decision makers at all levels improves the chances to achieve objectives and expands the possibilities for project impact. Monitoring is especially crucial during the early phases of project implementation, when strategic decisions need to be realistic and indicate a greater understanding of the constraints that hinder the achievement of project goals. The opportunities to expand success or avoid failure depend on the ability of every person involved to identify and utilize key information as the nature and character of the project is shaped. The M&E process generally begins with a plan which is implemented, initial activities and their results are monitored, and this information is assessed and revisions of the implementation plan are made accordingly.

Important lessons for project implementation may be learned when assessment of progress towards project outcomes is done in terms of the assumptions upon which project actions (inputs) are based. Keeping in mind the assumptions on which actions are based during periodic review and planning sessions is one way of checking on their validity, accuracy, and comprehensiveness. In this way important assumptions that were overlooked can be made explicit. Likewise, previously formulated assumptions that were not valid can be modified. In either case, the stage is set for modifying plans for future implementation.

The monitoring system should be structured to target and guide the flow of information, and thereby ensure that accurate data is available in a timely and efficient manner to project managers. Information exchange between farmers, NGOs and farmers' associations, and project and ISRA staff is also a major project activity. This points to the important issue for the project of defining and monitoring effective participation, which is stressed throughout project documentation (see annex 1 for discussion of constraints to participation).

Evaluation

Evaluation is a discrete activity, (in contrast with an ongoing process such as monitoring), when an assessment of project accomplishments is conducted. Two external evaluations are planned, one at year four of the project (1995), and one after year seven (1998/99). At these times, initial determinations of project impact will be made.^{2/} It should be stressed that during the life of the project, it is expected that the major impact will be on ISRA as an institution. There will be some impact on Senegalese farmer families during the life of the project, and this information will provide a basis to estimate trends for the character and magnitude of future impacts. The majority of impacts at the farmer family level attributable to the NRBAR project will occur over a much longer time frame, as a result of: i) improvements in research performance, and,^{3/} ii) increased demand for research products and services./

Indicators provide the link between monitoring and evaluation. Data collection for key information is organized around these indicators which can be analysed to demonstrate progress towards, (or lack thereof), and achievement of, project goals. In this way, indicators are analytical tools as well as measures of progress. The choice of indicators is an integral part of project design work, and should continue through implementation and throughout the life of the project as lessons are learned and/or constraints change.

As indicated above, during the early stages of the project lessons learned about implementation are just as important as reaching beneficiaries. The indicators that are selected should reflect the cause and effect relationships embodied in the working premises of the project design. The working premises should be the assumptions upon which the project or program is designed and implemented, that is, the conditions external to the project but that are essential conditions to achieve project objectives.

^{2/} Impact can be positive, negative, or neutral/none (no change), and the judgment is made on the basis of: i) baseline data indicative of the situation when the project was implemented, and, ii) analyses that account for cost/benefit and benefit distribution comparisons.

^{3/} Agricultural research and extension is just one of the factors that influences individual farmers' decisions preceding the changes associated with impact. Other factors include weather and climate, agricultural policy and prices, sociocultural characteristics and the nature of the farming system, to name a few.

The Framework for Monitoring and Evaluation

Several frameworks exist for monitoring project activities and assessing project impact. This draft contains indicators for project monitoring that reflect input from technical staff, documentation, and my own experience. The project logframe is the basic reference point for M&E, and contains a number of benchmarks and indicators (see following pages).

The ex post function of a logframe as a reference for monitoring and evaluation is preceded by its ex ante purpose as a tool for planning and implementation. Iterative preparation of the project logframe as a mechanism for strategic planning and team building is an especially constructive activity early in project implementation (see annex 2 for notes on this subject).

The goal of the NRBAR project represents strategic objective number two in the USAID Senegal's Country Program Strategic Plan (CPSP - increased crop productivity in zones of reliable rainfall). The USAID Senegal has constructed two targets for this strategic objective: target one - increased soil productivity, and target two - increased use of adapted technology. Although these appear to be equally plausible targets under strategic objective number two; logically, the increased use of adapted technology must precede increased soil productivity. The identification, generation, and extension of natural resources-based technology to Senegalese farmers is the key for increased soil productivity. For this reason, I have attempted to place NRBAR project activities within the Strategic Framework for Agricultural Technology Development and Transfer in Sub-Saharan Africa. A schematic presentation of the NRBAR project's objectives within this strategic framework is presented on the page that follows the logframe.

Note that the goal of this framework, "Improving Potential for Long-term Increases in Productivity and Income," is very similar to the USAID Senegal's mission goal, "Increased Private Income from Natural Resources." These statements, in turn, may share similarities with the forthcoming mission goal of ISRA.⁴ One benefit of putting the NRBAR project in this type of framework, is that it facilitates the design of a MEP that reflects the information needs and concerns of ISRA, NRBAR staff, and USAID Senegal & Washington personnel. At the same time, it draws attention to the shared responsibility of ISRA and the USAID Senegal to monitor impact above the strategic framework levels one, two and three.

⁴/ This framework is also compatible with the strategic framework for natural resources management.

Table 1 - NRBAR Logframe, Part 1

Senegal Natural Resources-Based Agricultural Research Project Logical Framework				
	Narrative	Indicators	Means of Verification	Assumptions
Goal	Increase Rural Productivity in Project Zone.	Levels of benefit equivalent to 30 thousand farm families experience significant increase in yields from ISRA generated technology used on 145,000 ha.	Survey adopters, repeat KAP study 1995 & 1998 with Technology Inventory, NAS, selected diffusion studies in project area.	No serious pest invasions, drought, policy and economic environment conducive to adoption, political stability.
Purpose	Generate technology for NRM practices that enhance sustainable productivity increases of cereals-based cropping systems in project zone.	On-farm validated technology developed capable of providing targeted levels of benefits to resource poor farmers.	ISRA reports and bulletins, NRBAR annual reports, End of Project evaluation.	GOS and donor funding are adequate and stable, World Bank financed extension project, NGOs, and Community Based Natural Resource Management project increase effective transfer of technology from ISRA to farmers.
Output 1	Effective, adaptive cropping systems and resource management research programs in: soil & water; forestry & agroforestry; improved cultural practices for millet, sorghum, corn, rice; applied economics program on production, marketing & policy issues for cereals-cropping systems.	15 technology systems validated for on-farm use during life of project.	ISRA reports (CG, BAME, UNIVAL); Project reports (NRP, OA); Collaborative Research Reports (NGOs & researchers).	Research personnel receive adequate research support and salaries from ISRA.

Table 1 - NRBAR Logframe, Part 2

Senegal Natural Resources-Based Agricultural Research Project Logical Framework				
	Narrative	Indicators	Means of Verification	Assumptions
Output 2	Improved research planning; improved interdisciplinary research, improved financial and human resources management.	Research programs have clearly defined objectives achievable in the medium term: System in place for periodic evaluation of research priorities and programs; financial management systems in place providing satisfactory accountability and control, and producing useful information to senior management; merit based personnel evaluation & promotion system in place; size and composition of staff aligned with research priorities and available resources.	ISRA Science and Technology committee reports, ISRA reports, Special studies (local and foreign TDY), Progress reports by project TA, Project audits and records, mid- and end-of-project evaluations.	GOS approves and ISRA adopts internal reforms.
Output 3	Improved research- extension linkages, increasing feedback from farmers to ISRA on research results and from ISRA to farmers on appropriate and sustainable technologies.	ISRA collaborates with at least 15 PVOs, farmer organizations and agricultural input suppliers to evaluate technology; ISRA has developed methods for enhancing role of farmers' organizations, PVOs and private input suppliers to transfer improved technology to farmers.	ISRA Reports, Project reports, Special studies (local and foreign TDY).	World Bank assistance to extension continues, NGOs and farmer associations improve capacity to identify problems and propose solutions, farmer participation = demand for technology.
Output 4	Strengthened linkages with key international and domestic research institutions on NRMs, cropping systems, and adapted technologies.	Increased number of protocols with network collaborators that clearly support ISRA's research priorities and define roles, responsibilities, and resources.	Network evaluations; mid- and end-of-project evaluations.	USAID and other donors continue to identify and support opportunities to establish and strengthen linkages.
Output 5	Up-graded technical and administrative staff skills.	Number, level and type of training provided to ISRA staff (disaggregated by gender).	ISRA & Project Records.	ISRA will recommend and approve long and short term training for all appropriate staff.

In terms of the strategic framework described above, project inputs are targeted at Level 1 to improve ISRA's capacity to develop and adapt technology. This logically leads to Level 2, when the development and transfer of technology is accelerated. Levels 1 and 2 are supported by activities (not all within the NRBAR project) which will help bring about the conditions necessary for more people to adopt and incorporate better NRM practices/agricultural technology into their operation and resource-use systems. This is, in effect, Level 3. The adoption of natural resources-based technologies by farmers (Level 3) over time will lead to biophysical changes in the environment (Level 4). An improved biophysical environment in which farmers continue their use of appropriate technology improves the potential for long-term increases in productivity and income (Level 5).

The Monitoring Plan

The NRBAR M&E system encourages joint (participatory) TA and ISRA staff monitoring and planning of project programs. It is hoped that the NRBAR monitoring and evaluation system will serve as a model for other ISRA programs and projects. By 1994 efforts to improve ISRA's capability to monitor project and program activities in relation to the ISRA mission's overall goals will be well established. In the meantime, it is hoped that as ISRA collaborators participate in the NRBAR M&E system some of the important issues for monitoring ISRA activities will be developed.

The project paper calls attention to monitoring the following components: provision of inputs (technical assistance, operating expenses and funds for training, etc.), the participant training programming, and the technology generation and transfer process. It further states that the project will monitor ISRA's capacity by review of budgets, quarterly financial reports, training and research program plans and outputs. These components were designed to achieve project objectives, although each input has a somewhat different set of constraints that must be dealt with for monitoring purposes. Each activity should generate information that will inform indicators of progress and impact at the higher logical levels described in the strategic framework.

The remainder of the MEP is organized by the different levels from the Strategic Framework for Agricultural Technology Development and Transfer. Monitoring and indicators, baseline and data needs, are presented for each level. This is followed by a brief discussion of some ways in which the data can best be managed. The concluding section is a summary, in table form, of the MEP for each level.

Level 1 - Capacity to Develop and Adapt Technology

The NRBAR project has four programs designed to improve ISRA's capacity to develop and adapt technology: research planning, outreach, natural resources management, and financial management. Each program is headed by a team of ISRA and CID/NRBAR personnel. The programs are complementary; each program reinforces the others and contributes elements towards the successful achievement of the four project objectives and five project outputs described in the project paper and accord. Another major component of the project, which pulls together all the programs in a demonstrable, concrete manner, is that component of research grants support which consists of the collaborative research grants and ISRA researchers' grants program.

Although complementary, each of the four programs is primarily oriented towards specific project objectives and outputs as described below. Here, the output(s) for each program is presented in terms of two types of indicators. Verifiable end of project indicators occupy the left hand column, while progress (benchmark) indicators occupy the right hand column.

The M&E plan provides a broad monitoring framework, program teams have developed two annual workplans and are preparing a life of project workplan that provide more detailed chronologies for M&E purposes. The progress indicators offered in the MEP represent significant accomplishments towards achieving project objectives. Other indicators of intermediate steps will, in all likelihood, be developed as part of the annual workplans for each program.

Research Planning Program

This program is headed by the Scientific Director with assistance from the Research Planner/Chief of Party. The primary orientation of this program is towards project objective 4, improvements in research and financial management, essentially the same as output 2, improved research planning and improved research, financial and manpower planning. However, this program will also take the lead with regards to activities oriented towards outputs 4 (strengthening institutional linkages) and 5 (upgraded technical and administrative skills for ISRA staff). The other program teams, however, can be expected to make contributions towards project outputs 4 & 5. For example, the natural resources management team might identify potential collaborative linkages with regional or international research institutes; or the financial management team might recommend specific ISRA personnel for computer hardware or software training.

The Scientific Director and Research Planner have produced a detailed 1994 workplan which includes the examination of the personnel evaluation process, revising the

system for the administration and management of research stations, and promoting the use of the INFORM management system (itself an excellent monitoring tool). Closer collaboration with the World Bank's agricultural research project is expected, which shares many of the same institutional objectives as the NRBAR project. The bulk of these activities are designed to improve research and human resource management within the research context. The table below summarizes expected outputs for research and human resource management for this program.

