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Program Planning and Monitoring Assistance

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Table of Contents

I.	INTRODUCTION	1
A.	Program Evaluation Assistance to USAID/Senegal	1
B.	Products of the Assistance	1
C.	USAID/Senegal in the Context of PRISM	3
II.	PRISM IN THE CONTEXT OF THE DEVELOPMENT FUND FOR AFRICA	3
III.	MISSION PROGRAM EVALUATION, MANAGEMENT AND INFORMATION SYSTEMS	3
A.	Definition of Terms	3
B.	Organizing Principles for Defining Performance Data and Reporting Needs	5
C.	Mission-Level Reporting Flow and Responsibility	6
D.	The Mission PRISM Work Flow Chart	6
IV.	STRATEGIC OBJECTIVE #1: POPULATION SUB-SYSTEM	10
A.	Introduction	10
B.	Managing Information at Different Program Levels	12
V.	STRATEGIC OBJECTIVE #2: CROP SUB-SYSTEM	14
A.	Introduction	14
B.	Managing Information at Different Program Levels	16
VI.	STRATEGIC OBJECTIVE #3: FORESTRY SUB-SYSTEM	19
A.	Introduction	19
B.	Managing Information at Different Program Levels	20
VII.	STRATEGIC OBJECTIVE #4: MARKET LIBERALIZATION SUB-SYSTEM ..	20
A.	Introduction	20
B.	Managing Information at Different Program Levels	23
VIII.	MISSION MONITORING, EVALUATION AND REPORTING (MER) MANAGEMENT STRUCTURE	25
A.	Information Sub-System	26

ANNEXES

Annex I: Work Flow Charts

Annex II: PRISM Working Groups

Annex III: Geographic Information Systems

I. INTRODUCTION

A. Program Evaluation Assistance to USAID/Senegal

USAID/Senegal developed its program information for strategic management from July 22 to August 9, 1991. The Mission was assisted by a Washington-based team of Dagnija Kreslins, AFR/TR/PRO, D.A. Smith, AFR/TR/ANR/PA, Michael McGahuey, AFR/TR/ANR/NR, Dan Dworkin, AFR/TR/ANR, and Mark Renzi from Management Systems International. The visit was financed by AFR/TR and AFR/DP. Mssrs. Smith, McGahuey, and Dworkin spent one week before the TDY described in this report helping the Agriculture and Natural Resources Office (ANR) develop its program strategy in crops and forestry. Products from the first week's activities were provided separately to the Director, ANR Office.

The team, utilizing the strategy presented in the Mission's recent CPSP, helped USAID/Senegal develop indicators for strategic objectives and targets contained in that planning document and presented a framework for the Mission's MER system. Given the recent approval of the CPSP by AID/W, it was agreed that the team would accept the strategic objectives and targets as given. The team's task was to review the indicators to ensure that they were the best possible measures and to provide the Mission with insights which may lead to strategy modification in a future CPSP. Given that Mission staff had just defended their strategy in Washington, the team's arrival was well-timed to assist the staff in finalizing indicators for the program's monitoring and evaluation system. The Mission's program objective tree, as presented in the CPSP, is reproduced as Figure 1.

B. Products of the Assistance

The team worked with Mission "Working Groups" (listed in Annex II) to refine indicators for each of the strategic objectives. Together they developed an operational framework for USAID/Senegal's program monitoring and evaluation system. The system will function as the Mission's Program Information System for Strategic Management, or PRISM. It will provide data to report at the **program level** on the Mission's major program emphases in population, crops, forestry, and market liberalization. The PRISM shapes the flow of monitoring and evaluation (M&E) information for a broad spectrum of Mission decision-making and reporting to AID/W under the DFA.

