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A MONITORING AND EVALUATION PLAN
FOR USAID ASSISTANCE PROGRAM
IN SENEGAL

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Dakar, December 15, 1981

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INTRODUCTION

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In the FY 1983 Country Development Strategy Statement for Senegal, USAID planned to submit two related documents in January 1982, in addition to a summary of progress made through December 1981. The first was a statement of the program in the human development area, with particular attention to health. The second was a detailed evaluation and monitoring plan for the strategy as set forth in the CDSS. This report presents the evaluation and monitoring plan.

The Plan builds on and continues in modified form the major evaluation effort undertaken during the joint GOS/USAID Country Assessment in 1980. It presents a set of related activities that USAID intends to promote in collaboration with GOS for the purpose of measuring the progress and impact of the bilateral program during the mid-term period (1983-1987) covered by the CDSS. The evaluation and monitoring activities proposed are designed to provide information and analysis regarding the progress of key elements of the strategy and to test certain assumptions underlying the bilateral program. Accordingly, the Plan provides for periodic assessments of bilateral assistance and the implementation of those GOS policy and institutional changes considered crucial to the achievement of development goals. As in the case of the Country Assessment, USAID plans to use this information in periodically reviewing its strategy and strengthening its program focus.

Lagging agricultural production is at the heart of Senegal's long-term development problem, and is the root cause of the current financial crisis. USAID's long-term goal in Senegal remains the same as set forth

in the FY 1983 CDSS -- that is, food self-sufficiency by the year 2000, defined as Senegal's achievement of a capacity to feed its people (by domestic production, storage, and trade) even in drought years. The evaluation and monitoring plan corresponds to a period in which GOS will seek to stabilize the financial and balance of payments situation while laying the groundwork for long-term economic growth. Accordingly, the Plan provides for assessments of short-term stabilization measures, as well as information on the results of USAID support for the longer-term development goal of increased food self-sufficiency.

USAID believes that a determined, if selective, effort to measure the performance and impact of the program it will be supporting during this period is imperative if it is to demonstrate to GOS that real benefits are being or can be delivered given an appropriate context of GOS policy and institutional reform. As the Plan is carried out and subsequently refined, GOS will continue to be involved closely in defining the purpose of evaluations and the criteria for measuring or otherwise assessing progress in carrying out the strategy defined in the CDSS.

The Plan includes evaluation research studies and continuous reporting requirements for obtaining the minimum amount of information necessary to track progress and determine impact. The approach combines several types of data collection, analysis and reporting: monitoring, periodic progress reviews, impact assessments, and special studies. The timing of reports is set as much as possible to meet such anticipated decision points as CDSS revisions, GOS-donor meetings, USAID programming and budgeting, and project follow-on.

1. USAID Strategy and GOS Reform Plan

The 1980 GOS/USAID Country Assessment provides ample evidence of broad policy and institutional conditions affecting, directly or indirectly, the achievement of the purposes and goals USAID is pursuing in Senegal. It has been customary in AID project development to regard these kind of conditions as "assumptions" about the environment in which projects are implemented (e.g., they are located in the assumptions column of the logical framework of a project). While such conditions do remain beyond the control of a project manager or a single donor, USAID has concluded that they have become so integral to its efforts that they have to be addressed directly in evaluations of the program.

Long-term USAID strategy rests on two main assumptions: the first is that government control over the factors of rural production -- the single most important institutional barrier to increased production -- will be decentralized and liberalized. The second is a closer alignment of the urban and rural economies, expressed in trade patterns and a shift in resources to rural areas enabling producers to succeed in and profit from more intensive farm production methods.

Several intended GOS policy and institutional reforms are closely associated with these assumptions, and implementation of these reforms will directly affect the success of the strategy. Policy reforms include those relating to farm producer prices, subsidies, and trade, and the relative emphasis in the Sixth Development Plan period given to investment in the agricultural sector. Among the institutional reforms are the decentralization of authority and resources to regional and local bodies, and the

development of private sector activity replacing or emerging parallel to the public sector.

Encouragement of private sector growth is similarly related to the success of stabilization in the short-term -- a condition for long-term development -- and the pace of administrative reforms. While the present strategy includes specific projects fostering private sector development, USAID also believes that stabilization, growth and commercialization of the rural economy, and an environment in which highly centralized government institutions progressively disengage from control over the economy will provide more enduring incentives for private sector development, and its ability to contribute to overall economic growth.

Given the relationship between USAID strategy on the one hand, and COS reforms and the pace of their implementation on the other hand, evaluation work will attempt to address the following broad questions:

1. To what extent does the pace of COS reforms support or limit the achievement of program purposes and goals?
2. Conversely, to what extent does the program directly support or handicap implementation of these reforms?
3. Can USAID demonstrate (validate) in the performance and impact of its program the hypothesis that USAID assistance is contributing effectively to the achievement of long-term goals?

These questions, or reformulations of them, can be asked at several levels. Some are most relevant to an assessment of the macro-economic context within which USAID strategy is developed and refined. They can also be asked to test assumptions at the sector level, in this case the two sectors that form the core of USAID's program support -- agriculture and health. And they can be refined as evaluation criteria at the level of project and non-project activities designed to implement the strategy.

An additional condition influencing the effectiveness with which USAID's strategy is implemented in Senegal is the extent of joint multi-donor cooperation with GOS. While this element of USAID operations is not directly addressed in the Plan as an issue or question for evaluation, one of the measures of the utility of the Plan itself will be its capacity to organize and bring under periodic joint review issues of mutual concern. Future revisions of the Plan will attempt to develop further its usefulness as a joint planning and management tool.

II. Assessment at the National Level

Although not evaluative (strictly defined), ongoing monitoring of macroeconomic developments and trends is an essential backdrop for both planning and evaluation, and is included in the Plan. A major part of this monitoring is a review of the pace of GOS reforms, including the completion of GOS studies needed to inform decisions on price and subsidy policies. With the assignment of an economist to the Mission, together with the related resources that will be available through the Princeton economic studies and the Agricultural Research and Planning Project (Michigan State University), USAID will have a capability to undertake, on a continuing basis, analysis pertaining to both the short-term GOS stabilization program and longer-term trends, and GOS implementation of its reform program.

USAID will assess the effectiveness of non-project assistance -- expected to represent a substantial proportion of the bilateral aid portfolio -- in the context of the above analysis. Three types of non-project assistance are anticipated -- PL 480, the Agricultural Sector Grant, and Economic Support Fund. USAID does not expect to trace and measure a specific set of

impacts attributable to either dollar or local currency funds generated by non-project assistance on macroeconomic or policy changes. USAID will, however, employ several indicators for assessing whether:

- GOS policy reforms are being implemented as planned; and
- non-project assistance is being directed to priority uses closely related to USAID strategy and the assumptions on which this strategy is based.

The assignment of non-project assistance to specific policy goals and sector uses is described in the following table:

<u>Non-Project Assistance Vehicle</u>	<u>Direction of Policy Impact</u>	<u>Direction of Local Currency Use</u>
PL 480	National Agric. Strategy Cereals Price Policy & Marketing Decentralization of Agric. Research	Cereals Production Vegetable Production Reforestation PVO Support Crop Storage
Agric. Sector Grant	RDA Decentralization Support RDA <u>Contrat - Plans</u> Rural Private Sector Reform	Rural Private Enterp. Market Links (Rural Roads) Local Inst. Develop. (Coops)
Economic Support Fund	Implement Reform Plan (Plan de Redressement) IMF Standby	Rural Private Enterp. National Storage Irrig. Perimeter Dev. Market Links (Rural Roads)

Two kinds of indicators will be used for the assessment. The first is the implementation of GOS reforms according to the Government's plan of action; these intended actions will be used essentially as a set of performance indicators. A preliminary list of these actions is presented

in Annex 1, although there will likely be modifications and refinements according to priorities and subsequent agreements (e.g., with IMF). In addition, some macroeconomic indicators will be employed to assess the contribution of non-project assistance to short-term stabilization requirements. One such indicator would be the dollar component as a proportion of the annual current account deficit; another is the flow (speed) of actual commodity imports under the Agricultural Sector Grant, and local currency generation achieved.

A second set of indicators relate to the direction of local currency uses. These uses will be monitored according to 1) their function in easing bottlenecks in critical operations of ongoing projects, as, for example, transport costs of key farm inputs; and 2) their application to agreed-upon priorities in the rural sector. "Projectized" activities supported by local currency funds will be evaluated in conjunction with evaluations of programs with which they are associated (see Section V).

Of the macroeconomic trends that will be monitored, shifts in investment and budget /resources to the rural area and an increase in rural income will be the most directly indicative of a change in the dual economic structure of Senegal -- identified in the CDSS as a condition for achieving the long-term goal. While it will not be feasible to trace and attribute directly to a given set of assistance vehicles the presence or absence of macroeconomic changes, or the implementation of specific GOS reforms, clearly the absence of positive change would warrant a re-examination of USAID strategy.

The data for the above assessments will be obtained from GOS, World Bank, and IMF reports, as well as from the monitoring and reporting systems

set up for implementing non-project aid.