Table 2 - Indicators for Improved Management of Research, Finances and Human Resources

Reference - Logframe Output 2 - Improved research planning; improved research, financial and manpower management	
End of Project Indicators	Progress Indicators
2a. Research programs have clearly defined objectives achievable in the medium term.	<p>2a.1 Research activities planned to solve specifically identified farmer constraints or problems.</p> <p>2a.2 Research proposals developed that contain clear objectives with verifiable indicators and subject to rigorous peer review.</p> <p>2a.3 Allocation of funds for research activities dependent in part on earlier research results and availability of financial, physical and human resources.</p>
2b. Systems are in place for periodically evaluating and revising research priorities and programs.	<p>2b.1 ISRA capacity strengthened for periodic examination and revision of research priorities and programs.</p> <p>2b.2 Responsibilities for revision of research priorities and programs and dissemination of results clearly assigned within ISRA</p> <p>2b.3 Revision of research and program priorities based on information gathered through ISRA's monitoring and evaluation system.</p>
2d. Merit-based personnel evaluation and promotion system in place.	<p>2d.1 Clear descriptions of responsibilities and work expectations for all ISRA positions produced and distributed.</p> <p>2d.2 Elements of merit for all positions defined, and procedures for evaluation and promotion produced and distributed throughout ISRA.</p>
2e. The size and composition of ISRA staff are aligned with research priorities and available resources.	<p>2e.1 ISRA improves database capabilities to manage information on personnel, e.g., number, areas of expertise, types and levels of training, publications.</p> <p>2e.2 Training programs and collaborative opportunities identified and pursued to provide ISRA staff with improved skills that align with research priorities.</p> <p>2e.3 Mechanism in place to periodically evaluate appropriate information about financial and human resources and align with research priorities.</p>

The Research Planner has identified eleven major areas of activity towards reaching project objectives and outputs in consultancy with the Scientific Director and are outlined in the 1994 annual workplan.

Significant project resources have been designated to promote stronger institutional linkages between ISRA and regional and international research institutions. In terms of individual researchers, funds exist for sabbatical opportunities which could indirectly support this expected output. However, the availability of these funds is contingent on ISRA certification, which should occur after Ernst & Young/Dakar completes their contract for phase II work with ISRA under a separate USAID contract. Once available, the Scientific Director and Research Planner will lead plans for how best to make use of these funds. The expected output is summarized below.

Table 3 - Indicators for Strengthened Institutional Linkages

Reference - Logframe Output 4 - Strengthened linkages with key domestic and international research institutions on natural resources management, cropping systems and adapted technologies.	
End of Project Indicators	Progress Indicators
4a. Protocols with network collaborators clearly support ISRA's research priorities, and define roles, responsibilities and resources.	<p>4a.1 Identify domestic and international research resources that could provide support for ISRA research priorities.</p> <p>4a.2 Representatives of domestic and international research institutions invited to work with ISRA.</p> <p>4a.3 ISRA representatives work with regional and international research institutions.</p>

The Scientific Director and Research Planner will be instrumental in identifying training opportunities for ISRA personnel to upgrade their technical and administrative skills. However, the collaboration of the other NRBAR program teams is important in order to identify training needs for key ISRA staff collaborators. The quality of collaboration among the different teams will directly effect the degree to which project funds are effectively used to upgrade the skills necessary for those ISRA staff who play a role in the activities designed to achieve other NRBAR project objectives. This improved skills output is described below.

Table 4 - Indicators for Improved Staff Skills

Reference - Logframe Output 5 - Up-graded technical and administrative staff skills.	
End of Project Indicators	Progress Indicators
5. Number, level and type of training provided to ISRA staff.	<p>5.1 Appropriate information about ISRA staffs' administrative and technical skills collected, training needs identified.</p> <p>5.2 International, regional, and local training opportunities identified to meet projected skills improvements needs.</p> <p>5.3 Support for in-service training and use of newly acquired skills developed.</p>

Natural Resources Management Program

The Director for Research for Rainfed Cropping Systems (DRCS) and the Natural Resource Planner are primarily responsible for developing project activities to strengthen ISRA's capacity to generate agricultural technologies that sustainably manage the natural resource base for its clients. The principal areas of activity for 1994 are outlined in the annual workplan. The activities are oriented to the first two project objectives: an improved natural resources-based research program in place and natural resources-based technologies validated and available for adoption. The primary output of this program will be an effective, adaptive interdisciplinary research program as described below.

Table 5 - Indicators for Effective Adaptive Research Program

Reference - Logframe Output 1 - Effective, adaptive cropping systems and interdisciplinary resource management research programs in soil & water, forestry & agroforestry, improved cultural practices, applied economics program	
End of Project Indicators	Progress Indicators
1. 15 technology systems will be validated for on-farm use during the life of the project.	<p>1.1 Determine status of NR and other technology research in ISRA to facilitate targeting technologies for development and validation.</p> <p>1.2 Develop coherent strategy and program for natural resources-based agricultural research which fits into ISRA's long-term development strategy and plan.</p> <p>1.3 Develop interdisciplinary, farmer-oriented, and farmer participatory approaches to research planning, execution, and evaluation.</p>

Outreach Program

The Director of the Kaolack Research Station and the Outreach Advisor are responsible for planning activities that are directed towards project objective 3, a strong farmer-participatory research system in place for designing, testing and validating research. Improving communication between ISRA and its clients is a major target for this program. The Outreach Program team and the Natural Resources Management team anticipate working closely together over the life of the project, as each program contributes towards developing effective participatory research and outreach from different vantage points.

This program is particularly challenging for two reasons. In the first instance, it targets what has historically been the weak link in technology development and transfer, the researcher-extension-farmer spheres of interaction. In the second instance, as the project evolves program activities may become increasingly geographically dispersed and more difficult to monitor.

Nonetheless, this is crucial element of the project that is oriented towards project output 3, improved research-extension linkages, including feedback from farmers to ISRA on research results and from ISRA to farmers on appropriate and sustainable technologies. The output is summarized below.

Table 6 - Indicators for Improved Research-Extension Linkages

Reference - Logframe Output 3 - Improved research-extension linkages, including feedback from farmers to ISRA on research results and from ISRA to farmers on appropriate and sustainable technologies.	
End of Project Indicators	Progress Indicators
<p>3a. ISRA collaborates with at least 15 private voluntary organizations (PVOs), farmer organizations and input suppliers to evaluate technology (including the use of signed protocols).</p>	<p>3a.1 Grants committee formed, research protocols developed, proposals funded.</p> <p>3a.2 Participatory Monitoring and Evaluation Systems in place.</p> <p>3a.3 Results of collaborative research disseminated by UNIVAL.</p> <p>3a.4 Research project impact studies funded.</p>
<p>3b. ISRA has developed methods for enhancing the roles of farmers' organizations, PVOs and private input suppliers to transfer improved technology to farmers.</p>	<p>3b.1 Identification and assessment of collaborative organizations' potentials to extend improved technologies to farmers.</p> <p>3b.2 Social marketing and outreach materials for ISRA technologies developed.</p> <p>3b.3 ISRA develops a "menu" of available technologies adapted to specific conditions/problems, and improves capacity to provide technical support to organizations extending technologies to farmers.</p>

Financial Management Program

The Secretary General of ISRA has been designated as the leader in this program, in collaboration with the directors of Controle de Gestion (CG) and Agence Comptable Particuliere (ACP) assisted by the Financial Advisor. The group has designed activities to reinforce ISRA management's capacity to coordinate, monitor and evaluate the change process brought about by the Ernst & Young/Dakar program; and to assure the effective future operation of the reorganized financial management system. These activities are critical for achieving project objective 4, improvements in research and financial management.

The major thrust of activity to date is outlined in the 1994 annual workplan. The activities for this program contribute significantly to output 2, improved research planning, and improved research, financial and manpower management. The output is characterized below.

Table 7 - Indicators for Improved Financial Management

Reference - Logframe Output 2 - Improved research planning, and improved research, financial and manpower management.	
End of Project Indicators	Progress Indicators
2c. Financial management systems are in place providing satisfactory accountability and control, and producing useful information to senior management.	<p>2c.1 Procurement of improved computer and software.</p> <p>2c.2 Revised accounting procedures manual developed and implemented.</p> <p>2c.3 Training needs assessment completed, training plan developed and staff trained in new procedures and use of hardware/software.</p> <p>2c.4 Certify ISRA accounting system.</p> <p>2c.5 Reorganization of UIG, with strengthened MIS and improved reporting procedures.</p>

Research Grants Program

The research support program makes financial resources available to ISRA researchers and/or ISRA-PVO collaborative research teams. The intent is to support research projects that, in effect, demonstrate what the NRBAR project hopes to accomplish on an ISRA wide basis. In other words, funds are intended to support projects that show careful and detailed research planning that is focused on a NRM problem which is clearly defined. Specific problems are generally determined by a diagnostic phase, when researchers utilize techniques such as rapid participatory appraisal (RPA) of the villages where their experiments would take place. At this time important contextual information, and specific descriptions of the farm systems (e.g., size of fields for different commodities, organization of labor, technologies in use, some indication of relative food security/agricultural income) should be collected. Any information on the relative importance of off-farm activities to family livelihood would be a welcome addition.

As each research project is implemented, a system is set in place to monitor its human, physical and financial inputs. Each project should monitor its farm trials (number of trials, number and gender of farmers participating, results of technology in terms of returns to land/labor), and when appropriate, be encouraged to follow another group of farmers growing a similar crop but not using the same technology. Data should be regularly collected for appropriate indicators that correspond to the results expected from the research. Each project should collect baseline data during the first year of research implementation for these same indicators in

order to facilitate end of project evaluation and post project impact assessment.

The NRP team is in the process of defining the process and criteria that will be used to validate ISRA generated technologies. Part of the research process should include environmental and socioeconomic analyses that could be used to project adoption rates for farmers that fit specific agro-ecological and farm size characteristics. This information could then be used to show people level impacts (PLI) for USAID Senegal's Assessment of Program Impact report. /

A Grants Committee, coordinated by the DRFP director, is charged with establishing the grant protocols, soliciting research proposals, evaluating the relevance of the proposed research within the Senegalese context, monitoring the evolution of the research over a 1 to 3 year period, and reviewing annual reports of research before recommending to UNIVAL the nature and extent to which research results should be disseminated. It is recommended that at least 3 meetings be held per year for ISRA and PVO/farmer association grantees to facilitate exchange of findings, discussion of constraints, and suggestions for improved collaboration. In the event that a particular collaborative research grant project wishes to expand or extend its efforts with a new (and perhaps larger) grant, it is recommended that a specialist from outside the committee be brought in to assist in evaluating the merit of further funding.

Once a proposal has been approved, award grant contracts are drawn up and signed between the relevant parties (PVO-USAID, PVO-ISRA/NRBAR, and PVO-CID/NRBAR in case of collaborative grants; ISRA researcher-CID/NRBAR in case of researcher grants). A revolving fund is set up for each grant, reimbursements are made each quarter for direct and indirect costs. Quarterly activity reports are submitted to the Grants Committee coordinator as an indicator of research implementation. Annual reports should contain appropriate findings followed by analysis and substantial discussion of relevance (implications) for the research activity in technical, environmental, and socioeconomic terms.

³/ Annual report to USAID/Washington that indicates progress, problems, and lessons learned by mission from project and non/project assistance for meeting country program strategic plan. Project managers are contacted in July to prepare information for submission, when they should summarize monthly reports, memorandums, summary of minutes from meetings, biannual reports. First draft of API is due in September, final version of report is due end of October (following Federal fiscal calendar). The COP and/or PA should be able to provide all reasonable information needs to project mission managers through the outlined reporting system.

This is the major NRBAR project component where the sphere of farmer-researcher-PVO/private sector interaction is created that can result in people level impacts (as well as information about what can be expected in terms of people level impacts/projections for the future). This component of the project draws together other programs, the Outreach team, Natural Resources Management team, Financial Management and Research Planning Teams all can contribute/provide support to the recipients of these grants and the committee charged with their oversight.