USAID/Senegal CPSP Summary

Goal

Sub-Goal

Strategic Objectives

Targets

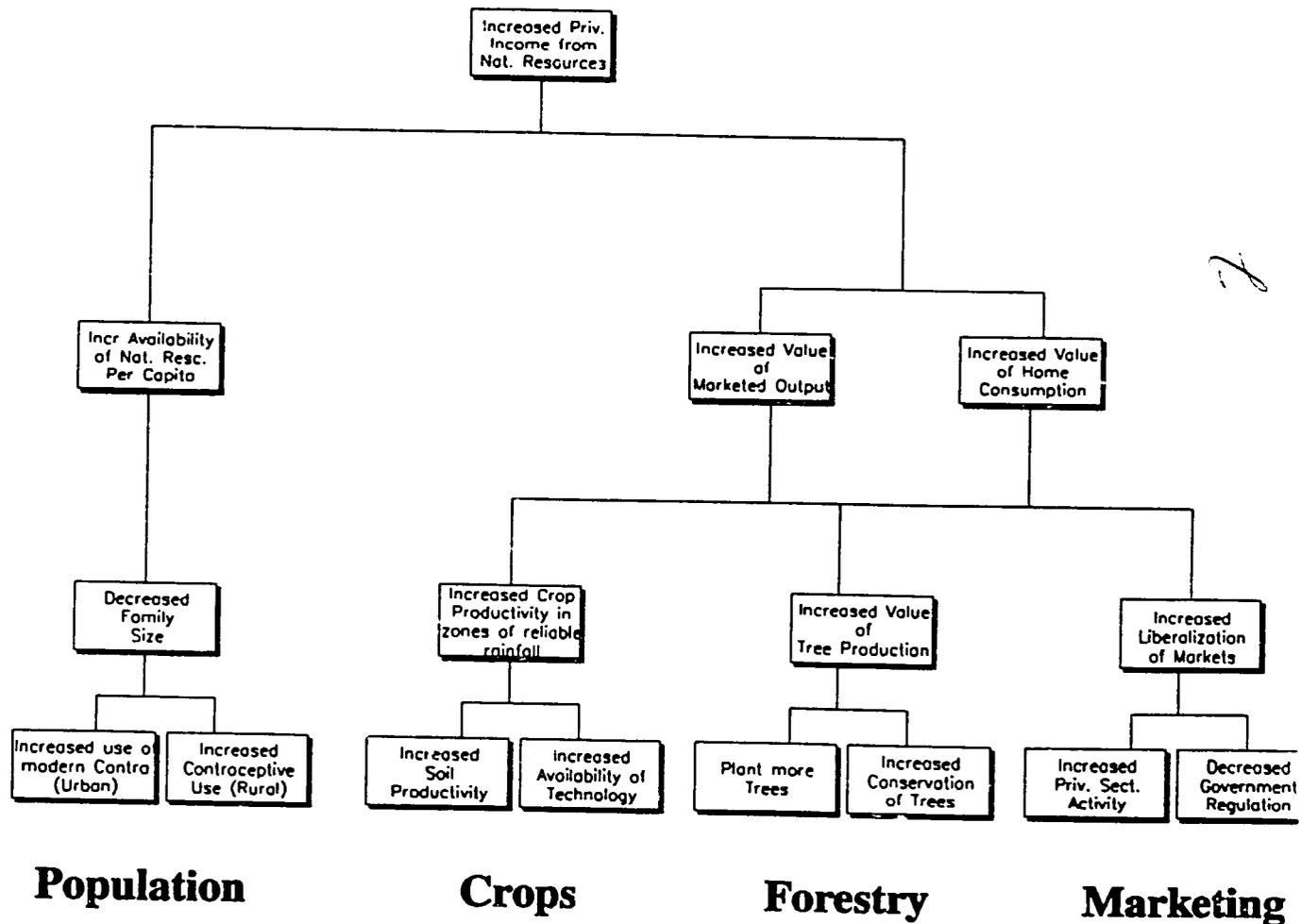


Figure 1

C. USAID/Senegal in the Context of PRISM

Generally speaking, assistance to Missions in establishing PRISMs is intended to support a "results-oriented" development assistance program Bureau-wide, which implies it can be used to inform the decision-making based on improved understanding of program effectiveness. Developing a PRISM can help Missions narrow their program foci to fewer major areas of national development where a USAID can ultimately have a significant impact, where results can be associated with specific assistance, and where it is within the manageable interest of the Mission to undertake a program.