III. Assessment at the Sector and Regional Levels

As described in the FY 1983 CDSS, USAID assistance will focus primarily on agriculture and health; closely related to agricultural growth are activities designed to address problems in natural resource management, land degradation, and energy. In addition to this program focus, assistance will be concentrated in three geographical regions: Casamance, Sine Saloum, and Fleuve. This combination of program and geographical focus provides an opportunity and a context for in-depth evaluation and data collection efforts, and USAID plans to take advantage of this opportunity.

First, in the agricultural program, USAID will assist GOS agencies to provide coordinated information on change at the farm level, on an annual basis. To date, efforts to measure interim or ultimate impacts of USAID-supported interventions have been frustrated by the lack of representative data on production and economic returns to the farm under varying conditions of input costs, crop prices, availability and use of technical advice, and weather. Building on existing capacities in the three relevant Rural Development Agencies (RDAs), USAID will support their data collection and analysis aimed at gathering information for both monitoring and evaluation. Of several possible options for data collection, one has been initially identified for further preparatory work in 1982 (see Annex 2). Availability of this information, together with other purposive studies, will considerably strengthen the ability of GOS and USAID (as well as other donors) to measure and attribute change, and to identify much more clearly impacts in areas of mutual concern.

Second, several projects will be implemented in the Sine Saloum region. These projects will mature at different rates, and each project poses distinctive questions for evaluation. Nevertheless, the Plan attempts to group evaluations in the expectation that findings may yield a clearer picture of the overall regional impact as well as common constraints and problems. A summary review of evaluations is, therefore, included in the Plan. In addition, USAID will investigate the possibility of a limited integration of the health status surveys with farm management surveys in the region. If such an integration proves to be feasible, GOS will have a powerful tool for understanding the relationship between health status and nutrition on the one hand, and the economy of the farm household on the other hand.

In exploiting the possibilities for both comparative and summary studies, USAID will attempt to obtain answers to the following questions:

- To what extent are the regions of USAID concentration either 1) ceasing to be net food importers, or 2) becoming net food exporters?
- To what extent are projects leading to an increase in and diversification of agricultural production and trade?
- Is farm income increasing (or is it less vulnerable to weather variation), and how is this increase distributed?
- To what extent is an increase in farm production and/or income attributable to technological inputs? To crop prices?
- Is health status improving in the Sine Saloum region? What is the relationship between changes in health and nutritional status and changes in farm production and income?

Information from farm and health surveys during the period of the Plan will provide some answers to these questions. In addition, information verifying or qualifying survey results will be obtained from selected beneficiary surveys. As they become available, both types of information will

form an empirical base for some of the studies to be undertaken by Princeton University.

USAID believes that even partial answers to the above questions will yield evidence of the extent to which farm-level beneficiaries are profiting from USAID-supported interventions, and some inferences about the relationship between farmers and the providers of farm inputs and technical services. The latter relationship will also be examined more directly. The strategy outlined in the CDSS envisions a two-track approach of strengthening RDA extension services, and a parallel strengthening of producer groups and cooperatives in the private sector. This approach directly supports the broader aim of institutional reform and decentralization. Assessment at the sector and regional levels, therefore, also addresses the following questions about the RDAs:

- Is the quality of extension services improving? (Do small farmers value and adopt technical advice?)
- Is the coverage of extension services expanding? (Are more farmers being contacted more often by rural extension agents?)
- Are RDAs better able to monitor and evaluate their programs?

The development of private producers' groups and cooperatives is described in the CDSS as the principal route for central government withdrawal from direct intervention in and control over the rural economy. Measures of the strengthening of these local groups will be included in evaluations of the relevant projects. At the sector level, the main questions have to do with the changing relationship between public institutions (RDAs) and the private sector (including producers' groups and cooperatives):

- Are the functions and staff assignments of RDAs focusing more on training and extension services, and less on functions of input delivery, crop marketing, and control over decisions at the farm level? Do RDA contract-plans establish performance standards encouraging such a shift?
- Do RDAs solicit and use recommendations from local groups? (Do plans include farmer inputs? Does agricultural training use survey data on economic returns to the farm?)
- Do local groups have access to resources (e.g., farm credit) and at what cost?
- Do RDAs have regular access to information about amounts and costs of farm inputs being supplied through the private sector?

In seeking answers to these questions, the Princeton studies will explore changes in institutional relationships. Indicative information will also be derived in the summary reviews of evaluations, particularly in the Sine Saloum region.

With the phasing out of individual actions related to the role of women in development and the introduction of a specific women's orientation or component in production and health projects, an assessment of the extent to which USAID support is benefiting women will cut across several projects. Special attention will continue to be given to significant individual experiments (e.g., women's extension unit in SODEVA). Two additional cross-cutting issues will warrant assessment above the level of specific projects: the effect of project interventions on nutritional status, and the relationship of rural literacy/numeracy to local institutional development.

IV - Assessment at the Project Level: Evaluation and Monitoring

As pointed out in the CDSS analysis, development investments have not touched the poor majority in ways that enable them to use these investments

productively. Through a stronger monitoring of the projects it supports, together with a selected number of in-depth evaluations, USAID will continue the effort begun in the Country Assessment to observe in quantitative and qualitative ways the local access to intended technologies, goods and services; the uses made of them; and their impact on beneficiaries. Observations of local change (or the lack of change over time), and the feeding back of this information to GOS agencies and project managers, is necessary for USAID to test its strategy.

This effort meshes well with the new responsibilities of the RDAs to monitor and evaluate their performance against requirements set forth in their respective contract-plan. In full appreciation of the work that these responsibilities will entail, USAID will support the RDAs with which it cooperates to build effective management information systems, and to undertake data collection and analysis.

At the project level, USAID defines monitoring as the gathering of relevant information on project inputs and outputs, and the timely feedback of this information to project managers for decision-making. It enables managers to take corrective action enabling the project to achieve its objectives. Given the greater flexibility in resource use through non-project assistance, improved monitoring is necessary to permit judgements about specific needs for additional resources, which in turn are incentives for further improvements. As projects mature, monitoring will extend to interim indicators of impact, enabling project managers to draw tentative conclusions about the pace of project performance relative to the purpose set forth in the project.

For the purposes of this Plan, USAID defines evaluation as the measurement of change in the achievement of project purposes and the broader impact of projects, as well as the attribution of these changes to project interventions. It entails the analysis of information gathered through both monitoring systems and additional investigations to verify or expand the analysis. In general, monitoring observes performance up to the point of the delivery of technology, management systems, goods and services from the point of view of the provider; evaluation observes the uses to which these are put by beneficiaries and their resulting impact. Evaluation also takes into account exogenous variables including, for example, government pricing policies, subsidies, marketing services, and environmental conditions.

The questions to be asked at the project level have to do with the aims of the individual projects and the hypotheses on which they are based. Since projects are the means with which USAID promotes its strategy, these questions will also relate to broader issues at the sector, regional and national levels. Annexes 3 and 4 raise several questions for projects in the two principal program areas -- agriculture and health.

V - Evaluation Work (1982-1987)

USAID will undertake a selected number of evaluations during the 1983-1987 period. This approach is based on the following conditions:

- the development of farm and health survey data during the period encourages USAID to concentrate evaluation resources and staff on a selected number of in-depth evaluations,
- strengthened monitoring systems within projects (using the project logical framework and survey data) will support fuller reporting on project achievements, culminating each year in annual reviews with counterparts.

- The use of counterpart funds generated by non-project assistance to promote specific activities related to USAID strategy, as well as the program and geographical focus of the program, encourages USAID to undertake multi-project evaluations.

Within this overall approach, USAID plans to:

- prepare annual assessments of non-project assistance in the context of macroeconomic developments and GOS reform,
- before the design of follow-on agricultural and rural health services projects, prepare reports summarizing one of the following: 1) the findings of an in-depth evaluation of the earlier phase; or 2) the results of monitoring to date, using interim indicators of project impact.
- intensively evaluate pilot activities that are expected to be substantially expanded or replicated according to the results of the evaluation. Two such activities are the Rural Private Sector Development project and the agricultural credit activity to be funded through the Agricultural Sector Grant.

The attached plan framework is built on the above conditions. USAID will review this framework annually with GOS to reaffirm or revise both the evaluation work planned, and to refine the specific questions to be addressed in each evaluation. These questions will be incorporated into the respective scopes of work. Evaluations may be added to this basic framework to meet special information needs as they arise.