It is recommended that the 1994 research protocol be further modified so that grants recipients are required to develop a logical framework for their research project during the first year of the project. Several advantages can be gained by requiring grantees to develop and use a logical framework. To date the research proposals, while containing the justification, activities, and expected outcomes of the proposed research, often do not present these in a format that captures the logic and chronology of expected/anticipated results. The logical framework requires grantees to think about their proposed research projects in a chronological, cause and effect sequence. In addition to the narrative, they are also required to choose objectively verifiable indicators for each anticipated result (preferably quantifiable) as well as explain the means by which this indicator will be verified. Here, grantees are asked to specify indicators which are both relevant to the specific result and also within their means to collect data for. Means of verification can, at the same time, be an excellent way to decide on both the timing of data collection and reporting for each indicator, and who has responsibility for each indicator. The hypotheses force grantees to think about what are the critical constraints or major assumptions upon which this postulated chain of events in the narrative section is based.

Monitoring Program Activities

A formal framework for monitoring project development and reporting on progress has been established and is presented in the table below. Informally, program directors and their technical assistants meet regularly to discuss progress, identify constraints, and refine strategies to meet program and project objectives.

Less routine information will be generated in the forms of minutes from committee meetings convened for specific project purposes (e.g., the selection of candidates for long-term technical training, or discussion about the terms of reference for future TDYS); periodic special studies commissioned as part of the monitoring and evaluation plan (baseline and needs assessments, diffusion/impact studies); trip reports; short term training reports; research reports; to name a few. Hard copies of these reports will be kept in the NRBAR documentation center by the project administrator

where they can be referred to for mid-project (1995) and end of project (1997) evaluations.

Table 8 - Organizational Framework for Monitoring Project Programs and Activities

Activity - Timing	Purpose	Responsibility* & Participation
Weekly Management Meetings	Review progress, plan & coordinate future activities, identify problem areas	COP* USAID Project Officer
Bi-Weekly Staff Meetings	Review progress on planned activities, discuss methodological and other strategic issues, coordinate schedules	COP & PA* OA NRP FA
Monthly Reports	All TAs report on progress made: principal activities, achievements, difficulties, future program, other	COP* PA* NRP* OA* FA*
Monthly Meetings	Coordinated with monthly reports and staff meetings, presentation of progress to USAID & ISRA	ISRA DS COP* USAID Project Officer OA, NRP, FA, PA
Quarterly Reports	Compilation of monthly reports sent to appropriate personnel in ISRA DG	PA*
Quarterly Meetings	Coordination meeting for all ISRA and CID project personnel, discuss progress, identify constraints and problems, specific topics, e.g., TDY	DS* All ISRA/NRBAR personnel
Biannual Reports	Reports on project progress, inventories and procurement, training reports	COP* PA, OA, NRP, FA
Annual Workplan	Detailed framework with benchmarks of anticipated progress for year, coincides with ISRA's annual workplan	COP* PA, OA, NRP, FA
Four Year Workplan	Broader in scope than above with general framework for project that is revised in detail annually	COP* PA, OA, NRP, FA

COP - Chief of Party PA - Project Asst OA - Outreach Advisor NRP Natural Resources Planner FA - Financial Asst

UNIVAL in particular will play an increasingly important

role as a conduit for information between researchers and partners. A NRBAR documentation center will also contain project records, and consideration should be given to creating a computerized database that will facilitate documentation searches for the retrieval of specific information contained in reports.

Baseline for Level 1

The baseline information for Level 1 consists of ISRA's present capacity to develop and adapt technology as it relates to project inputs. The types and sources of information for this baseline are summarized in the table below.

Table 9 - Baseline Information for Level 1 - Capacity to Develop and Adapt Technology

Information Need	Sources	Completion Date	Responsibility
Number, level, and type of training for ISRA staff (disaggregated by gender)	SG, Service de l'Administration et des Ressources Humaines, INSAH database	Information Available, Dec 1993	SG, UPF, COP, PA
Inventory status of natural resource-based production technologies within ISRA research system	USAID Agricultural Sector Review, ISRA reports, MSU studies, Research Centers, Project Paper annex	Requires document review & site visits, May 1994	BAME, COP, NRP, TDY
Impact of ISRA ag research and technology development on selected commodities	ISRA reports, MSU studies, MARIA study, Research Centers	Requires document review & site visits, Oct 1994	BAME/ISRA Impact Committee, COP, TDY
Research planning and budgeting process	ISRA, ISNAR, MSU documents, Natural Resources Management Research Strategy paper, Project Paper	Assessment of reports, Dec 1994	COP, NRP, FA
Budgets for natural resource-based research programs	Controle de Gestion, Unite Informat. de Gestion, ISRA/MSU/USAID study	Use 1992 allocation-disbursement budgets, Jan 1994	CG, COP, FA
Number and type of protocols with international and regional research institutions	ISRA Direction Scientifique, USAID & World Bank reports, INSAH records	TDY study, Jan 1995	USAID, TDY, COP
ISRA's record in public education/outreach for natural resources-based ag technology/NRMs	UNIVAL	Special study, Dec 1994	UNIVAL, OA, TDY
ISRA capacity to identify and work with NGOs, Numbers of ISRA-NGO collaborative research agreements	ISRA & NGO records	Dec 1994	OA, TDY

Recommendations for Collection of Level 1 Baseline Data

Much of the baseline data for Level 1 exists in reports prepared during project identification, project development, and USAID Senegal's 1992 Agricultural Sector Review study. Program teams have identified specific areas where additional information is required, e.g., project zone gender study, social marketing study, agricultural research impact studies. The bulk of these studies will be completed by short term technical consultants. The rate at which the studies will be completed, depends in part, on the availability of ISRA personnel to assist as counterparts in these studies. Although this may mean the studies will be completed more slowly than is possible, it reflects project philosophy to strengthen and enhance ISRA personnel and institutional capacity.

It is recommended that 1992 budgetary allocation and disbursement records be used as the baseline for the project's various assessments of changes in planning, budgets and financial management. The Controle de Gestion will take the lead in completing this component, and information should be complete by December 1993.

The USAID Senegal plans to administer the linkages to Regional and International Research Institutions component of the project until ISRA obtains financial certification. This is potentially problematic, in that USAID Senegal apparently may not be able to take the initiative and suggest specific opportunities and/or activities to ISRA. There are plans for a TDY (possibly a local hire) to be contracted to provide baseline information about the number and quality of international and regional linkages ISRA has. The TDY should occur sometime before financial certification (mid-1995). The TOR should include suggestions for protocol development, a plan or strategy to strengthen these linkages, as well as a mechanism to make the funds available for ISRA/NRBAR project needs and activities should be established.

Gender criteria will be monitored for all project activities, outputs, and impacts at all levels covered by the MEP. The training component, for example, will include numbers and proportion of women for long-term training, short-term training and conferences, short-term training in Senegal, and long-term B.S. training for women. To date, only one woman has been recommended for long-term training through the project. This makes project sponsored international, regional, and local short-term training and conferences for women even more important. Training is a key mechanism through which commitments to gender equity articulated in the spirit of the project agreement can be met. ISRA support staff (technicians and administrative assistants), should be considered for such things as upgrading computer skills, data entry, data management, and so forth. The NRBAR project intends to support B.S. level training for 10 women, to begin in 1994.

24

Two very important elements of the baseline for Level 1 are the ISRA research historical impact study and ISRA system technology inventory, which are expected to require a significant amount of effort over the next year to complete. It is unlikely that given the NRBAR staff's other implementation responsibilities that they will be able to provide sufficient technical assistance to the BAME, which will take the lead in these studies. Outside technical assistance is recommended for this effort. The completion of these baseline elements are expected to take the form of stand alone studies.

The information for baseline data about ISRA's public education/outreach record, and numbers of collaborative agreements with NGOs will require the efforts of a TDY who may be recruited locally. In each of the last three cases discussed, the TDYs should be able to collect baseline information for Levels 1 and 2.

The baseline for Levels 1 and 2 will constitute the heart of the information that will be used to assess the institutional impact of the NRBAR project. A significant effort will be required to collect, and in some cases analyze, available (but dispersed) information that will be used for this baseline. TDYs hired to contribute baseline studies as stand alone reports should be encouraged to leave resource documents in the NRBAR library. A discussion of baseline data is being prepared as a separate document.

Level 2 - Accelerated Development and Transfer of Agricultural Technology and Conditions that Encourage Adoption

The NRBAR project inputs at Level 1 should lead to: i) improved generation, output and availability of technology by ISRA that is in demand by farmers and other users; ii) an improved structure (and capability) for NGOs and other technology users and suppliers to provide feedback to ISRA about the demand for technology, and further help adapt technology to specific needs; iii) increased user knowledge about the types and range of ISRA technologies and services available. These conditions are necessary but insufficient to promote widespread adoption of ISRA generated technologies. The USAID Senegal, GOS and other donors will have to keep in mind that strategic elements of this level are not addressed by the NRBAR project. Examples include: policy (tenure security, tax incentives, etc.), market (transport infrastructure, commodity prices, storage, credit availability), community and individual conditions and constraints (planning and management skills, trust and confidence).

Indicators that show the intermediate impact at this level for outcomes (NRBAR project outputs) are described below.

Table 10 - Indicators for Improved Technologies Available from ISRA

Reference - Logframe Purpose, Generate technology for NRM practices that enhance sustainable productivity increases in project zone.	
Indicators:	Number of technologies certified and registered. Number of technologies released. Number of technologies at pre-release stage and/or extension of technologies. Proportional increase in productivity expected over existing technology.

The accelerated development of technology within ISRA is intended to coincide with an improved capability on the part of NGOs, other individuals and organizations to extend their use and accessibility to farmers. The implication is that the capacity for private sector technology "stewardship" will increase. Stewardship is a term that refers to public and private sector agents and actors who are involved in the manufacturing, marketing and/or extending of agricultural technologies. It is anticipated that this strategic component may benefit from the effects of the USAID Community Based Natural Resources Management Project that is expected to begin during the second half of the NRBAR project. The indicators to track the progress and intermediate impact at this level are listed below.

Table 11 - Indicators for Improved Stewardship of ISRA Generated Technologies

Reference - Project Objective Tree, NGOs and other users active in stewardship of technology.	
Indicators:	Number and amount of technologies available through NGOs and other users. Number of technologies being produced and available from multiplier/manufacturer. Number of technologies being developed with NGOs, farmers, and other users for specific NRM problems. Proportional increase in NGOs and stewards using and extending NRM technologies.

One of the premises of the Outreach component of the NRBAR project, is that by increasing awareness of the technologies and services that ISRA can provide, the demand for such services will be increased. Although it is beyond the scope of the NRBAR project to measure demand (although BAME would probably be the logical ISRA unit to attempt to formulate such a study and set of indicators), the project can assist with special studies to monitor changes in knowledge, attitudes and practices within the project zone. Such studies

would complement larger scale KAP studies that USAID Senegal should repeat in 1995 and 1998. Ideally, the smaller scale studies undertaken by NRBAR would seek to "deepen" understanding of the criteria farmers use in judging NR technologies accessible to them, as well as improve understanding of the constraints farmers face. Although knowledge about available ISRA technologies and services is addressed by project activities, other factors that affect input/output and technology demand markets such as credit, transportation infrastructure, storage and processing, prices, are outside the scope of direct project actions. However, these factors clearly influence farmers' decisions on technology adoption and use.

Table 12 - Indicators for Increased Knowledge about Technology Available

Reference - Project Objective Tree, Increased knowledge about technology available from ISRA.	
Indicators:	<p>Users' knowledge about the technology and services available through ISRA.</p> <p>Attitudes about the importance/value of natural resource based technologies.</p> <p>Practices, both on-farm associated with adoption of new technologies, and for obtaining or searching for technology to overcome a specific problem.</p> <p>Technology users know how to make their demands/needs for technology known to those who develop and supply technology.</p>

With accelerated technology development and transfer, there will be a need to improve both the capability and capacity for timely analysis of specific commodity constraints (policy, institutional, technological) as these change over time. BAME would be expected to take the lead in such studies, and may require assistance in formulating a strategy and methodology to do so. Information from such analyses would ideally provide decision makers (research managers) with data about what future interventions should yield the highest returns and impact from research, technology development and transfer.