II. PRISM IN THE CONTEXT OF THE DEVELOPMENT FUND FOR AFRICA

The assistance provided by this team arose from the requirement to report annually on Mission program performance stipulated under the Development Fund for Africa (DFA). While the DFA provided budgetary protection and increased programming flexibility by eliminating functional accounts from A.I.D.'s Sub-Saharan African assistance program, it also increased Congressional reporting requirements. The Africa Bureau was required to more carefully outline needs, define objectives, clarify indicators, describe successes and make appropriate linkages between sectors.

This TDY was intended to aid the Mission in monitoring and reporting on program-level impacts. In the simplest terms this means examining the existing information, monitoring and evaluation systems, assessing the level to which they can respond to impact reporting, and suggesting how the Mission can compensate for missing elements.

III. MISSION PROGRAM EVALUATION, MANAGEMENT AND INFORMATION SYSTEMS

A. Definition of Terms

The Africa Bureau has standardized terminology used in articulating program strategy. Definitions of key terms used in this report follow:

Program: A program is the sum of the project, non-project, food aid and policy dialogue actions undertaken by an A.I.D. field Mission in pursuit of a set of strategic objectives.

Program Goal: The highest level objective in the USAID program logical framework. It should be stated in terms of results which are as close as possible to positive changes in the lives of people. The results to be produced at this level may be very long term -- i.e. ten to twenty or more years into the future.

Sub-Goal: An intervening level objective between the strategic objective and the goal in the USAID's Program Logical Framework. By definition, it is above the level of Mission

manageable interest. Results at this level should be obtainable in less time than at the goal level.

Strategic Objectives: The highest level objectives in the program logical framework which the Mission accepts as within its manageable interest. These objectives should be stated in terms of results which are as close as possible to positive changes in the lives of people -- i.e. "people-level" impact. Progress towards achievement at this level should be measurable in five to seven years.

Performance Indicators: Criteria for determining or calibrating progress in the attainment of strategic objectives.

Targets and Sub-Targets: The major accomplishments for which an A.I.D. field mission is willing to assume direct responsibility in its efforts to achieve strategic objectives. The results at this level should be obtainable in three to five years.

Target Level Performance Indicators: Measures which demonstrate progress (or lack of same) in achieving Mission country program objectives. They should be clearly associated with points in time so as to enable judgements of that program's performance.

Target of Opportunity: An objective or activity incidental to the A.I.D. field mission's basic program strategy but nevertheless included in its portfolio for historical, political, humanitarian, or public relations reasons.

Manageable Interest: Those elements of a USAID program logical framework for which management accepts responsibility for achievement, monitoring, evaluation, and reporting. USAID will probably not control all the necessary and sufficient elements which produce the results for which it is taking responsibility. For those elements which it does not control, USAID must monitor whether progress is being made so it can know if its objectives can and will be achieved.

People-Level Impact: Positive effects on the lives of people.

Focus: Missions should address problems where the level of US resources and the comparative advantage of American expertise can feasibly be combined to lead to significant results. It is in defining how to address the problems selected that missions can focus their programs in ways that will increase the potential to have an impact on people's lives. How a Mission addresses a given problem may change over time.

Track: What has changed in people's lives as a result of USAID interventions. It is essential to learn what leads to impact in order to improve the targeting of Mission efforts and resources in the future.

PRISM (Program Information System for Strategic Management) A program performance information system which focuses on a broad spectrum of results at the program level.

PRISM sub-system The PRISM method applied to major program areas in the Mission; in the case of Senegal, population, crops, forestry, and market liberalization.