EVALUATION PLANNING FRAMEWORK

CALENDAR

YEAR

	1982	1983	1984	1985	1986	1987
<u>NON-PROJECT ASSISTANCE:</u>						
PL 480 Title I/III	A	A	A	A	A	A
Agricultural Sector Grant (ASG)	←	A(R)	A(R)	A(R)	A(R)	→
ESF	←	A(R)	A(R)	A(R)	A(R)	
<u>PROJECT ASSISTANCE & ACTIVITIES:</u>						
<u>AGRICULTURE/RURAL DEVELOPMENT</u>						
Casamance Rural Development	←	(R)	(R) M	(R)	(R)	(E)
Cereals II (Fleuve Irrigated Perimeters)	(O M V S)	(E) (R) M	(R)	(R)	(R)	(E)
Agricultural Research & Planning	←	(R) M	(R) M	(R) M	(E) (R)	(R)
PL 480 Activities:			summary			
Agricultural Policy Studies			M			
Decentralization of Research			M			
Local Coop Storage			M			
Rural Development Fund			M			
ASG Activities:						
Rural Credit	←	(R) M	(R) M	(R) M	(R) M	(R) (E)
Rural Roads		(R)	(R) M	(R)	(R)	(R) (E)
SODESP Livestock	M					

SPECIAL REVIEW OF SINE SALOUM PROJECTS
(summary evaluation)

—————→ actual or anticipated projects
 ----- potential project

KEY: (E) : Evaluation
 M : Summary Monitoring Report
 A : Assessment
 (R) : Annual Review with Counterparts

HEALTH

Rural Health Services

Family Health

Casamance R.D. Health Component

Fleuve Irrigated Perimeters Health Component

RESOURCE MANAGEMENT

Fuelwood Production

National Planning of Land Use

Renewable Energy

Millet Processing

OPG Land Regeneration (CRT)

PL 480 Activities:

Reforestation & Dune Fixation

PVO Grant:

Land Resource Regeneration

LOCAL INSTITUTIONAL DEVELOPMENT

Rural Management Training (ENEA)

Cooperative Development (PVO Grant)

Rural Private Sector Development

ASG Activities:

Rural Private Sector Development

PL 480 Activities:

Rural Technical Schools

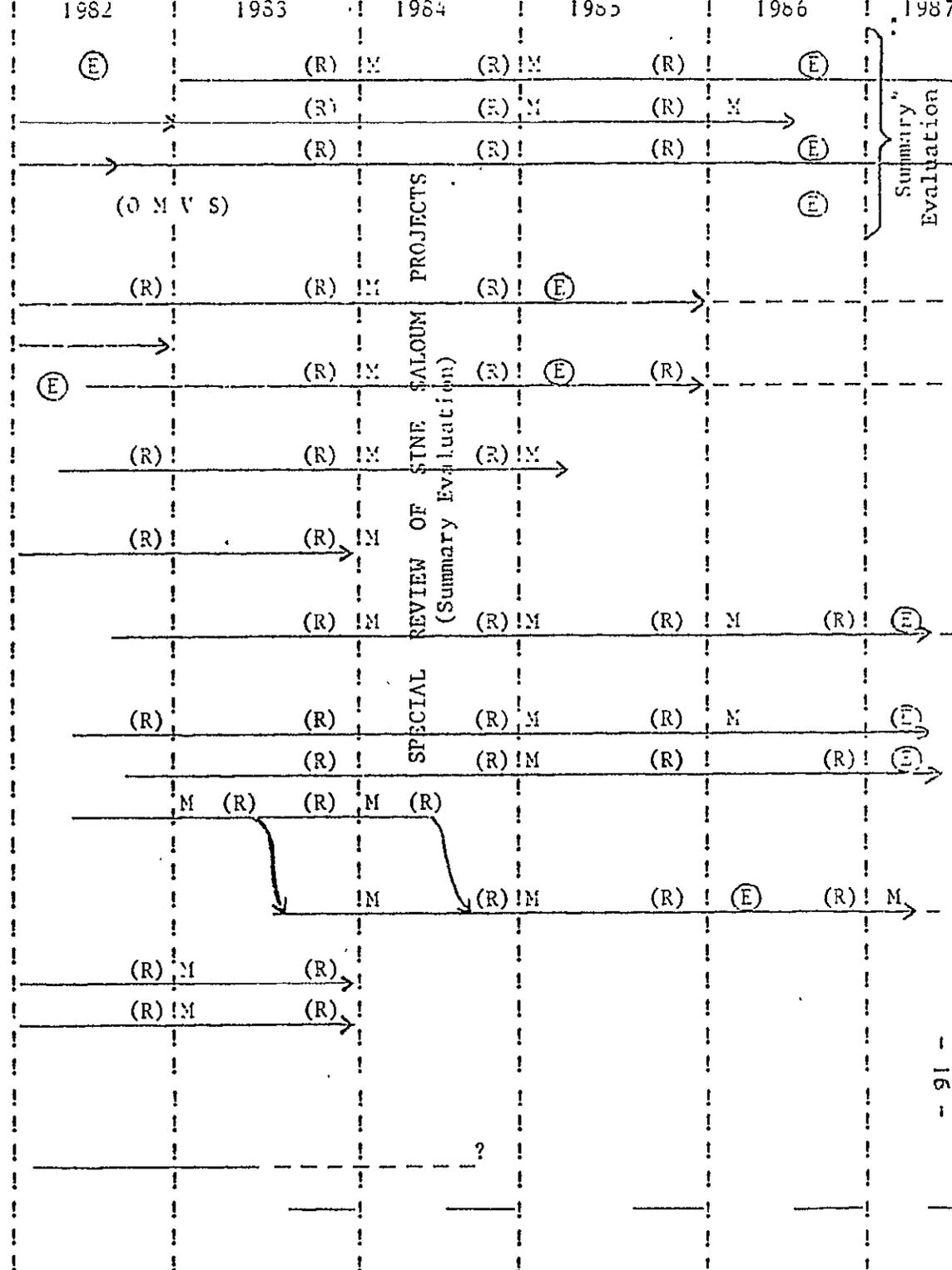
Rural Development Fund

RESOURCES: DATA AND ANALYSIS

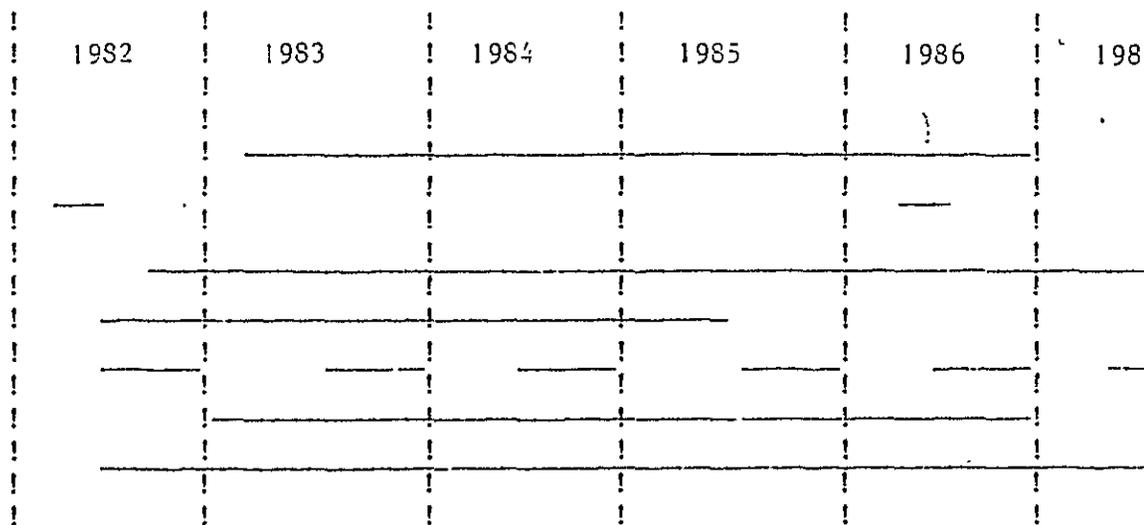
Farm Management Surveys:

Purposive (Casamance)

Random Sample (Casamance, Sine Saloum,
Fleuve)



Farm Systems Research (MSU)
 Health Status Surveys
 (ONVS Vector Surveillance)
 Princeton Studies
 ENEA Beneficiary Surveys
 Agricultural Policy Research (MSU)
 Macroeconomic Monitoring (USAID economist)



SENEGAL'S STRUCTURAL ADJUSTMENT LOAN AND DEVELOPMENT CREDIT: IMPLEMENTATION PLAN
FROM DEC. 31, 1980 TO MARCH 31, 1981

Topic	Final date of Implementation	Monitoring by the World Bank
1. Fertilizer Recommendations on Grades and Quantities	Dec. 31, 1980	Consultation
2. Update Cereals Storage Study	Dec. 31, 1980	Terms of Reference
3. Study on Marketing and Pricing of Food Crops	Dec. 31, 1980	Decision on Terms of Reference
4. Organizational Structure of SONAR	Dec. 31, 1980	Decision
5. Substance of Program Contract (<u>Contrat Plan</u>) for SAED and <u>Lettre de Mission</u> for SODEVA	Dec. 31, 1980	Submission for Bank Review
6. Investment Program	Dec. 31, 1980	Sectoral Consultation
7. Technical Assistance Project	Jan. 31, 1981	First Supervision
8. General progress under the Program related to 2nd tranche release (followed by annual reviews); implementation of specific conditions: a. Investment Program for 6th Plan, b. Basic import duties at 15% and export premiums for test products at 10% of FOB value		Final list of projects Actual Implementation
9. Reorganization of Ag. Agencies	March 31, 1981	Discussions
10. Final Reorganization of CPSP	March 31, 1981	Discussion of Results
11. Methodology and calendar for Auditing of Cooperatives' Accounts	March 31, 1981	Discussions
12. Study on Relative Agricultural Prices	March 31, 1981	Submission of Study
13. Determination of farm gate prices for 1981/82 crop year	March 31, 1981	Consultation
14. New Fertilizer Formulas and Prices for 1982/83 crop year	March 31, 1981	Consultation
15. Evaluation of Current Marketing and Pricing System of Traditional Cereals (especially millet)	March 31, 1981	Discussions