Level 2 Monitoring

The monitoring framework outlined for Level 1 will serve equally well to structure the collection and dissemination for much of the information required to monitor activities at Level 2. However, additional monitoring mechanisms could be developed during intermediate stages of the project that specifically address the need (and anticipated output) for strengthening ISRA/NRBAR linkages with NGOs, farmers' associations, and farmers.

For example, a number of rural seminars could be planned for potential clients that would highlight what ISRA has to

offer, and how clients might approach ISRA and/or NGOs for support in collaborative activities. Such seminars should be jointly planned by ISRA/NRBAR and NGOs, then executed by either ISRA research stations or Senegalese NGOs with project personnel attending. The seminars would provide an opportunity for staff to monitor NGO effectiveness in planning and implementation, as well as serve as a means towards improving linkages among ISRA, NGOs and farmers. One approach would be to support NGOs who have a proven record in putting together conferences, seminars, and/or field days. The NGO hosting the event would invite farmers, ISRA and project staff, other NGOs and other project personnel to attend. The events should be organized at different locations throughout the country during the course of the year to ensure some geographic equity in coverage. Conferences should be organized around a particular theme, and participants encouraged to help plan future conferences. The farmers' conferences organized by Rodale Thiés are an example of this type of event.

Table 13 - Baseline Information for Level 2 - Accelerated Development and Transfer of Agricultural Technology and Conditions that Encourage Adoption

Information Need	Sources	Completion Date	Responsibility
Number and location of NGOs promoting NR based technology	CONGAD and FONGS records, MOA records, USAID & World Bank records	Site visits, Dec 1994	UNIVAL, Collaborative Research Grants Coord, OA, Local TDY
Level of NGO activity in promoting NR based technology or experimentation	NGO records, Research Center records	Site visits, Dec 1994	UNIVAL, Collaborative Research Grants Coord, OA, Local TDY
Number of NR technology menus developed and extended to farmers or NGOs since 1974	ISRA, ISNAR, MSU documents and interviews with ISRA researchers and administrators	Special study, Dec 1994	BAME/ISRA Impact Committee, TDY, COP, NRP
Number and rate of "new" technologies developed by ISRA since 1974	ISRA, MSU, World Bank, ORSTOM, USAID documents	Special study, Oct 1994	BAME/ISRA Impact Committee, TDY, COP, NRP,
Level of farmer knowledge about ISRA technology and services that respond to her/his production constraints	USAID KAP study, additional KAP or marketing studies	Jan 1995	UNIVAL, TDY, OA

Recommendations for Collection of Level 2 Baseline Data

The collection of baseline data for Levels 1 and 2 can be incorporated into the scopes of work for local and/or expatriate TDYs who will assist the BAME and the ISRA Impact

28

Committee. The collection, analysis, and writing up of information related to the ISRA NR technology inventory and the historical impact of ISRA agricultural research and technology development are expected to produce stand alone studies. Some suggestions for the scopes of work and procedures are submitted under separate cover.

Similarly, collection of information with regards to the status of NGOs, their involvement in, and use of, NR technologies can be carried out by a number of highly qualified Senegalese consultants. This may more appropriately take the form of a report and database that would be compatible with a GIS system.

The USAID Senegal has funded two forestry KAP studies and one Natural Resources KAP study which will provide useful baseline data for Level 2, and particularly Level 3. Another NR KAP study is planned for 1994. The social marketing study that is currently being planned will assist UNIVAL in its efforts to create an increased demand for ISRA technologies and services. This study also should provide complementary information for baseline purposes.

Level 3 - Diffusion and Adoption of Technology by People

Theoretically, the actions that create the desired conditions in Levels 1 and 2 will enable the widespread adoption of technology to take place. Subsequently, the people level impacts at the farm family level will occur, for example, with changes in behavior and reallocation of resources. It can be expected that adoption rates for various technologies will differ depending on criteria such as: agro-ecological zone, character of the farming system, socio-economic level, educational level, and gender, among others.

The indicators for this intermediate stage of impact are listed below.

Table 14 - Indicators for Intermediate Impact of Technology Adoption

Reference - Project Objective Tree, Adoption of Technologies that Improve Soils, Reduce Erosion and Increase Water Infiltration.	
Indicators:	Number of technologies adopted by commodity. Proportion of area under a specific technology. Proportion of households (farmers) using a specific technology. Amount of technology used for different NRM activities.

Level 3 Monitoring

It is anticipated that the magnitude of impact at Level 3 during the life of the project will be secondary to the institutional impact at Levels 1 and 2. However, the project intends to provide information through its research support program and special impact studies that will suggest trends for adoption at the farmer level. An outline for such studies follows.

One-two years after the first round of funded research experiments are completed (1996/1997), a local consultant group will be hired to do a Participatory Rural Appraisal/Impact Study. The study will focus on the villages where research took place and the neighboring villages within the same vicinity. The purpose of these studies will be to:

- i) determine adoption rates of technology and what factors (e.g., characteristics of the technology) promoted its diffusion;
- ii) assess the distribution of benefits from technology adoption within and between households;
- iii) determine what factors constrain further adoption; and,
- iv) determine what the short-term impact of NRBAR supported research in the zone has been.

It is anticipated that probably only two such studies will take place (for the first two years of funded research), but this should provide an indication of what could be expected from other research funded through collaborative (or ISRA) research grants. With information about the changes in productivity attributable to the adapted technology, and the proportion of farmers adopting the innovation collected, an assessment of increases in income per capita/household and/or increases in calories/capita can be made. These studies, in addition to the mid-project and end-of-project evaluations, will provide information for this level of impact.

It is important to keep in mind that one outcome of the NRBAR project is that ISRA will develop: a) criteria for judging NGOs with which it can collaborate, and, b) be able to identify NGOs that it can contact in regards to ongoing technology development as it is validated and reaches the release stage.

Table 15 - Baseline Information for Level 3 - Diffusion and Adoption of Technology by People

Information Need	Sources	Completion Date	Responsibility
Current rates of technology use by type in project zone	USAID KAP study, Inventaire des Technologies, Collaborative research grant village baseline studies	Collaboration with USAID, Jan 1995	TDY, NR Team, Outreach Team
Current area under technology use by type (and commodity) in project zone	USAID KAP study, Inventaire des Technologies Collaborative research grant village baseline studies, DSA, Centre de Suivre Ecologique	Collaboration with USAID, Jan 1995	TDY, NR Team, Outreach Team

Recommendations for Collection of Level 3 Baseline Data

The table above summarizes the baseline needs to measure impact at this level. It is recommended to use 1992 as the baseline year, as this coincides with USAID Senegal's NR KAP study. Initial discussions with an agricultural economist at USAID was fruitful in that agreement was reached to make a plan for collaboration on completing this baseline.^{6/} An attempt to combine information from USAID's NRM KAP studies with baseline information from villages where collaborative research grant activities will occur should provide a useful range of data for the proportion of households using different technologies within the project zone. Complementary information for this baseline will be provided by the technology inventory and agricultural research impact studies conducted to provide baseline data for Levels 1 and 2. None the less, there may be need for additional special studies to complete this baseline for ISRA/NRBAR and USAID Senegal.

Much more difficult will be the determination of the current area under technology by commodity in the project zone. Again, USAID will assist with the analysis of the various sources of information in an attempt to derive useable figures against which future information could be compared. It is important that comparable data should be relatively easily collectable, and at reasonable financial and effort costs. The diffusion/impact studies described earlier may be an appropriate mechanism in which to try the recommended methodology.

^{6/} This baseline may well serve an additional purpose for the USAID sponsored Community Based Natural Resource Management Project.

Level 4 - Biophysical Changes in Natural Resource Base

The widespread adoption of appropriate natural resources-based technologies by Senegalese farmers should logically lead to the stability, or in some cases an improvement, of the biophysical environment. The NRBAR project does not anticipate this to occur to any great degree during the life of the project. However, consideration will be given to some End Of Project (EOP) data collection in fields where early collaborative research took place, in order to note trends in vegetation cover or organic matter content of soil, for example. In this way, changes that have occurred could be linked to the adoption of improved practices and/or technologies.

As technologies are identified by ISRA for development to pre-release or release stages, researchers should develop scenarios or models for expected impacts that could be monitored in the future. Appendix 3 gives an example developed by Kite (memo 1993) for one form of an indicator and analysis matrix that might be useful.

Beyond the life of the ISRA/NRBAR project, it is expected that GOS/ISRA and USAID Senegal will monitor biophysical changes. Indicators for intermediate impact at this level are listed below.

Table 16 - Indicators for Intermediate Impact of Biophysical Changes

Reference - Project Objective Tree, Improvements in Soil Productivity, Water Runoff Reduced, and Forest and Range Productivity Increased.	
Indicators:	<ul style="list-style-type: none"> Soil organic matter levels. Levels of plant nutrients available. Changes in density and composition of plant species. Water infiltration increased, higher levels in water table.

Monitoring Level 4

The NRBAR project does not anticipate monitoring at this level, other than to provide baseline data for specific areas of the country where collaborative research and ISRA NRM researchers are working. It is recommended that the USAID Senegal and ISRA consider strengthening collaboration with the Centre de Suivi Ecologique (CSE) if CSE is capable of providing long-term data on trends for the biophysical environment which would be of programmatic use beyond the life of individual projects. It is further recommended that the management of the baseline information be done with a Geographic Information System (GIS). Such a system would also

be able to manage appropriate data for levels discussed earlier. GOS/ISRA and USAID Senegal clearly can make the best long-term use of a database for Level 4. As additional baseline information for this level is generated through work in the USAID Senegal's Community Based Natural Resources Management Project, the mission is encouraged to develop a database mechanism that can coordinate information from various NRM projects. DESFIL, for example, could provide appropriate assistance to the mission.

Level 5 - Improve Potential for Long-term Increases in Productivity and Income

A stable and/or improved biophysical environment in which producers utilize appropriate technologies should logically improve their potential for long-term increases in productivity and income. This, of course, represents the overall goal to which the NRBAR project (as one of many) hopes to contribute. The NRBAR project hopes to provide evidence for movement in this direction, primarily through its positive impact on Levels 1 and 2. The post research impact studies described earlier may provide some indications of impact at this level. However, this is, by and large, a level on which the combined impact from ISRA's many projects will be seen, although this may well be in the first decade of the next millennium.

The indicators below have been selected to reflect changes in productivity, and the potential for the agricultural sector to make sustained improvements in food security and economic growth.

Table 17 - Indicators for Long-Term Impact on Changes in Productivity

Reference - Project Objective Tree, Improved Potential for Long-term Increases in Productivity and Income.	
Indicators:	Change in value of agricultural production per land unit by commodity. Change in value of agricultural production per labor unit by commodity. Change in per capita food production by commodity. Change in per capita food imports by value by commodity. Change in farm income and expenditures.

Monitoring Level 5

The NRBAR project does not anticipate monitoring this level, because of the anticipated length of time before changes will be evident from National Statistics. The project will, as indicated earlier, provide some microlevel data from

village groups in the project zone, which will be indicative of expected trends.

The recent ISRA/IFPRI study contains very detailed production, income, and expenditure data for areas in the project zone. In addition, DSA has recently released the Etude Primaire, which contains production, income, and expenditure data for the entire country. These data sources provide a solid core for construction of a baseline for this level, which could be a collaborative effort between USAID Senegal and ISRA.

Data Management and Geographic Information Systems

The use of a geographic information system (GIS) as a way of organizing and managing information produced by the project has many attractive features. Such a system should make it easier to evaluate project impacts, which can be expected to vary by agro-ecological area (and even areas within single agro-ecologic zones). This system could also store information collected on variability of farming systems within agro-ecologic zones, and/or villages where NGOs have specific types of activities underway. Suggestions for other fields of information for the system are listed below.

- Demographic variables: male:female ratios (for equity considerations and labor), age profile (considerations of labor), ethnic composition (differences in management of productive natural resources and organization of work).

- Innovations and/or technologies validated/extended (what was tried and when).

- Key factors for choices about technologies catalogued above (drought, erosion, poor soil quality, output market and infrastructure developed).

- National statistics for easily perceived but long term impacts (per commodity and technology: area, yield, production, prices).

- Statistics of impacts that are often obscured because information is "lost" or not collected (returns to labor, resource reallocations, changes in consumption, incomes, biophysical resources and natural resources).