GOS INSTITUTIONAL REFORM AND ECONOMIC POLICY

CHANGES: IMPLEMENTATION PLAN (1980 FORWARD)

<u>Policy Goals</u>	<u>Key Indicators</u>	<u>Date or Tentative Date of Completion or Achievement (if blank, no date indicates)</u>	<u>Means or Observations</u>
I PUBLIC FINANCE			
1. Reduction in the rate of growth of current GOS expenditures	. Kept below current revenues	1980 - 1983	
2. Reduction in GOS Personnel expenditures	. Reduced progressively from 57% level of 1980/81 budget	1980 - 1983	
3. Reduction in Supply expenditures	. Remain constant in real terms	1980 - 1983	
4. GOS arrears to Private Sector liquidated	. A total of 12 billion cfa liquidated	June of 1981	Resources from France STABEX, and IMF.
5. Public sector savings rising	. Raised from 15% of public investment planned for 1980/81 to 25%	By 1985	
6. Value Added Tax (VAT) established in budget	. Proceeds deposited regularly in a separate account in Central Bank	Each year	
7. Disengagement of GOS and reduction of role of Public institutions in the Economy.	. Contract plans and terms of reference (<u>ordres de mission</u>) established for public bodies and mixed-economy corporations.		To date only SAED has obtained the status of National Corporation (<u>Société Nationale</u>); SODEVA is under consideration.
II MONEY AND CREDIT			
1. Continuing restrictive credit measure	. Advance authorization applied to request for credit of or above 70 millions cfa (reduced from current ceiling of 100 millions cfa).	From October 1, 1980 onwards.	
2. Reduction of ratio of money supply to GDP.	. Ratio reduced to below 1979 level.		

(Cont'd)

<u>Policy Goals</u>	<u>Key Indicators</u>	<u>Date or Tentative Date of Completion or Achievement</u> (if blank, no date indicated)	<u>Means or Observations</u>
III <u>BALANCE OF PAYMENTS AND EXTERNAL DEBT</u>			
A. <u>Trade</u>			
1. Reduction of current account deficit	. Current account deficit shrinks to 6-7% of GDP		. Assuming normal weather and absence of external shocks (e.g., increase in oil prices).
2. Reduction rate of growth of demand for imports	. Rate of growth of imports below that of GDP at current prices	. Through 1985	
3. Stimulation of exports of textiles, footwear, fertilizers, ag. equipment and canned fish	. Export subsidy of 10% of FOB value	. From Sept. 1980 onwards.	. Revenues from the increase of customs duties: 1-2 billions cfa for 1980
4. Extend export subsidies to all exports except phosphates and groundnuts	. (Level of subsidy not specified)	. End of June 1983	. Pending favorable results on the first round of subsidies.
B. <u>External Debt</u>			
1. Limit yearly service on external public debt both direct and guaranteed by the State.	. Limited to an amount of 15% of earnings from exports of goods and services.	. Each year	. Assuming a normal year
2. Limit use of borrowings to direct productive projects	. Amount of borrowings actually used for productive projects as opposed to non productive projects.		
3. Restriction of commercial borrowings by public and para public enterprises.	. Related debt service financed from entity's own cash flow.		

(Cont'd)

<u>Policy Goals</u>	<u>Key Indicators</u>	<u>Date or Tentative Date of Completion or Achievement</u> (if blank, no date indicated)	<u>Means or Observations</u>
IV <u>PRICES AND WAGES</u>			
1. Deregulation of all prices of goods and services	.	As of the end of 1980	Except rice, bread, su and peanut oil, produc prices for certain cro and fertilizer.
2. Producer price of cotton and groundnuts set each year	. Prices set at the highest level possible; ratio of producer price to world price		Price level compatible with anticipated export price and cost for col ion and storage.
3. Wage control	. Wage adjustment only once a year; adjustment based on 60% of rise in CPI since last adjustment + real rate of growth in GNP over the same period.	From end of January 1981 onwards	
V <u>INVESTMENT POLICY</u>			
1. Maintain a fixed investment within overall budget of 430 billion CFA	. Just below 17% of GDP (in 1980 prices); 10% of GDP for public investment alone,	Over the 5 year period of 6th Plan	May exceed the ceiling 10%.
2. Priority in Productive investments	. Close to 55% of all investment expenditures.	During the first 2 years of the Plan	
3. Increase in Public Savings	. From 15% of public investment to 25%.	By the end of Plan period.	

(Cont'd)

<u>Policy Goals</u>	<u>Key Indicators</u>	<u>Date or Tentative Date of Completion or Achievement (if blank, no date indicate!)</u>	<u>Means or Observations</u>
Responsabilization of local organizations to manage their own affairs.	. Increasing number of cooperatives and other village organizations actually established and functioning properly.	. Overtime	
Increasing the incomes of farm families and improving the quality of life in the country side.	. Rising farm incomes (in real terms)	. Overtime	
"Incentive prices" policy in agriculture.	. Producer prices of export products represent a large share of world prices; Cereals prices keeping in line with those of export products: ratio of export product price to food crop price.	. 1980/81 and 1981/82 crop years.	
Exhaustive evaluation of the way the present millet marketing system operates.	. Preliminary Discussion of this matter undertaken	. March 31, 1981	
Stabilization of seasonal food supply.	. 1.5 billion CFA (1980 francs to stock food.		

<u>Policy Goals</u>	<u>Key Indicators</u>	<u>Date or Tentative Date of Completion or Achievement (if blank, no date indicate)</u>	<u>Means or Observations</u>
<p>9. reduction of cost of intervention by agencies supplying inputs and marketing ag. products.</p> <p>10. Reorganization of GOS rural development agencies.</p> <p>a. Groundnut marketing will be the responsibility of cooperatives which will deliver their products directly to oil mills.</p> <p>b. More autonomy to RDA's for staff recruitment and management upon approval of <u>ordres de mission</u> and program contracts.</p> <p>c. GOS will establish mechanisms to link the RDA's with preparation of orders and distribution of inputs.</p> <p>11. GOS will extend audits of accounts of cooperative members to the entire country.</p> <p>12. Ceiling on ag. credits.</p>	<p>. Actual quantities handled by private sector, especially by Cooperatives and village sections increasing.</p> <p>. Organization of 60 purchasing centers by oil mills.</p> <p>. Program contracts and <u>ordres de mission</u> actually established for all RDA's.</p> <p>. GOS presents a revised and approved statement of the debts of cooperatives and farmers.</p> <p>. Debts cannot exceed 25% of the value of production</p>	<p>Over time</p> <p>By the end of 1982</p>	<p>. In a normal year</p>

Policy Goals	Key Indicators	Date or Tentative Date of Completion or Achievement (if blank, no date indicated!)	Means or Observations
13. BNDS, SONAR and RDA's will establish precise methods of recording loans and repayments at the level of village sections; BNDS will establish regular audit procedures at the close of each crop season.			
14. Encouragement of private enterprise in marketing.	Increased participation of private trades in the marketing of rice under CPSP: ratio of value marketed by private traders to value marketed by CPSP increasing.	Over time	
15. Creation and development of villages sections within the cooperatives (<u>sections villageoises</u>) to provide a sounder basis for provision of credit, participation in marketing and other activities.	Amount of marketing rebates or payments for services rendered by cooperatives increasing.	Over time	
16. Establishment of a functional literacy program for cooperative representatives	Percentage of literacy of cooperative representatives increasing.	Over time	
17. Reorganization of Ag. Research Emphasis on studying constraints on small farmers through an interdisciplinary research program.	Research undertaken in each natural region; Fleuve region for irrigation, mixed crop and livestock pasture area for stockraising; groundnut basin for intensive rainfed agriculture and association of crop cultivation with livestock; Casamance: in intensive stockraising and farming system based on paddy rice.		

LIST OF ACRONYMS

BNDS	:	Banque Nationale de Développement du Sénégal (Senegalese National Development Bank)
CPSP	:	Caisse de Péréquation et de stabilisation des Produits
IMF	:	International Monetary Fund
GOS	:	Government of Senegal
RDA	:	Regional Development Agency
SAED	:	Société d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal (Senegal Delta Development Agency)
SOEVA	:	Société de Développement et de Vulgarisation Agricole (Agricultural Development and Extension Agency)
SONAR	:	Société Nationale d'Approvisionnement Rural (National Agency for Provision of Ag. Inputs)
STABEX	:	Stabilisation des Exportations (Ag. Export Earnings Stabilization Scheme established under the Lomé II Convention).

Source: Office of Prime Minister, Letter to World Bank dated October 31, 1980.

Discussion of Data Collection Options

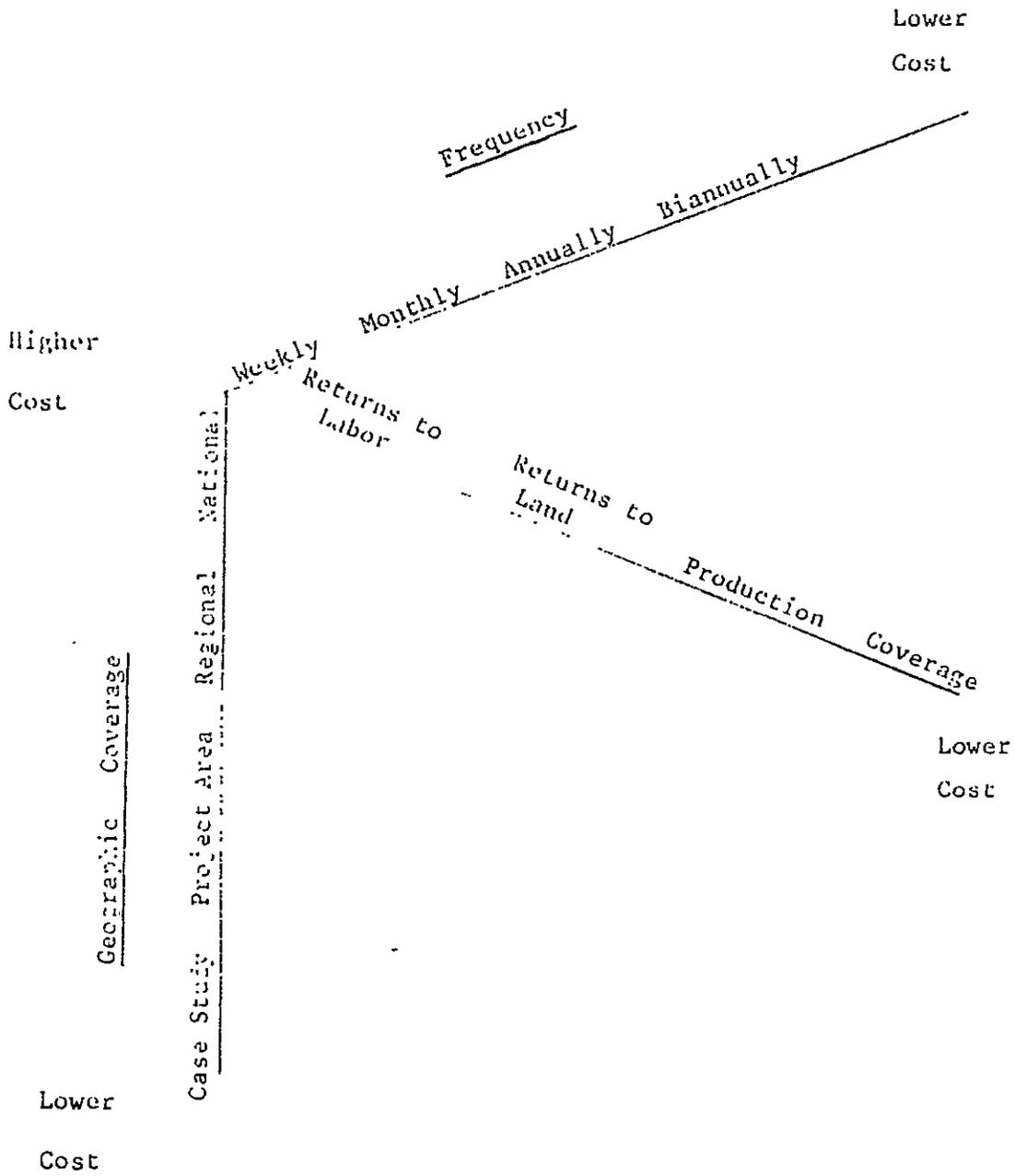
Background

There are a variety of possible approaches to data collection for programmatic evaluation in the agriculture sector. To simplify for purposes of this discussion, the options can be described along three dimensions: geographic coverage, the content of the supporting data collection activity, and the frequency of data collection (see Fig. 1).

The geographic dimension represents a trade-off between the minimum cost of covering only the geographic area AID wishes to evaluate and the likely increased cost of covering the best level at which to institutionalize the required data collection ability. For example, AID's interest focuses on 3 regions, the Casamance, Fleuve, and Sine Saloum. Three separate (but coordinated) data collection activities could be undertaken with the Rural Development agencies (RDAs) in the concerned areas. Yet, an alternative approach would be to develop a nationwide system to collect such data which would also meet the needs of evaluation.

The importance of standardizing agriculture data at the national level depends on the need for such data at this level. For example, area and production data is fundamental to all levels of rural development planning and management. At a minimum, the coverage, methods, time frame, procedures and definitions used in collecting such data should be standardized, permitting the aggregation of data collected by the different RDA's to

FIGURE I



meaningful national totals. Conversely, data on farming systems and program coverage may have uses at the regional or sub-regional level. In such instances attempts at standardization offer little benefit in return for the additional cost.

Choices along the content dimension are determined in part by AID's evaluation goals (again there is a trade-off between the questions AID wants answered, their costs, and the kind of data collection capability which is useful to host country organizations beyond the immediate evaluation). AID's evaluation goals can be variously expressed by the following questions, each implying a different data collection effort or focus.

1. What has been the coverage of the projects/programs? (What proportion farms have been contacted? What assistance did they receive? How did this change over time?)

2. What has been the change in agricultural production and yield in the geographic area covered by the projects/programs and the geographic areas not covered by the projects/programs?

3. Within a defined geographic area, what has been the change at the farm level in the returns to land among project/program participants and non-participants? Additionally, are these changes attributable to changes in technology, inputs (labor only rough available), crop mix, weather, etc.?

4. What has been the change at the farm level in the returns to labor among program/project participants and non-participants? Are the changes attributable to changes in technology, inputs, crop mix, weather, etc.?

The more frequently data are collected, the higher their cost. The frequency of data collection should be related to the frequency of its use and the volatility of the situation being measured. Data for project/program monitoring and supervision are generally required monthly. Crop production and project coverage should be monitored on an annual basis for evaluative as well as planning and management purposes. The relationship at the farm level among inputs, technology packages, weather and outputs is fairly stable and can be measured at three to five year intervals, or when new situations, technologies or inputs dictate. The frequency of data collection within a single data collection activity is also important in determining its cost. For example, while detailed farming systems research may be called for infrequently, they are nevertheless costly because many experts feel that labor inputs must be measured weekly over the course of a year.

Given the broad range of content, coverage and timing options outlined above, what are the approaches that provide the greatest direct (supportive of the evaluation) and indirect (institutionalization) benefits in relation to their costs? In the subsequent discussion essentially five data collection approaches will be considered. A brief description of these approaches follows.

1. Farming Systems Research. This is a survey based approach designed primarily to assist in developing and testing new combinations of seed, technology and practice at the farm level. It is generally assumed that labor represents a major constraint, necessitating weekly visits to the farm to measure the magnitude and sources of this constraint over the cropping cycle. This frequency of interviewing usually limits geographic coverage to the case study level. These surveys generally include detailed monitoring of all inputs by type and cost, cropping patterns, technologies used, the timing of activities, yields, disposition of produce, prices received.

2. Farm Management Surveys. This is a survey based approach with content similar to the Farming Systems Survey described above (detailed farm level inputs and costs; technologies and activities; and yields, disposition, and prices received). These surveys are generally used for descriptive and analytical purposes to facilitate agricultural planning and evaluating broad program interventions. As such, they are carried out to be geographically representative of regional and national levels. The number of observations required generally precludes the weekly collection of detailed labor data and forces a reliance on collecting retrospective information on major labor constraints over the year. These surveys are generally based on a sample of farms,

3. Area and Production Surveys. The title of this survey based approach is fairly descriptive. It is generally based on data collected in sample areas (segments) within a geographic regional and/or the nation

rather than a sample of farms). These surveys are used to derive data on crop (or use) specific information areas, yield, and production... by crop. These surveys are not designed to gather Farm level data and are of use in broad agricultural and food policy formation. This approach has the advantage of using the more accurate and generally more stable area sample frame rather than a farm based sample.

4. Participation Surveys. For the purposes of this discussion participation surveys are based on representative (usually at the project and regional level) samples of farms. Their goal is to describe inputs and their cost at the farm level as a basis for measuring the degree to which project "outputs" (seeds, fertilizer, extension services, credit, storage, transportation, etc.) reach and are used by the farmer. These are fairly simple surveys in terms of content.

5. Monitoring Systems. For purposes of this discussion these are defined as data collection activities within AID or its host country counterpart agencies designed to monitor on an ongoing basis the activities and "outputs" of these organizations. These systems are often alternatively called service statistic-systems, and form a major part of an organizations internal management information system. Monitoring systems are generally characterized by monthly and complete reporting.

The elimination of several unacceptable options will facilitate choosing among them. The option of measuring farm level returns to labor (farming systems research) at anything above the case study level

should be eliminated from consideration. The assumption that the required precision in measuring labor inputs necessitates weekly farm visits makes these studies very expensive on a per observation basis. Statistically valid samples are too expensive in terms of field work and the sheer volume of data that must be processed.

Additionally, because these data (farming system) will be collected and available at the case study level through the "Agriculture Research and Planning Project" and because such studies subsume all the information collected by the other means outlined, none of the other data collection approaches should be contemplated at the case study level (case study production and coverage would be largely useless in any event). To do so would be redundant.