- Statistics on invisible impacts from technology adoption (avoidance of negatives, e.g., pests, disease, low fertility or low rainfall).

The GIS system feasibility study has recently been completed. This system, if adopted, will not be the format in which to save all information. The NRBAR documentation center will contain copies of relevant reports and data. This information should be catalogued (as suggested earlier) in

such a way as to provide for thorough and rapid access. It is expected that this system will result in a large amount of information being accumulated rapidly. Consideration should be given to having periodic studies undertaken from this data, for example, a study that would address project implementation/impact equity issues. Relevant variables for such a study might include: gender, socioeconomic class (village elite, size of landholding, equipment, animals, access to labor), rural/urban, among others.

Implementation Plan and MEP Summary

The tables on the following pages summarize the MEP plan in terms of objectives, indicators, sources (for data and means of verification), timing of indicators, a persons responsible.

Monitoring project activities began with project implementation. The MEP provides a framework for monitoring progress to improve implementation, learning about constraints that hinder expanded success of the project, and measuring project impact. The MEP is flexible and will adapt and adjust to innovative activities and newly formulated strategies as the NRBAR project evolves.

Table 18 - Monitoring and Evaluation Summary Table, Levels 1-5, Part 1

Reference	Indicator(s)	Data Source(s)	Timing of Indicator Report	Person(s) Responsible
Project/Program Activities	Meet project implementation schedules	ISRA/CID reports, meetings, periodic evaluations	monthly, biannual	ISRA and CID NRBAR staff
Project Logframe Output 1, effective, adaptive research program focusing upon cropping systems and resource management in the areas of (i) soil and water management, (ii) forestry and agroforestry, (iii) improved cultural practices for millet, sorghum, rice and corn, and (iv) applied economics for production, marketing and policy issues relating to cereals cropping systems.	At least 15 technology systems will be validated for on-farm use during the life of the project.	ISRA research program annual reports, ISRA annual report, Grant Committee records, ISRA researchers' reports, Collaborative research reports.	annual, mid-project and end-of-project evaluations	Natural Resources Management Team
Project Logframe Output 2, improved research planning; improved research, financial, and manpower management	<p>Research programs have clearly defined objectives in the medium term.</p> <p>Systems are in place for periodically evaluating and revising research priorities and programs.</p> <p>Financial management systems are in place providing satisfactory accountability and control, and producing useful information to senior management.</p> <p>A merit based personnel evaluation and promotion system in place.</p> <p>The size and composition of ISRA staff are aligned with research priorities and available resources.</p>	NRBAR annual reports, ISRA research program committee reports, ISRA annual report, ISRA financial statement, external evaluation	biannual, mid-project evaluation, end of project evaluation	Research Planning Team, Financial Management Team

Table 18 - Monitoring and Evaluation Summary Table, Levels 1-5, Part 2

Reference	Indicator(s)	Data Source(s)	Timing of Indicator Report	Person(s) Responsible
Project Logframe Output 3, improved research-extension linkages, increasing feedback from farmers to ISRA on research results & from ISRA to farmers on appropriate and sustainable technologies	ISRA collaborates with 15 PVOs, farmer organizations & agricultural input suppliers to evaluate technology. ISRA develops methods for enhancing role of farmers' organizations, PVOs and private input suppliers in transferring improved technologies to farmers.	Collaborative research grant reports, UNIVAL reports, ISRA reports	biannual report, mid-project and end of project evaluation	Outreach Team*, Natural Resources Management Team
Project Logframe Output 4, strengthened linkages with key international and domestic research institutions on NRMs, cropping systems, and adapted technologies.	Protocols with network collaborators clearly support ISRA's research priorities and define roles, responsibilities, and resources.	ISRA records, project records, SPAAR records	end of project evaluation	Research Planning Team*, Natural Resources Management Team
Project Logframe Output 5, up-graded technical and administrative staff skills.	Number, level, and type of training for ISRA staff disaggregated by gender.	ISRA personnel records, project records	biannual report, mid-project and end of project evaluation	Research Planning Team*, Financial Management, Natural Resources Management Outreach Teams

Table 18 - Monitoring and Evaluation Summary Table, Levels 1-5, Part 4

Reference	Indicator(s)	Data Source(s)	Timing of Indicator Report	Person(s) Responsible
Project Objective Increased knowledge about ISRA technology	Users' knowledge about the technology and services available through ISRA. Attitudes about the importance/value of natural resource based technologies. Practices, both on-farm associated with adoption of new technologies, and for obtaining or searching for technology to overcome a specific problem. Technology users know how to make their demands/needs for technology known to those who develop and supply technology.	Special Studies, Repeat KAP study 1995 & 1998	mid-project evaluation, end of project evaluation	Outreach Team
Project Objective Technology Adoption	Number of technologies adopted by commodity. Proportion of area under a specific technology. Proportion of households (farmers) using a specific technology. Amount of technology used for different NRM activities.	Diffusion Studies, KAP study 1995 & 1998, NGO reports	mid-project evaluation, end of project evaluation	Natural Resources Management Team, Outreach Team, ISRA research station directors and research program coordinators
Project Objective Biophysical Improvements	Soil organic matter levels. Levels of plant nutrients available. Changes in density and composition of plant species. Water infiltration increased, higher levels in water table.	Research grant studies, CSE data	not anticipated	ISRA/USAID
Project Objective Improved Productivity & Increased Income	Change in value of agricultural production per land unit by commodity. Change in value of agricultural production per labor unit by commodity. Change in per capita food production by commodity. Change in per capita food imports by value by commodity. Change in farm income and expenditures.	Special Studies	not anticipated	ISRA/USAID

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LIST OF ACRONYMS

ACP	Agence Comptable Partiulière
API	Assessment of Program Impact
BAME	Bureau d'Analyses Macro-économiques
CG	Controle de Gestion
CID	Consortium for International Development
CPSP	Country Program Strategic Plan
COP	Chief of Party
CRSP	Collaborative Research Support Program
CSE	Centre de Suivre Ecologique
DRCSP	Direction des Recherches sur les Cultures et
Systèmes	Pluviaux
DRPF	Direction des Recherches sur les Productions Forestières
DRSPA	Direction des Recherches sur la Santé et les Productions Animales
DSA	Direction des Statistiques Agricole
FA	Financial Advisor
FSR	Farm Systems Research
GIS	Geographic Information Systems
GOS	Government of Senegal
IARC	International Agricultural Research Center
INSAH	Institut du Sahel
ISNAR	International Service for National Agricultural Research
ISRA	Senegal Agricultural Research Institute
KAP	Knowledge, Attitudes, and Practices (survey)
LT	Long-term
MEP	Monitoring and Evaluation Plan
M&E	Monitoring and Evaluation
MIS	Management Information Systems
MOA	Ministry of Agriculture
NARS	National Agricultural Research System
NEAP	National Environmental Action Plan
NGO	Non-governmental Organisation
NR	Natural Resource(s)
NRBAR	Natural Resources-Based Agricultural Research Project
NRM	Natural Resources Management
NRP	Natural Resources Planner
NS	National Statistics
NTS	National Technology System
OA	Outreach Advisor
PIR	Program Implementation Review
PLI	People Level Impact
PNVA	National Extension Service Project
PVO	Private Voluntary Organisation
RP	Research Planner
SARH	Service de l'Administration et des Ressources Humaines
SARII	Second Senegal Agricultural Research Project

SG	Sécretariat Général
SPAAR	Special Program for African Agricultural Research
ST	Short-term
TA	Technical Assistance
TDY	Short-term Consultant
TOR	Terms of Reference
UNIVAL	Unité d'Information et de Valorisation
UPF	Unité de Programmation et Formation
USAID	United States Agency for International Development

Annex 1 - Notes on Participation

This is a key word and concept in the implementation of the NRBAR project. Very simply put, participation is an indicator that people have a vested interest in the project, and it is hypothesized that participatory projects (or projects that achieve a high degree of participation) will be more sustainable (continue in some form) after the project is completed. Participation is a difficult term to define, precisely, because it means different things to different people. For some people, indicators of participation include attendance rates, changes in decision making processes/mechanisms, contributions of time, money or other resources on the part of the beneficiary and the implementing agent. For the NRBAR project, there are several key dimensions of participation:

1) Increased direct and personal interaction between different groups of project beneficiaries, ISRA researchers, NGO personnel, and farmers through on-farm field trials, periodic seminars and farmers' meetings/workshops. The ISRA-NGO-farmer linkages that are established through collaborative research grants (if successful) may indicate what future extension mechanisms/structures in Senegal will look like. It is thought that these linkages will also facilitate information exchange between researchers and farmers (producers and consumers of agricultural technologies). This strategy fits (how well is yet to be determined) with the premise that in order to successfully develop and transfer technology that will contribute to economic growth, the supply of technology must emanate from and be linked to the demand for technology. Applying this premise to the collaborative research (extension) structure places the NGO in the role of somehow determining farmers' technology needs and demands and relaying this to ISRA or identifying the ISRA researchers with whom they might work to adapt specific technologies to the local problem.

In terms of this dimension of direct participation, some constraints may be quickly identified that limit the scope of participation. One of the constraints to participation for ISRA researchers and technicians will be their current placement and activities in the research institution. The project will initially emphasize research in five natural resource management programs in the the DRCSP, DRPF, and possibly DRCSI research divisions. This does not preclude some direct collaboration or participation by researchers in other programs or divisions through seminars and conferences. Extending this further, these research programs operate in specific geographic locations of the country, Bambey/Kaolack, Djibilor, and Saint-Louis, which in all likelihood will constrain their ability to establish collaborative research programs with NGOs in more distant parts of the country (Tambacounda, Kolda, for example). Even if the project does achieve some participatory collaborative research in all five regions, the number of researchers and technicians, in addition to the limit of 15 collaborative grants over the life of the project limits the number of villages and farmers that may be able to participate (possibly 45-50 villages, maximum).

Turning to the NGOs there are several constraints to direct participation that might result. Geographic location, lack of contact or experience working with ISRA in order to develop collaborative research plan/program, institutional weaknesses - management and financial capacities/capabilities, communication difficulties. These constraints may be more pronounced when one looks at the NGO in terms of international/domestic, length of time established, location, number of personnel and their levels of education and experience, capital equipment. This is where the NGO-PVO grant project administered by USAID may have a positive effect on the project, particularly if the stronger NGOs working in agriculture/natural resource management are able to identify and work in institution building (training) of weaker NGOs. The NGO organizations appear to be critical in terms of multiplier effects for the NRBAR project, as it is anticipated that they will be making demands on ISRA to provide technologies or services for the farmer clientele with which they work.

Constraints to farmer participation in this process are also important to consider. Possible constraints might include: lack of previous working relationship with implementing NGOs, lack of opportunity because of land, labor, or capital (credit, animal traction, club dues/cash) constraints, gender, age, socioeconomic position.

An additional consideration is that the project's direct participation is focused on the research process to generate and test technologies for validation and/through dissemination, and not so much on technology distribution or identifying and building links (bringing into the process) actors who may reproduce and sell technologies to farmers in a broader geographic area. According to what has been learned about technology development and dissemination in order to bring about economic growth, attention will have to be focused (possibly through other project or non-project assistance) to input markets for the technologies (noting constraints on availability and accessibility) and output markets for the increased production the technology is supposed to accomplish.

2) Increased indirect participation, which is probably an awkward way of stating that there will be another component to increase the demand for ISRA products (technologies) and services through educational efforts - media, posters, brochures to the population at large. Here the constraints include - geographic location of farmers, access to a radio, ability to read in local language.

Annex 2 - Notes on Project Logframe

The present logframe was probably developed by the project design team and USAID for the project paper, and serves as a reference point for evaluation. However, once the entire Technical Assistance team is present and has had an opportunity to orient themselves to ISRA and the NRBAR project, I recommend that NRBAR director, CID staff and their ISRA counterparts, and the USAID project officer redo the project's logframe in September or October, prior to submitting the five-year workplan. The logframe exercise should: a) increase project team solidarity through identification of each individual's personal role in achieving project objectives as well as an opportunity to clarify roles in relation to other team members' roles (see the anticipated synergistic effect between the different roles); b) verify that the logframe represents achievable objectives, valid indicators, realistic means of verification, and plausible assumptions (hypotheses). I recommend this takes place as soon after the summer vacation period as possible, and prior to strategy sessions for developing next year's work plan and the four/five year work plan. The team may even think of institutionalizing this exercise on an annual basis prior to the development of the annual work plan, as it provides an ideal opportunity to discuss changing constraints to project activities/realizing project objectives, verify that assumptions are pertinent to project outcomes, and modify outputs in such a way that they more closely reflect what is anticipated by the end of project based upon information collected to monitor activities.

Annex 3 - Example of Impact Matrices developed for Natural Resources-Based Agricultural Technologies (borrowed from Kite Memorandum, August 11, 1992).

LIVE FENCES, FIELD BORDERS, WINDBREAKS

Expected Impact	Indicators	Analytic Issues
Increased number of trees in farm fields.	Number of hectares having the recommended types of windbreaks, field borders, and live fences. Cost per hectare (density considered).	What are the major factors (including institutional) which determine participation? What are the characteristics of participants and non-participants? Under what conditions is this sustainable ex-project?
1 Increase soil fertility	Changes in soil properties (biophysical). Changes in yields (species, crop and tree product specific).	The timing of changes in soil productivity and the effect on crop and wood product yields and production - cost/benefit analysis.
Erosion control	See table for "Erosion Control."	
Protect Property and property rights		
2 Increase crop output	Cash crop production. Food crop production.	What "exogenous" factors have influenced production and how? How does an improved production base affect the allocation of land to specific uses? To intra-family allocation?
3 Increase tree products	Production of tree products (per hectare, species, density, and product specific).	The timing of changes in tree product yields.
4 Increase income	Value of production - cash crops. Value of production - food crops. Value of production - tree crops. Marketed farm products. Home consumed farm products. Cost of production. Cash and imputed value of net income (per hectare, per farm, per capita).	How does this influence farm production (input/output) decisions? How does this influence individual members of the farm family (labor, nutrition, income and expenditure distribution)? How is this influenced by markets? regulations?

This is one of example of the types of impact indicator tables which will be constructed as natural resources-based technologies are identified by the NRBAR project for development towards validation. Notes on Short term Technical Assistance

Annex 4 - Questions for Progress on Process for Monthly Reports

1. What evidence has there been of creating an environment within ISRA that encourages creativity, innovation, and improved research performance?
2. What evidence has there been of development of a strategy/indicators for incorporating others (technology stewards or users) in the research process?
3. What evidence has there been of full ISRA participation (senior administrators, research department directors, researchers) in elaboration of research priorities for ISRA/Senegal?
4. Progress towards elaborating an ISRA mission goal and objectives?
5. Progress in defining department/division/unit responsibilities - and individual job descriptions on which evaluation and performance assessment will be conducted?
6. Effectiveness of Monitoring & Evaluation Process - are they adequate?
7. Who does ISRA define as clients? What are the linkages between ISRA and their clients? - conferences, seminars, publicity, publications.

Annex 5 - Terms of Reference

POSITION:

Monitoring and Evaluation/Research Impact Specialist

DURATION:

3-6 weeks during March-May 1993, with possibility of:
3-6 weeks during August-October 1993, and
1-2 visits per year during 1994-1997.

GOAL:

To strengthen ISRA's capacity for (a) monitoring and evaluating its projects and programs, and (b) evaluating its research activities.

OBJECTIVES (FIRST YEAR):

1. To provide a basis for the monitoring and evaluation, and the determination of impact, of the NRBAR project.
2. To design a plan for ISRA's institutional development in these areas over the period 1993-97.

TASKS (FIRST VISIT):

to work with the ISRA NRBAR team, in order to:

- (a) develop project performance indicators for NRBAR monitoring and evaluation, and measurement of impact, and means of verification,
- (b) develop a draft monitoring and evaluation plan for NRBAR, including a management information system for tracking and storing M/E information,
- (c) determine remaining NRBAR baseline data needs, and propose a realistic program for meeting those needs during the April-August period,
- (d) assist ISRA in collecting and writing up available NRBAR baseline data, and
- (e) assist ISRA with developing a plan for measurement of research impact, and recommend appropriate methodologies of impact assessment.

TASKS (SECOND VISIT):

- (f) finalise a NRBAR baseline study report,
- (g) finalise a life-of-project monitoring and evaluation plan, and

(h) review ISRA's monitoring and evaluation processes at research and administrative levels, and outline possible improvements (with an implementation schedule).

The tasks for the second visit will be made more explicit following the results of the first visit.

Annex 7

COMPTE RENDU DU COURS DE FORMATION
SUR LE SUIVI ET L'EVALUATION DES
PROJETS D'AGRICULTURE ET DE
RESSOURCES NATURELLES

BAKAU (République de Gambie)
du 09 au 28 mai 1994

Mme Fatou Ndao BA
(Contrôle de Gestion)

Babacar NGOM
(CNRA/Bambey)

Alassane NDIAYE
(LNERV/Hann)

PREAMBULE

Organisé par l'international Ressources Group (I.R.G.) et l'Université de Wisconsin, le cours formation sur le Suivi-Evaluation des projets d'agriculture et de ressources naturelles s'est tenu à Bakau (République de Gambie) du 09 au 28 Mai 1994.

Les participants sont originaires de plusieurs pays francophones d'Afrique : Burkina Faso, Mali, Niger, Tchad, Sénégal. La plupart d'entre eux travaillent dans des projets d'agriculture et de ressources naturelles (Directeurs, Responsables Suivi-Evaluation, Gestionnaires etc).

La formation s'est répartie en cours théoriques, essentiellement axés sur les concepts et méthodes de Suivi-Evaluation, conjugués avec des séances pratiques conduites par des groupes de stagiaires en classe et sur le terrain.

L'étude de cas sur laquelle s'est porté le travail pratique est un projet d'arboriculture fruitière et d'embouche bovine de petits ruminants. L'objectif était de mettre en place son plan de Suivi-Evaluation.

Le cours cherchait à aider les participants à disposer d'outils et de méthodes pratiques de Suivi-Evaluation. Nous pensons qu'il a permis à l'ISRA de disposer à travers les stagiaires, de personnes ressources aptes à aider à la mise en place d'un système amélioré de Suivi-Evaluation des projets domiciliés en son sein.

L'objectif de ce présent rapport est de rendre compte du contenu et du déroulement du cours.

Nous remercions l'ISRA et le Projet NRBAR de nous avoir offert l'opportunité de bénéficier de cette formation.

INTRODUCTION :

De plus en plus, les bailleurs de fonds (Banque Mondiale - USAID), la tutelle (Ministères) s'intéressent aux mesures d'impact EVALUATION des projets qu'ils financent et dont les indicateurs ne peuvent être repérés qu'à travers un système cohérent de SUIVI.

En plus de cette préoccupation des bailleurs et de la tutelle, l'ISRA a tout aussi intérêt à systématiser la pratique du Suivi-Evaluation pour les raisons suivantes :

- une meilleure allocation des ressources devenues de plus en plus rares pour une plus grande efficacité des activités de recherches ;

- une disponibilité plus régulière de résultats de Suivi-Evaluation susceptibles de faciliter les prises de décisions opportunes.

Le Suivi-Evaluation correspond à un bon système de planification. Il permet d'identifier les résultats à atteindre et à en comprendre suffisamment les conséquences possibles pour pouvoir mettre en oeuvre les efforts nécessaires. Il empêche une dispersion des forces et aide à corriger les faiblesses.

C'est une activité permanente et essentielle de l'organisation. Chaque agent à quelque niveau qu'il se situe doit se sentir concerné et impliqué dans le processus global de Suivi-Evaluation.

Or, en règle générale, les projets conduits par l'ISRA ne disposent pas d'un système de Suivi-Evaluation (SE) au sens donné à ce concept.

Aussi recommanderons nous :

- une meilleure sensibilisation et implication de tout le personnel de l'Institut dans les activités de Suivi;
- une mise sur pied d'un plan de Suivi-Evaluation pour les nouveaux projets ;
- une mise en place d'une cellule chargée du Suivi-Evaluation.

Ces recommandations seront étayées et justifiées au cours de ce rapport que nous articulerons sur les 6 points suivants :

- I- *Rappels conceptuels*
- II- *Processus d'Elaboration d'un plan de Suivi-Evaluation*
- III- *Aperçu sur l'état des lieux des projets ISRA quant aux activités de Suivi-Evaluation*
- IV- *Evocation du plan Suivi-Evaluation NRBAR.*
- V- *Résumé et recommandations finales*
- VI *Cadre logique des recommandations*

I- RAPPELS CONCEPTUELS

Le Suivi est une estimation continue du fonctionnement des éléments du projet et de l'utilisation des intrants de ce projet. il est essentiellement une activité interne au projet.

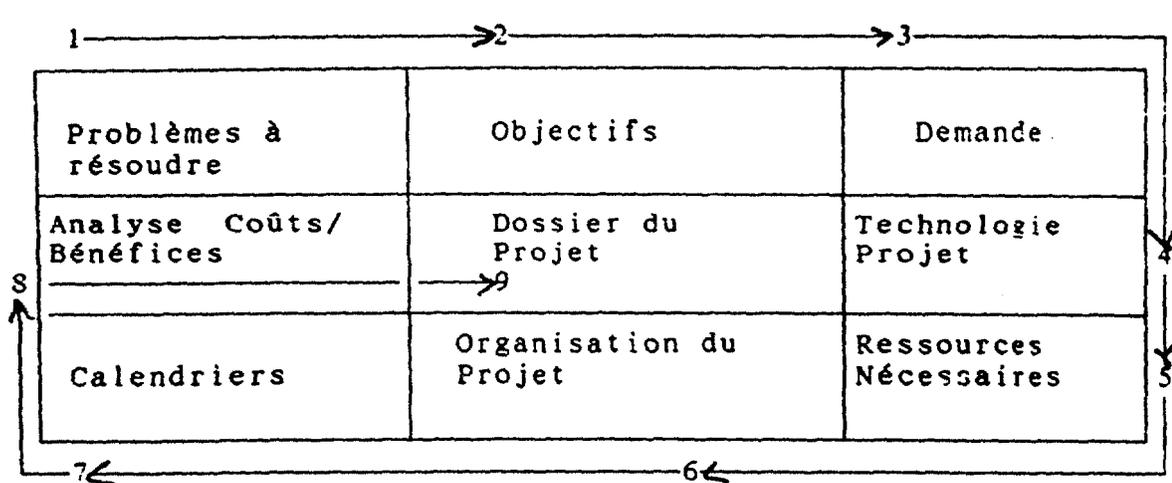
L'Evaluation quant à elle est une estimation périodique des résultats du projet et de leur impact sur les populations ciblées.

Le Suivi comme l'Evaluation utilise un système d'informations. Cependant, l'Evaluation de l'impact nécessitera généralement des études complémentaires en fin de projet.

Donc les deux mots pris séparément sont distincts l'un de l'autre par leurs objectifs et leurs périodes de référence. Même s'il existe des éléments communs qui mettent en relief la relation qui les unit, ils sont généralement accouplés dans un sigle Suivi-Evaluation et sous entend de ce fait, une fonction unique.

II- PROCESSUS D'ELABORATION D'UN PLAN SUIVI-EVALUATION

L'importance de partir du début de l'élaboration du projet réside dans le fait que le plan de Suivi-Evaluation doit naître avec le projet. Pour des raisons pédagogiques, l'élaboration d'un dossier de projet est divisée en neuf (9) étapes dont chacune d'elles fait avancer un peu plus dans la mise en place d'un plan de Suivi-Evaluation. Le système d'élaboration d'un dossier de projet est présenté ci-dessous.



55

ETAPE 1 - Problème à résoudre

Cette étape n'est différente de l'étape 2 "objectifs" que par son manque de données quantitatives précises.

Elle reste tout de même très liée aux autres étapes du processus. C'est une donnée de la planification générale et des grandes orientations.

Exemple d'un problème à résoudre : comment augmenter la productivité rurale pour améliorer le niveau des revenus agricoles (ex tiré du projet NRBAR)

ETAPE 2 - Objectifs

C'est l'étape de la mise en évidence des objectifs spécifiques (quantitatifs et qualitatifs) du projet. C'est à ce niveau que les principaux indicateurs de Suivi-Evaluation sont déterminés afin d'identifier et de quantifier précisément les résultats ou extrants du projet. A ce stade, il est plus important de déterminer les indicateurs qui serviront à l'évaluation.