Finally, we assume that cost considerations preclude implementing any of these data collection activities nationwide. Yet data collection in the three areas must be coordinated in terms of content, definitions, and methodology if a unified or programmatic evaluation is desired. This coordination, particularly for area and production surveys, should be undertaken in a way that will ultimately form a basis for nation standards. In this conjunction, a national area frame plan should be developed such that it would also yield production data information for the areas of concern (assuming a decision is made to collect such data as part of the evaluation). The frame would then be implemented only in those areas where it was required for the purposes of the evaluation. Expansion of the frame from this base, while still resource and time consuming, would be fairly straight forward.

Having eliminated those options which do not make sense or are too costly, and assuming the existence of farming system case study data, there are three likely approaches to a rural development program evaluation in Senegal. These are briefly described below in order of ascending complexity and explanatory power.

Option 1.

This approach calls for implementation of annual area and production surveys at regional (and project) levels. Surveys of project participation would also be mounted on an annual basis in the project area (for technical reasons this would best be kept separate from the "area and production" survey). Project and program provided inputs would be collected via an internal project monitoring system. An attempt would be made to measure other (non-project) inputs into the study areas. Finally, the farming system research planned under the "Agriculture Research and Planning" project would be utilized.

This is one of the least expensive of the approaches outlined and will be the least satisfactory in identifying program impacts. The principal comparison will be made between the change in inputs to the farm at the regional level over time (as measured by the participation surveys) and the change in production over time at the regional level. This basic input-output relationship will then be expanded or augmented in three ways.

First, the inputs (and their source) at the farm level will be linked back to inputs (project/program outputs) as measured by the monitoring systems. This will permit the measurement of the proportion of resources "provided" which actually reach the farm, the characteristics of the farms receiving the inputs, and the change over time in the input mix and source resulting from project/program implementation.

Secondly, the relationship between project/program participation/coverage and production can be explored both between geographic areas and within a geographic area over time. This will permit a very limited exploration of the idea that a project or an intervention may have some impact beyond that directly explained by the strict provision of inputs, perhaps relating to the "quality" of the inputs, the combination in which they are provided, the diminution of uncertainty, improved planning or management, etc.

Finally, the farming systems case study data will be used to validate the basic input-output relationships found on an aggregate level. Because of the nature of these data (non representative case studies) they can only be indicative of the farm level processes which account for the aggregate findings.

The advantages of this approach are its relatively low cost, approximately \$1,600,000 over the five year period, and the creation of a foundation for collecting uniform nationwide area and production statistics.

Its drawbacks are several, including:

1. difficulties in measuring livestock production;
2. limited ability to disaggregate production down to the project level (disaggregation will be to the region or district level depending in part on national and RDA needs);
3. this approach will only measure change in production in a geographic area in response to changes in relevant inputs into the area and reaching the farmers in the area. Information on changes in returns to the farmer will not be directly measured.

Option II

The second approach would call for the establishment of input monitoring systems and the utilization of the farming systems data from the ARP project as in option I. Additionally, a farm management/cost of production survey would be mounted in the three target regions in the second year of the evaluation activity and repeated in the 5th year.

This approach would be in the same general cost range as option I outlined above and would be considerably more powerful in establishing farm level relationships between inputs and outputs. The principal comparison will be between the change/ⁱⁿinputs at the farm level (as measured by a "participation" component of the farm management survey) and change in outputs and returns at the farm level (again measured by the farm management survey.) Again both cross sectional analysis (among project/program participants and non-participants) and longitudinal analysis will be possible. This basic analysis can be augmented in three ways.

As above, the inputs (and their source at the farm level) will be linked back to inputs as measured by the monitoring systems, providing information on resource loss between the implementing agencies and the farmers, the characteristics of farmers utilizing project/program inputs, and changes in input mix and source as related to project implementation.

Secondly, each of the two farm management surveys are likely to be single round retrospective surveys. The common view among African agricultural/specialists requires a multiround survey with weekly interviews (farming systems). Because of the limitations imposed by the use of single round farm management surveys, the direct management or returns to labor will be possible only at the gross farm level. For analytical and policy purposes, the more detailed labor data derived from the ARP project can be used as a basis for an indicative analysis of the impact of labor constraints at the farm level.

Finally, because the proposed farm management surveys would utilize representative samples, estimates of the production in the geographic areas covered in the study would be derived (although somewhat less accurately than via an area and production survey as proposed under option 1 above) permitting the measurement of aggregate change over time with respect to the change in inputs at the regional level.

The advantage of this approach is its coverage of all the key relationships necessary for a complete program and project impact evaluation. Further, the cost of this approach is the lowest of the three options. The total cost would be approximately \$1,570,000.

Yet, there are several disadvantages to this approach. They are:

1. the possible impact of weather variation. For example, a severe drought in the year of either (or both) of the surveys will make subsequent analysis difficult, if not impossible. One alternative would be carry out the farm management surveys on an annual basis. In fact, expanding the number of surveys would not increase the costs substantially as the technical assistance would diminish sharply after the first round as host country professionals functioned with increasing independence. In the absence of this approach, the farming systems data could be used to derive a "rainfall impact factor" which could then be applied to the farm management survey findings, attempting to postulate "what would have happened with rain?". Obviously this is not an acceptable alternative;

2. the lack of support for the development of a national area sampling frame plan and the implementation of that plan in the three target regions. While this should be considered a substantial loss in terms of developing the Government of Senegal's long term data collection capability, the inclusion of area and production surveys will either substantially diminish the capability to address the issues raised in evaluation (option I) or substantially increase the evaluation's cost (option III);

3. the lack of separate "participation" surveys. This may be a problem in that certain kinds of farm level inputs provided in one year may have an impact in future years. These inputs would be measured in the monitoring systems for project and non-project inputs but these will likely not correspond to farm level inputs. Mounting a separate participation

survey will also be expensive. Carrying out the farm management survey on an annual basis may in fact be a lower cost option.

Option III

Option III is a combination of the preceding two options and is the most complex in terms of the diversity of data collection as well as the highest in cost.

Like Option II, the primary comparison is between change in farm level inputs and the change in farm level outputs (as measured by farm management surveys in the second and fifth years of the evaluation). Again provision is made for linking farm level inputs back to project/program inputs (as measured by the monitoring systems) and for linking farm level outputs forward to aggregate regional production.

Two of the drawbacks to option II were the danger of rain variation confounding the analysis and the lack of farm level input data in the intervening years between the farm management surveys. Option III would attempt to meet these problems by mounting parallel annual area and production surveys over the life of the evaluation (as a basis for standardization for weather variation) and mounting a participation survey in the intervening years between the two farm management surveys (providing continuous farm level input data over the entire evaluation period).

The first advantage of option III is the inclusion of the area and production survey. This effort will have a substantial long-term benefit to the Government of Senegal, forming a basis for the development of a

nationwide area and production survey. Additionally, this option calls for the greatest diversity of data collection; area and production, farm management, and participation surveys as well as the development of monitoring systems. This means that this option will institutionalize the greatest diversity of data collection and research skills.

Yet this diversity is probably the biggest problem with option III, leading to its high cost. The diversity of surveys and resultant processing systems will maximize the technical assistance requirements and complicate the analysis.

In any event the total cost of this approach will be approximately \$2,280,000.

Recommended Option

Of the potential approaches outlined above, a variant of option II seems most likely to provide the information required for evaluation at the least cost. This variant would call for annual farm management surveys, not only to guard against weather variation ruining the study, but to permit the incorporation of weather variation into the analysis. This approach, a combination of annual farm management surveys and ongoing monitoring systems, will institutionalize the type of data collection the RDA's need for monitoring and evaluating the impact of their programs at a total cost of approximately \$1,740,600. Further, this approach will not tax the institutional absorptive capacities of the RDA's as much as option III or even option I.

While dropping the area and production sample frame and survey from the evaluation is a substantial loss in terms of meeting Senegal's long term agricultural statistics needs, its inclusion adds little to the study and would increase its cost by approximately \$500,000. Further, it is unclear that area and production data collection is best institutionalized in the RDA's. If it is decided that the lack of accurate national and regional production data is a major constraint to Senegal's overall agriculture planning and programming, a separate project should be considered. Such a project would best institutionalize this capability in an organization with a nationwide mandate, such as the central Ministry of Agriculture or the Directorate of Statistics.

Estimated Costs
Data Collection and Related Coordination and Analysis

	\$ Cost	Local Cost (\$ equivalent)
<u>OPTION I</u>		
Coordination/Analysis	220,000	
Area + Production Surveys	540,000	80,000
Participation Surveys	400,000	40,000
Monitoring Systems Dev.	<u>330,000</u>	<u>existing projects</u>
TOTAL OPTION I	\$1,490,000	\$120,000
 <u>OPTION II</u>		
Coordination/Analysis	220,000	
Farm Management Surveys	910,000	112,000
Monitoring Systems Dev.	<u>330,000</u>	<u>existing projects</u>
TOTAL OPTION II	\$1,460,000	\$112,000
 <u>OPTION III</u>		
Coordination/Analysis	220,000	
Area + Production Surveys	540,000	80,000
Participation Surveys	70,000	20,000
Farm Management Surveys	910,000	112,000
Monitoring Systems Dev.	<u>330,000</u>	<u>existing projects</u>
TOTAL OPTION III	\$2,070,000	\$212,000
 <u>OPTION II (Yearly Farm Management Survey) - Recommended Approach</u>		
Coordination/Analysis	220,000	
Farm Management Surveys	970,000	224,000
Monitoring Systems Dev.	<u>330,000</u>	<u>existing projects</u>
TOTAL OPTION II - Recommended Varieties	\$1,520,000	\$224,000

Explanation of Costs

In calculating the costs on the preceding page, a deliberate effort was made to err on the high side to avoid future surprises.