Ces indicateurs seront utilisés ultérieurement pour renseigner un cadre logique qui est un instrument de planification et de référence pour le Suivi-Evaluation. Etabli sous forme de tableau, il montre l'enchaînement par lequel l'utilisation des intrants dûs aux activités du projet concourent par les résultats obtenus (extrants) à la réalisation des objectifs spécifiques et globaux du projet.

Ce tableau précise en outre les indicateurs à mesurer, les moyens de vérification ainsi que les conditions dans lesquelles se réalisent ces résultats.

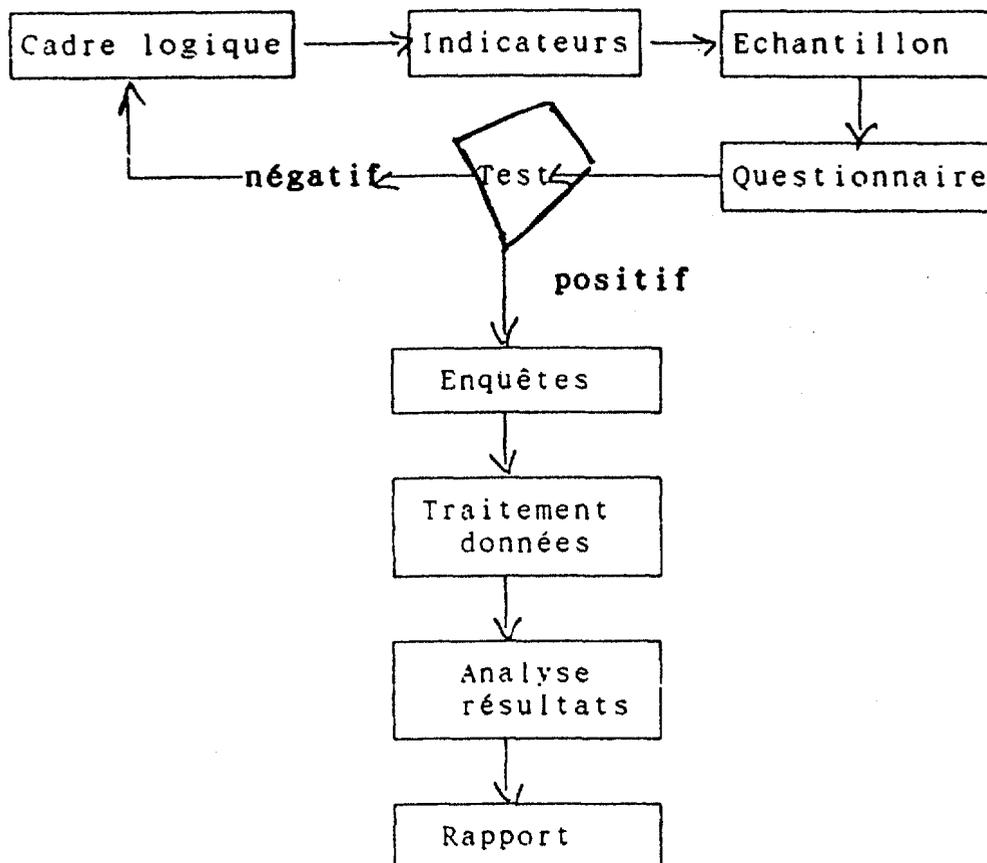
CADRE LOGIQUE

	Rubriques	Indicateurs	Moyens de vérification	Hypothèses
1-But				
2-Justificat°				
3-Résultats				
4-Activités				

Les indicateurs retenus dans le cadre logique doivent être **objectivement vérifiables** (IOV). Parmi ceux-ci, certains, du fait qu'ils sont quantifiables, sont facilement mesurables par des méthodes statistiques.

Pour une meilleure analyse de l'impact ultérieur du projet, il est effectué des enquêtes de base (début de projet) pour obtenir des données de référence. Les résultats de ces enquêtes seront comparés avec ceux obtenus durant les enquêtes en cours et/ou en fin de projet. Leur interprétation tiendra compte des éléments qualitatifs liés au déroulement du projet.

Le processus d'élaboration et d'exploitation d'un questionnaire d'enquête qui servira à l'obtention de ces données de référence est décrit ci-dessous :



Le choix de l'échantillon, l'élaboration du questionnaire, le traitement des données et leurs analyses sont des activités essentielles de ce processus.

En ce qui concerne le choix des échantillons, notre expérience durant notre formation a porté sur l'échantillonnage simple, aléatoire, stratifié, et par grappes.

Pour l'élaboration des questionnaires, nous nous sommes exercés aux questions fermées (structurées), ouvertes (non structurées) et avons comparé leurs avantages et inconvénients relatifs.

Pour le traitement des données, nous avons utilisé un tableur (lotus 1.2.3).

Leurs analyses, en référence à la distribution normale (courbe de Laplace Gauss) ont fait intervenir les notions suivantes : moyenne, variance, écart-type, mode, médiane, intervalle de confiance, probabilité etc.

Les indicateurs non quantifiables appelés indicateurs qualitatifs sont appréciés par des interviews ou encore par la Méthode Accélérée de Recherche Participative (MARP).

ETAPE 3 - Demande

Cette étape consiste à étudier les extrants attendus du projet. Les méthodes utilisées sont celles du marketing : (documentation, enquêtes auprès des bénéficiaires, etc.). L'analyse des résultats de l'étude de marché donnera plus de précisions sur les indicateurs quantitatifs et sur le choix de la technologie. Les méthodes de traitements statistiques des données sont les mêmes que celles évoquées à l'étape antérieure.

ETAPE 4 - Technologie

C'est dans cette phase qu'on détermine le processus par lequel sont générés les extrants du projet (techniques de production).

Ex : S'il s'agit d'un projet d'embouche ovine, on précisera dans cette phase, les poids, l'âge des animaux à emboucher, la ration alimentaire, le traitement sanitaire requis, la date de destockage et le poids final attendu.

ETAPE 5 - Ressources

L'étape Ressources est celle où les intrants (physiques, financiers, humains etc.) sont quantifiés et qualifiés de façon précise.

C'est dans ce sens, qu'elle est l'étape la plus importante dans l'identification des indicateurs de suivi (comptabilité des matières, budgets de trésorerie, suivi financier, fiche de présence pointage...). Il est en quelque sorte pour le Suivi ce que l'étape 2 est pour l'Evaluation.

ETAPE 6 - Organisation

Ce stade définit l'organigramme du projet. Il définit l'enchaînement des activités et les responsabilités dévolues aux ressources humaines dans chaque structure (profil de poste occupé).

Il organise également les relations entre structures (relations hiérarchiques et fonctionnelles). Il faudra songer à préciser le degré d'implication de chaque agent dans les activités de Suivi-Evaluation et la place qu'occuperait une éventuelle structure centralisatrice de ces activités.

ETAPE 7 - Calendrier

Ce stade planifie les activités en précisant leurs périodes d'exécution et leur enchaînement logique. Les activités qui sont le plus souvent planifiées ont trait à la mise en place des approvisionnements, aux horaires de présence, à la réalisation des extraits etc. Les instruments de Suivi généralement utilisés sont le diagramme de Gantt, le tableau de bord, la situation d'exécution budgétaire etc.

ETAPE 8 - Analyse des coûts et bénéfices

C'est l'ultime étape de l'élaboration du dossier du projet. Les résultats des études socio-économiques et financières effectuées avant projet influenceront le choix des décideurs (abandonner le projet ? exécuter le projet ? reprendre les études ? etc).

ETAPE 9 - Dossier du projet

Ce sont les conclusions des études, traduites sous forme d'un dossier complet contenant entre autres éléments, un plan Suivi-Evaluation qui sert de repère pour une gestion transparente du projet.

III - APERÇU SUR L'ETAT DES LIEUX DES PROGRAMMES ISRA QUANT AUX ACTIVITES DE SUIVI-EVALUATION.

Le Suivi-Evaluation en tant que fonction unique n'est pas pratiqué à l'ISRA.

Par contre, le Suivi et l'Evaluation pris séparément sont exécutés l'un au niveau des structures de gestion et l'autre au niveau des structures scientifiques.

En effet, à l'ISRA, le Suivi est essentiellement budgétaire et financier alors que l'Evaluation est surtout scientifique.

Quelques idées d'accouplement de ces deux fonctions ont été lancées avec la création du contrôle de gestion au début des années 80.

La mission principale de ce service (à l'époque composé d'un seul agent) consistait à établir une adéquation entre la faisabilité technique des programmes et la disponibilité de ressources pour leur exécution.

Les fiches techniques et financières élaborées à cet effet, ont servi de support à la programmation des activités et à la préparation des travaux des comités scientifiques et techniques.

Mais le déséquilibre financier de l'Institut et la dégradation progressive de sa gestion ont contribué à infléchir négativement sur cette volonté de lier ces deux fonctions : le suivi de l'exécution budgétaire et financière a progressivement pris le pas sur le suivi des activités scientifiques et techniques.

*** SUIVI BUDGETAIRE ET FINANCIER**

L'instrument de planification utilisé à ce niveau est le budget. Les progressions mesurées par rapport à celui-ci sont résumées dans ce qu'on appelle les situations d'exécution budgétaire (SEB).

Le système d'information utilisé s'articule sur les outils suivants : **Bon d'Achat Interne (BAI)** qui recueille les besoins de dépenses exprimés par les responsables budgétaires, le **Bon de Commande** qui les traduit sous forme d'ordre envoyé aux fournisseurs, les **factures** des fournisseurs, les **bordereaux de livraison**, les **procès verbaux de réception**, les **mémoires de remboursement** ou de justification etc.

De plus en plus, pour répondre aux besoins de certains bailleurs de fonds, l'ISRA s'intéresse à une gestion régulière des décaissements effectués sur chaque projet.

Ces activités de suivi (budget, trésorerie etc) prises en compte au niveau des structures centralisées de gestion (Services de gestion, Direction de Recherches, Secrétariat Général, Contrôle de gestion etc) ne se préoccupent pas de l'appréciation de l'opportunité des dépenses.

Les tentatives d'arbitrage effectuées au niveau des comités de gestion ont-elles réussi à réconcilier les activités scientifiques des besoins financiers exprimés ?

Les taux de réalisations budgétaires, et les ratios de décaissements considérés comme des indicateurs de performance le sont-ils vraiment s'ils ne sont pas rapprochés aux réalisations techniques et scientifiques des programmes ?

* EVALUATION SCIENTIFIQUE

Les évaluations techniques et scientifiques sont généralement commanditées par les bailleurs de fonds. Elles sont rarement demandées par la tutelle et encore plus rarement par l'Institut.

Les seules activités de l'ISRA qui se rapprochent un peu de l'évaluation interne sont celles recensées au niveau de la programmation. Celles ci ne sont pas des activités d'évaluation à proprement parler mais elles ont trait à la revue rétrospective, aux indications de corrections des distorsions et à la revue prospective des programmes. Jamais toutes les disponibilités financières ne sont connues en même temps pour tous les programmes et pour toutes les conventions.

L'instrument principal utilisé dans les activités de programmation est le rapport du programme. Il renferme les acquis, les réalisations de l'année en cours et les perspectives pour l'année à venir.

Si évaluer signifie mesurer les performances du programme et son impact potentiel et actuel sur les populations ciblées, nous ne pouvons pas conclure que l'ISRA, à travers les activités de programmation, évalue ses programmes. Cependant, depuis plus de deux ans, une instance nouvelle appelée Comité de programmes s'évertue à instaurer une meilleure préparation de la programmation. C'est dans ce sens qu'il apparaît comme un prélude à la programmation.

Dans quelle mesure les comités de programmes ISRA combleraient-ils le fossé existant entre les activités de Suivi et celles qui s'identifient à l'Evaluation (programmation) ?

IV- EVOCATION DU PLAN SUIVI-EVALUATION NRBAR

Nous ne pouvons pas terminer ce compte-rendu sans évoquer le projet NRBAR dont le plan Suivi-Evaluation nous a été distribué avant notre départ en formation.

A notre connaissance, de tous les projets et conventions ISRA, seul NRBAR dispose d'un plan Suivi-Evaluation élaboré à son démarrage.