While all data collection activities will be carried out through the three RDA's in the AID emphasis areas and in cooperation with the AID contractors working in these areas, it has been assumed that only the cost of operating the Monitoring Systems and Farming Systems Research costs will be covered by these projects or existing RDA staff. All technical assistance, equipment, field staff, supply, computer and training costs for coordinating, designing, carrying out and processing the indicated data collection efforts (as well as technical assistance costs for augmenting and designing the monitoring systems) have been included. Further sharing of field staff and equipment among the individual data collection activities is not contemplated in this budget.

Certainly these are rather stringent assumptions given the magnitude of technical assistance and other resources already in place or programmed, but these individuals and resources are seldom readily available for activities such as this. Until alternate sources for the required inputs are identified and formalized, it would seem preferable to use these figures for planning purposes.

In addition, it has been assumed that the development and processing of the data collection activities in the three regions will be combined (although all three RDA's will participate in the process) to minimize technical assistance costs.

Finally, it is likely that a substantial proportion of those costs designated as dollar cost could in fact be purchased locally (e.g. approximately \$190,000 could likely be shifted to the local cost column in the preferred variant of option II.

GUIDELINES FOR ESTABLISHING A MONITORING AND EVALUATION
SYSTEM FOR USAID SUPPORTED AGRICULTURAL PROJECTS IN SENEGAL

**BEST
AVAILABLE**

I - INTRODUCTION

Currently USAID is supporting three ongoing agricultural projects in Senegal: (1) the Integrated Rural Development in Lower Casamance; (2) the Cereals Production Project in the Peanut Basin, and (3) the Small Irrigated Perimeters in the Bakel area. Although these projects have been implemented for two to three years, no built-in mechanism for systematic data collection and analysis has been established on a permanent basis to provide implementing institutions, USAID and Senegalese policy makers with necessary relevant minimum information regarding project progress toward the achievement of project objectives and ultimate long-term goals. By the same token ad hoc evaluations performed by TDY teams have not been adequate in addressing this problem due to lack of reliable data base. This section seeks to lay out the broad guidelines for establishing a Monitoring and Evaluation (M & E) System which, in providing answers to a number of key issues and critical questions, will bridge the current information gap in USAID-supported agricultural projects in the three regions or sub-regions of Senegal.

The remainder of this section is organized in two parts. The first part provides a background on the three USAID-supported agricultural projects focusing on project purpose and goals. From project purposes and objectives, the second part will pinpoint critical issues which are to be addressed and key questions to be answered in establishing an effective M & E system.

II - BACKGROUND: USAID-SUPPORTED AGRICULTURAL PROJECTS IN SENEGAL

In the wake of Senegal economic crisis GOS has clearly stated in the Reform Plan (Plan de Redressement) that top priority will be accorded the agriculture sector with emphasis on the food sub-sector. Food self-sufficiency has emerged as the corner stone of GOS agricultural policies and the FY 1983 CDSS reflects this choice and strategy. Although USAID is embarking on a major strategy shift away from project approach to non-project approach, a major focus of AID assistance program remains the agriculture sector as reflected by the Ag. Sector Grant now in the preliminary stage of formulation. This means that ongoing agricultural projects will continue to receive USAID full support as part of its global effort in getting the agriculture sector moving.

The three agricultural projects mentioned earlier are being implemented by the Regional Development Agencies (RDA's) with assistance for project inputs from both USAID and other donors (World Bank, FAC, FED, and others.) These RDA's are: SOMIVAC⁽¹⁾ for project in Lower Casamance; SODEVA⁽¹⁾ for the cereals production project and SAED⁽¹⁾ for the small irrigated perimeters. All three projects have several components including extension, research, health, functional literacy, economic role of women, etc. But the overriding purpose of these projects is to establish an effective extension service as a vehicle to bring about technological change at the farm level.

Effects of technological change (use of new seed varieties, fertilizer, insecticides, new cultural practices, animal traction, etc.) should translate into increased productivity of farmers' resources (land, labor and capital.)

(1) See list of acronyms.

Increased productivity and production in turn result in increased income and higher standards of living.

As indicated in the logical framework of project papers, all three agricultural projects have established specific quantitative targets for various project components to reach and set specific goals to be achieved. Examples of quantitative targets include 126 extension agents on board, increase yield of rice in Lower Casamance on 10,000 hectares from 1.3 tonnes to 2-2.5 tonnes/hectare by the end of the project. In the target site of the Cereals Production project, 223,000 hectares should be planted to Souna III by 1984 with an average yield of 805 kg/hectare. Recommended fertilizer rates are applied on 60% of millet hectarage (146,000 hectares); millet mills decrease time spent pounding millet by 50%, etc. In the project of Small Irrigated Perimeters 7,000 persons should be working on these perimeters by 1980; 900 hectares of land with double cropping; average yield of rice exceeding 3 tonnes/hectare⁽¹⁾. Goal achievement indications include 251 tonnes of rice in the irrigated perimeters by 1990, and reduction of out-migration to France by 50% by 1990; Lower Casamance exports 20,000 tonnes of rice by 1990; infant mortality reduced by 50% by 1990, and local language literacy rate increased to 40% by 1990.

Anticipated project output targets and goals were determined under a number of crucial assumptions with respect to: government policies such as pricing policies, input subsidies, institutional reforms, decentralization of research, strengthening of local institutions, effectiveness of marketing services and the like; natural phenomena such as rainfall and salinity problems; farmers attitudes and behavior such as receptivity to change and response to incentives.

⁽¹⁾ See logical framework in project papers for other indicators of project outputs.

On the continuum of causal relationships between project inputs and outputs on the one hand and project purpose and goal on the other, something may go wrong along the way either between project inputs and outputs, or between project outputs and purpose, thus jeopardizing the achievement of the ultimate objectives of the project. This something going wrong has to do with the validity of the basic premises and assumptions upon which the project was designed. Early and timely detection of unanticipated problems emerging in the course of project implementation is necessary if corrective actions to keep the project on track are to be effective. This problem detecting function constitutes the fundamental "raison d'être" of a M & E system.

III - M & E: CRITICAL ISSUES AND KEY QUESTIONS

In establishing the M & E system there are a number of critical issues and questions that are to be addressed. Those issues and questions are the following:

- (1) Audience of information: Who are the end users of the information to be generated?
- (2) The nature of the data to be collected and the type of information to be generated: What data and information are necessary to meet the needs of the audience?
- (3) Methodology of data collection: What methods or techniques will be used to collect the data?
- (4) Institutional and personnel requirements: What institutions will be involved and with what personnel (number and qualifications)?
- (5) Data processing, analysis and reporting: What means (hand calculators, computers) and who will analyze and write up reports for whom? What format will be used, etc.
- (6) Budget: How much is it going to cost?

1. Audience of Information

The identification of end-users is important in determining the nature of data to be collected and the type of information to be generated. There is a hierarchy of end-users with varying needs of information both in terms of type and detail. Project managers and implementing institutions presumably would like to have all the information they can get on project component progress in a more detailed fashion and more frequently than top USAID decision-makers or line institutions of GOS. These last two are probably more interested in overall project performance in achieving stated objectives than the day to day implementation problems which project management is interested in.

In short, it is essential that all end-users of information be identified, along with the relevant type of information they would like to have for their respective actions and decision making needs.

2. The nature of data to be collected and the type of information to be generated.

The nature of the data to be collected will depend on the type of information that is needed by the end-users. In any event, it would be necessary to establish a typology of information with key indicators of project performance at (1) project output level and (2) project effects and impact level.

(1) Information on project performance at the level of project outputs. Extension being the major means for bringing about technological change at the farm level, three key performance or effectiveness indicators will be closely monitored: visits, adoption of recommendations and yields. The data required to monitor these three key indicators are of the following type:

- Number of farmers covered,
- number of farmers visited and frequency of visits,
- number of farmers properly using new inputs,
- quantity of new inputs used,
- number of farmers adopting new techniques and new cultural practices,
- estimation of hectareage receiving new inputs and/or under new cultural practices,
- yields (the ultimate measure of extension performance in bringing about technological change).

(2) Information on project performance at the level of project purpose and impact ^{of} is/the following type: Productivity of farmers resources (land, labor and capital); costs and returns per enterprise (rice, millet, corn, etc.); food self-sufficiency at the average farm household level; returns to labor, to land, to capital, etc.. Key indicators are as follows:

- yield/ha; per active worker, per man-day, per person,
- cost/ha; per ton produced,
- total farm income (gross and net)⁽¹⁾
- net farm income/ha, per ton produced; per man-day, per capita, etc.,
- number of days during which food consumed has been purchased.