Nous avons examiné les objectifs définis du projet traduits sous forme d'extraits dans le plan Suivi Evaluation qui nous est proposé.

Ces extraits répartis en deux grandes parties concernent :

- * la validation de quinze (15) technologies basées sur les ressources naturelles pour leur utilisation en milieu réel et
- * le renforcement des capacités institutionnelles de l'ISRA.

Les expériences qui seront tirées du Suivi-Evaluation du projet NRBAR aideront à mieux établir le PSE des programmes et des projets de l'Institut.

Par ailleurs, les ressources humaines et financières disponibles dans ce volet "Appui institutionnel" pourraient aider à la diffusion de notre expérience auprès de nos collègues (rapports séminaires) et faire bénéficier à certains d'entre eux des possibilités de formation dans le domaine du Suivi Evaluation.

Les connaissances tirées de notre formation conjuguées avec les appréciations faites à la suite de la lecture du PSE NRBAR nous amènent à formuler un certain nombre de recommandations.

67

V - RESUME ET RECOMMANDATIONS

Nous avons, à travers ce compte rendu, rappelé les significations qui se cachent sous les concepts "Suivi/Evaluation" et tenté de montrer quel intérêt l'Institut tirerait de l'instauration d'un plan Suivi-Evaluation pour les projets, programmes et conventions qu'il exécute.

Pour situer le Suvi-Evaluation dans le cycle du projet, nous n'avons pas manqué de rappeler les différentes étapes de l'élaboration des projets et insisté sur les méthodes statistiques de mesure d'indicateurs quantitatifs sans négliger pour autant les indicateurs qualitatifs.

Nous avons, enfin, jeté un regard critique sur les activités de Suivi-Evaluation de l'ISRA ou tout au moins celles qui s'identifient comme telles, avant d'évoquer le plan Suivi-Evaluation de NRBAR et d'expliquer comment sa lecture et les connaissances reçues nous ont amené à formuler les recommandations suivantes:

Recommandations

1- Diffuser le présent rapport au niveau de tous les responsables de l'Institut.

L'objectif est de recueillir les avis pour leur prise en compte dans les travaux de sensibilisation et de mise en oeuvre des recommandations retenues.

2- Rendre disponible auprès des personnes impliquées un résumé du plan de Suivi-Evaluation NRBAR.

L'objectif est de mettre à leur disposition un plan de Suivi-Evaluation qui servirait de modèle pour une meilleure compréhension de la méthodologie d'élaboration d'un PSE pour leur programme.

3- Etablir un programme de sensibilisation au Suivi-Evaluation par la formation (séminaires) et l'information (diffusion de documents, rencontres, etc).

L'objectif est, d'une part, de susciter l'intérêt du personnel de l'ISRA aux problèmes de Suivi-Evaluation, de valoriser au mieux l'expertise disponible, d'identifier et de développer les outils de Suivi-Evaluation adoptés au contexte institutionnel de l'ISRA ; d'autre part, d'identifier les faiblesses du système de Suivi et d'Evaluation de l'Institut.

4- Etablir une expertise locale en Suivi-Evaluation par la formation complémentaire et les visites, pour les personnes ressources identifiées, de projets et institutions disposant d'un plan de Suivi-Evaluation éprouvé .

L'objectif est d'harmoniser en la systématisant la pratique du Suivi-Evaluation à l'ISRA et de disposer d'une expertise valable pour faciliter le travail d'éventuels évaluateurs externes.

5- Créer une cellule ISRA chargée du Suivi-Evaluation.

L'objectif est de créer une unité de coordination des activités relatives du Suivi-Evaluation. Cette cellule aurait pour tâches d'aider chaque structure à mettre en place un plan Suivi-Evaluation (choix d'indicateurs appropriés, périodicité de production d'informations et de rapports).

6- Aider, lors des travaux de programmation, à la traduction claire en termes d'indicateurs de Suivi-Evaluation, les résultats et les intrants du programme et à leur inscription sur les fiches programme.

L'objectif est de faciliter une évaluation prochaine du programme par une connaissance à terme de la configuration des populations ciblées et une valorisation des compétences en techniques de Suivi-Evaluation.

7- Etablir un plan de Suivi-Evaluation pour chaque programme au moment de son évaluation externe.

L'objectif est de partir des données fournies par cette évaluation externe pour élaborer un plan et commencer par ces programmes évalués, à généraliser l'établissement de plan Suivi-Evaluation à l'ISRA.

8- Etablir un calendrier de mise en oeuvre des recommandations approuvées.

L'objectif est d'avoir un système de Suivi de leur réalisations.

65

**VI CADRE LOGIQUE POUR LE SUIVI DES
RECOMMANDATIONS DU RAPPORT**

	Rubrique	Indicateurs	Moyens de vérification	Hypothèses
BUT	Meilleure performance de la recherche par la création de résultats plus importants et mieux adaptées	Nombre de Technolog. générées et adaptées	Etudes d'évaluation	Environnement favorable
JUSTIFICATION	Renforcement des capacités institutionnelles de l'ISRA à mieux gérer ses ressources pour répondre aux préoccupations des producteurs	Prioritisation des programmes selon leur efficacité et la disponibilité des ressources	Compte rendu comité de programmation	Disponibilité continue des ressources financières et humaines : flexibilité dans l'organisation interne de l'Institut.
RESULTATS	-Compétences internes S/E développées -Système amélioré de SE mis en place	Nbre de personnes formées - nbre de séminaires et de manuels sur le Suivi-Evaluation disponibles Tout programme disposant d'un PSE. Nbre de fiches incluant des indicateurs.	Compte rendu de séminaires Rapports périodiques des services, documentation sur les études d'impact de recherche, rapports de programme et des DR.	Conditions de motivations positives

RESULTATS (suite)	-Cellule de Suivi-Evaluation créée avec responsabilités et procédures clairement définies	Notes de service portant création, organisation de la cellule et affectation du personnel.	Notes de service	
ACTIVITES	Recommandations 1, 2, 3, 4, 5, 6, 6, 7.	Calendriers d'exécution	Rapports	Recommandat* acceptés et moyens humains et financiers disponibles.

Projet de Recherche Agricole au Sénégal II (Banque Mondiale)				
	Rubrique	Indicateurs	Moyens de Verification	Hypotheses
But	Accroître la contribution du secteur rural dans l'économie nationale	% du PIB du secteur rural augment x -> y taux de couverture des besoins alimentaires augment a -> b Accroissement de revenu agricole moyen	Statistiques Agricoles Statistiques Nationales (BP) Enquete Primaire et autres	Conditions environnementales (pluviometrie, invasion acridienne) favorable; politique agricole favorable;
Justification	Génération des technologies apt à résoudre des contraintes des producteurs, augment leur productivité, et protégé leur environnement			

Annex 8

<p>Resultats</p>	<p>Gestion amélioré de l'administration, de la recherche, et des finances</p> <p>Disponibilité d'infrastructures et d'équipements performants</p> <p>Amélioration du niveau de technicité du personnel</p> <p>Disposé d'un structure apt à gerer des activités generatrices propre</p> <p>Recherche plus rapproché du milieu réel (fort liason entre recherche-vulgarisation-producteurs) et des préoccupations des producteurs</p>	<p>Distribution optimale des ressources humaines; prioritzé les objectifs de la recherche en adequation avec les moyennes; évaluations periodiques de la pertinence et performance de la recherche; système de comptabilité en place que fourni les informations pertinants en temp réel</p> <p>Nombre de batiments nouveaux et renovés; ratio vehicules/chercheurs; ratio materiels informatiques/chercheurs; nombre de laboratoires</p> <p>Quantité, niveau et type de formation fournie au personnel de l'ISRA</p> <p>Existance de la structure autonome</p> <p>nombre de technologies validées (variétés et techniques culturales) adapté au deux saisons (Fieuve).</p> <p>Augmentation de superficie rizicole cultivable (x -> y) et nombre de variétés de riz amélioré.</p> <p>Augmentation de nombre de producteurs qui pratiquent l'assolement optimale recommandé par l'ISRA en Senegal Orientale.</p> <p>Augmentation de superficie protégé et restauré par les technologies agroforestiere recommandé par l'ISRA (Sine-Saloum).</p> <p>Pourcentage d'animaux amélioré et niveau de technicité de producteur en matiere de gestion de troupeau.</p>		<p>Consensus dans l'approche de l'appui des bailleurs</p> <p>Mésures incitatives pour stabilisé le personnel</p> <p>Prise en compte des besoins du producteurs et leur implication effectives dans les differants étapes de la recherche</p>
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Activités	<p>Mise en place des infrastructures (genie civil, rehabilitation des centres et stations de recherche, equipements, vehicules, materiel informatique, laboratoire)</p> <p>Appui financier: amélioration gestion financier et comptable (audit); amélioration de gestion administrative (INFORM, évaluation du personnel)</p> <p>Etude faisabilité pour la creation du structure chargée les activités generatrices des recettes</p> <p>Appui financier pour l'amélioration de la gestion de la recherche (reorganization de structure et programmes, definition des priorités de recherche, évaluations des programmes de recherche)</p> <p>Formation et appui technique (consultants)</p>	<p>realisation selon calendrier d'exécution et budgets prévisionnaire</p>	<p>contrats/marchés executés, factures, rapports du projet, procès verbal de réception</p>	<p>Disponibilité des ressources nécessaire, respect des termes des contrats</p>
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Projet OSDIL-ISRA/Valorisation de Technologie Agroforestiere				
	Rubrique	Indicateurs	Moyens de Verification	Hypotheses
But/Finalité	Augmentation de la productivité de la population et améliorations de leur conditions de vie			
Justification But	Technologies durable pour le restauration d'environnement mis en place (sois, couvert vegetal)			
Resultats / Extrants	Jardins maraichere protégé et aménagé Champs protégé contre érosion eolienne et sois plus fertile Mis en place et maîtrise des technologies			
Activités / Intrants	Pepinieres des espèces choisi pour le technologies Formation des paysans et appui technique Plantations (haies vives, brise vents, cultures en couloirs/plantation d'enrichissement) Suivi-entretien Arboriculture (mangues, citrons)	realisation selon calendrier d'exécution et budgets prévisionnaire		

Annex 9

71

TABLEAU SYNTHÈSE DU CADRE LOGIQUE

Projet: PPFS

REMARQUE:
Ce tableau sert de matrice pour photocopies. Si vous est impossible de le photocopier tel quel, c'est-à-dire 11" x 17", vous pouvez le faire en 2 fois 8 1/2" x 11".

0 CONDITIONS CRITIQUES

1 RÉSUMÉ NARRATIF

2 CRITÈRES DE RÉALISATION

3 MOYENS DE VÉRIFICATION

<p>But/Finalité</p>	<p>Finalité: Raison d'être du projet (à moyen ou à long terme - trois ans)</p>	<p>Finalité Implication de 10 villages au programme du projet.</p>	<p>Source d'information Moyens utilisés</p>
<p>Extrants/But</p> <p>Préconditions Conditions de base pour travailler</p>	<p>But: Raison d'être du projet (à court terme - un an) Conservation de l'équilibre des écosystèmes et des ressources naturelles</p>	<p>But: ÉTAT DE FIN DE PROJET / <u>année</u> Acquisition des superficies protégées</p>	<p>Source d'information Moyens utilisés</p>
<p>Intrants/Extrants</p> <p>Paix en Casamance facteurs socio-culturels harmonisation spirituelle</p>	<p>Extrants: Résultats concrets à produire - Indicateurs de - Indicateurs de la - Indicateurs de la</p>	<p>Extrants (Quantité, qualité et échéances) - Nbre de villages ayant participé au projet - Nbre de relais formés dans l'année - Nbre d'activités réalisées - Nbre de réunions (comité aux actions) - Nbre de réunions</p>	<p>Source d'information Moyens utilisés</p>
<p>CONDITIONS PRÉALABLES au démarrage du projet</p> <p>Budget approuvé</p>	<p>Intrants Activités - 1 Animation GRAP - 2 Services - 3 Formation relais - 4 Appointement - 5 Appointement</p>	<p>Intrants Ressources - 1 - 2 - 3</p>	<p>Source d'information Moyens utilisés</p>

1000

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Annex 01 XVVA

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