To obtain information on these key indicators (to be specified), the data required are farm management type data (input-output data).

- quantity of various inputs used and prices,
- total production and prices of various products,
- area cultivated,
- labor input data (man-days),
- number of persons per farm, number of active workers,
- quantity of food consumed, sold and purchased,
- number of days during which food consumed has been purchased.

Data collected and information generated in (1) form the basic activities of the monitoring component of the M & E system. In addition monitoring should keep track of other variables and other factors that are most likely to affect

(1) Depending on the definition of income to be measured this indicator may refer to total gross and/or net household income which includes off-farm revenues generated from off-farm employment or activities. This obviously will require a substantial amount of data.

performance such as product prices on markets where farmers sell their products, input prices and subsidies, storage problems both of produce and inputs, adequacy of input delivery and quality of inputs, and environmental conditions such as rainfall, insects, and diseases.

Data collected and information generated in (2) fall into both ongoing and ex-post evaluation activities. Both will also draw on monitoring information, in explaining a number of relationships in the analysis and reporting.

3. Methodology of Data Collection

At this point this team is not in a position to recommend or advocate any specific technique or method that should be used in data collection. To do so requires not only clear indication as to the specific information that is needed by end-users but also a fairly good knowledge of the areas where the data collection exercise is going to take place.

The methodology that will be used will largely depend on the type of information specified by various potential end-users. The methodology will also depend on the homogeneity (or heterogeneity) of project sites with respect to a number of key characteristics: ethnic composition and differences, cropping patterns, settlement patterns, population density, access to markets, and accessibility of villages (road infrastructure), size of village, migration, size of farms, availability of updated sample frame (if not it should be developed), literacy rate and the like. The methodology used in choosing a representative sample will presumably differ from one project site to the next depending on the variability of key characteristics (to be specified) within region. Key stratifying factors are to be defined to pick up variability of performance across "recommendation domains" ^{1/}.

1/ A recommendation domain is defined as a group of farmers that is homogeneous with respect to a number of key characteristics and operating under the same conditions (rainfall, soils, access to markets, etc..).

Irrespective of the methodology used it is important to include control groups to allow for comparison between performance of project participants and non-participants in order to measure effects and impact that can be "attributed to" or "associated with" the project.

Farm surveys, beneficiary surveys and special studies may all be necessary to address key questions that end-users would want answer to. The frequency of such undertakings will depend on the type of information, availability of resources, personnel requirements for data processing, editing and analysis. It is the team's feeling that the monitoring function be established to collect on a continual basis the data outlined in III-2-(1) above. A farm management survey should be undertaken at least twice during the five year time frame for ongoing evaluation purposes, one farm management survey in 1983 and one in 1985. A more comprehensive survey should be undertaken at the end of the project for ex-post evaluation. Such effort will also draw on data collection for ongoing evaluation. Purdue should go ahead as planned, with its special study (or case study) in Lower Casamance.

4. Institutional Arrangement and Personnel Requirements

In establishing the M & E system the TDY team recommends that the monitoring component of the system be the responsibility of the RDA's. These RDA's should receive advice from short-term consultants (inside or outside the country) in setting up an effective monitoring system. Ongoing evaluation should be carried out as a joint effort between USAID, RDA's personnel and consultants if necessary. But the involvement of the RDA's is necessary in strengthening their data collection and analysis capabilities in the long run effort of institutional building. In terms of enumerators and supervisors it is possible to call on ENEA in undertaking various surveys depending on

the period of the year such surveys are to take place. Another possibility will be the hiring of high school students on a temporary basis. Those are idle from May to October, and it should not be difficult to find a sufficient number in each project site.

5. Data Processing, Analysis and Reporting

A most serious constraint in generating information that is useful to end-users is all too often encountered in data processing, analysis and reporting. To be useful the information should be available on a timely basis. It is of utmost importance, before starting to collect a large amount of data, that resources availability be carefully assessed both in terms of access to processing facilities (computers) and in terms of qualified personnel for data processing (programmers), analysis and reporting. Experience has shown that people often tend "to bite off more than they can chew". This points to the fact that the amount data collected should be restricted to the minimum necessary to provide the needed information. The wisdom in this respect is information that is useful for decision-making, not information that is interesting per se.

Reports should be written in a format that responds to needs of various end-users. Some end-users may want greater detail and some may want short summary highlighting critical points.

6. Budget

The bottom line as to how much data will be collected is determined by availability of financial resources. Information is costly and it may be wise to restrict the amount of data to be collected to account for budgetary constraints. In general a M & E system budget is roughly 1.5-3% of the

project total cost. This budget is also roughly equally divided between data collection and data processing analysis and reporting.

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APPROACH TO MONITORING AND EVALUATION OF HEALTH PROJECTS IN SENEGAL

The health strategy calls for expansion into such areas as immunization, oral rehydration and nutrition in the Sine Saloum region, and expanding or initiating primary health care systems within the Casamance and Bakel (Fleuve) regions. USAID proposes to support host country capability at the national level in the areas of nutrition planning, monitoring, and surveillance; health information systems; and health management training for both doctors and nurses.

This latter set of institutional development activities are interventions which will have a longer run and indirect impact on health. An "impact evaluation" of such activities would be beyond the 1987 time period, although some interim measures of progress might be developed. The practical question facing USAID with respect to such central planning, data collection, and training activities is "Is the health system or specific constituent parts better managed as a result of support in these areas?" The key phrase here is "better managed". This also appears on its face rather imposing from an evaluation and measurement viewpoint.

This question can be made more manageable by turning to the first set of AID-supported projects or project components in the Health Sector. These activities, particularly the Sine Saloum Project, focus on health delivery. In evaluating these projects or project components, major contributions from the central support activities should become apparent and will not be discussed further at this point, except to reinforce the view that all projects should have a monitoring system component and the central support or institution building projects are no exception.

USAID plans to focus its health evaluation work on the Sine Saloum project, which represents USAID's major effort to implement an effective primary health care system. Both the viability of USAID efforts to provide curative care as well as its success in expanding on this base into the areas of nutrition, oral rehydration, and immunization will be evaluated.

Current plans, within the Sine Saloum Project (all for an improved ongoing monitoring system as well as the execution of a health status survey during 1982. The addition of a second health status survey (at the same time of year as the first) near the end of the five year evaluation period will permit an evaluation of the impact of this project and the broader health strategy it represents.

What then are the key questions or issues this evaluation will address? These questions are listed and discussed below.

- 1) Can a viable primary health care system be developed?

This question will be addressed by the monitoring (or information) system developed within the project which will attempt to measure the following kinds of indicators:

- a. the degree to which system revenues cover costs;
- b. characteristics of individual health huts (staff and their payment, population served, target group income, distance from other huts or alternate health care facilities, etc); which are financially viable and which are not (what are the implications for achieving the target level of coverage? coverage of disadvantaged areas?);
- c. the degree to which staff are retained in self financing huts, characteristics of such huts with high retention and low retention, implications for long-term training costs, and implications for coverage;

- d. prevalence of drug shortages, types of drugs found to be short, prevalence of overstocked drugs, by type, indications of drug misuse, characteristics of huts chronically under-stocked or over-stocked and of allied supply system, time between order and receipt of drugs;
 - e. the functioning of the information system itself, proportion of expected reports not received, timeliness of reporting, timeliness of processing, use of information, comparisons with spot-checks of ledgers;
 - f. number and location of vaccinations for cold chain coverage; number and location of vaccination for cold chain dependability; number of completed vaccination series (admittedly difficult to get from information systems);
 - g. common diseases/problems treated at dispensary, common diseases/problems treated at district, compare distributions to detect malfunction of referral system;
 - h. source and type of training hut staff, nurses, doctors, associates with performance measures above.
- 2) To what extent can a viable (self financing) primary health care system be effective in improving health status in the target population?

This question will be answered by looking at changes in indicators of health status and coverage as measured by the two health surveys and comparing these changes to the evolution of the delivery system. Some of the key indicators include:

- a. prevalence of malnutrition (emphasis on infants), change in feeding patterns (addition of target food(s), characteristics of location (are neediest reached);
- b. change in prior use of oral rehydration, knowledge of oral rehydration;
- c. prevalence of completely vaccinated individuals, target younger age groups;
- d. prevalence of malaria; chloroquine users;

- e. past use of hut, dispensary, district;
- f. incidence of diarrial disorders (e.g. over last month) sanitary status of compounds, water sources, latrines;
- g. infant health status related to age of mother, parity and interval since prior birth.

- 3) What is the interaction between nutrition and farm practices and returns?

By linking the two planned health surveys with the farm-level data now being collected in the Sine Saloum region on an annual basis, USAID can begin to look at the impact of farm practices, prices and returns on health and nutrition status, and can also look for relationships in the opposite direction. USAID will explore the possibilities of this linkage in preparing the 1982 health status survey. If the linkage does not prove to be feasible (either in 1982 or in the second survey in 1985/86), any major evaluation will nevertheless take into account the farm-level trends observed and measured through the farm survey analysis.