B. Organizing Principles for Defining Performance Data and Reporting Needs

A number of basic principles have been identified to guide program and project managers in organizing performance information for program reporting purposes. These include:

1. **Incorporate program performance information into existing reporting, review, and decision-making systems.** Ultimately the goal is to make program performance information as routinely available and easily used as financial data is now.
2. **Only collect performance information that is likely to be used and only collect it when the costs of collecting and analyzing it are exceeded by the expected benefits.** Information should only be collected if there is a reasonable prospect that it will affect Mission or government decisions and behavior, or if it is required for external reporting.
3. **Keep program performance information and evaluation as simple as possible.** Only rarely will more than three or four indicators be needed as a basis for analyzing any particular performance element. (Note: in some cases more indicators are provided so that Mission can later select the most appropriate, as the program evolves).
4. **Use existing information sources as much as possible.** Available secondary data often provide a sufficient basis for convincing program performance measures, particularly at goal, sub-goal, and strategic objective levels. Much information on performance at the target and sub-target levels can be obtained from routine project monitoring and evaluation.
5. **Use project mechanisms to collect and analyze most additional program performance information.** In general, project-funded data collection and analysis activities should be sufficient for routine reporting on program performance, at least at the target and sub-target levels.
6. **Place more emphasis on analyzing and interpreting information and less on data collection.** Unless attention is clearly focused on interpreting and using data, any effort to improve program performance information is likely to be greeted skeptically.

7. **Clearly delineate program management and evaluation roles and responsibilities.** Program performance information will never become routinely available for reporting and decision-making unless roles and responsibilities for obtaining, analyzing, and using such information are delineated.
8. **Take advantage of appropriate opportunities to strengthen host country program performance evaluation capabilities and institutions.** Much of the program performance information that is useful to USAIDs will also be useful to host country organizations or institutions that are developing, implementing, or managing related development activities. Where appropriate a Mission may want to assist organizations or institutions to improve collection and use of performance monitoring in decision-making.

Following the above organizing principles in designing performance evaluation and information management systems should facilitate program managers' reporting on performance.

C. Mission-Level Reporting Flow and Responsibility

Responding to the Congressional reporting requirements on results under the DFA, the Africa Bureau has established the Assessment of Program Impact (API) which reports on program impact based on the program logical framework developed and approved through the CPSP process. In the past, Mission reporting occurred in the Congressional Presentation, Project Implementation Review reports, mid-term and end of project evaluations, and ad hoc impact assessments. None of these regularly reported results and impact at other than project output levels and, occasionally, project purpose levels.

In contrast, the API is intended to report progress, impact, and results at the sub-target, target, strategic objective, sub-goal, and goal levels. To do this requires Missions to examine their existing monitoring, evaluation and information systems for their appropriateness and ability to respond to both project and program impact reporting requirements. Team member Dan Dworkin explained to Mission staff the advantages of using a Geographic Information System (GIS) to collect and analyze data. A description of how GIS functions is included in Annex III.

D. The Mission PRISM Work Flow Chart

The PRISM work flow chart was devised to provide a basis for analysis of the relationship between data sets and reporting requirements. In addition to listing data sets, it specifically identifies responsibilities and resources involved in maintaining or developing each data set and the reporting frequency of each. The chart for each Mission strategic objective, presented in Sections 4-7, provides the sequence of data management beginning at the source or location of information and continuing through analysis and reporting requirements. That sequence is as follows:

Sequence of Data Flow Management

- data set name
- level of reporting (sub-goal, strategic objective, target, sub-target)
- source of data (government, contractor/grantee, project, other AID offices, special studies, other donors)
- form in which data is received (raw, aggregated, compiled, un-analyzed, anecdotal)
- physical format of data when received (hard copy or computer disk)
- where source data is processed
- level of aggregation of source data (national, regional, sub-regional, smaller)
- frequency of updating

The work flow chart also delineates the position in each office responsible for managing the PRISM sub-system, reports generated by that sub-system, and a determination of funding sources for collection and analysis. The following sections present the Mission PRISM sub-systems for each of the four strategic objectives. Indicators at the goal and sub-goal level are presented in Table I, below:

In reviewing the goal and sub-goals, it was noted that the sub-goals closely resemble other Missions' statements at the strategic objective level. While acknowledging that the sub-goals are the aggregation of expected impacts within the population, crops, and tree strategic objectives, there is a firm belief that there are too many externalities for the sub-goals to be within the Mission's manageable interests.

It was also noted that by failing to incorporate people-level impact within the strategic objective of market liberalization, the Mission was underestimating the expected people-level impact of its program. As discussed in Section 7 of this report, the Mission will provide updated information on expected impact as the marketing portfolio is developed.

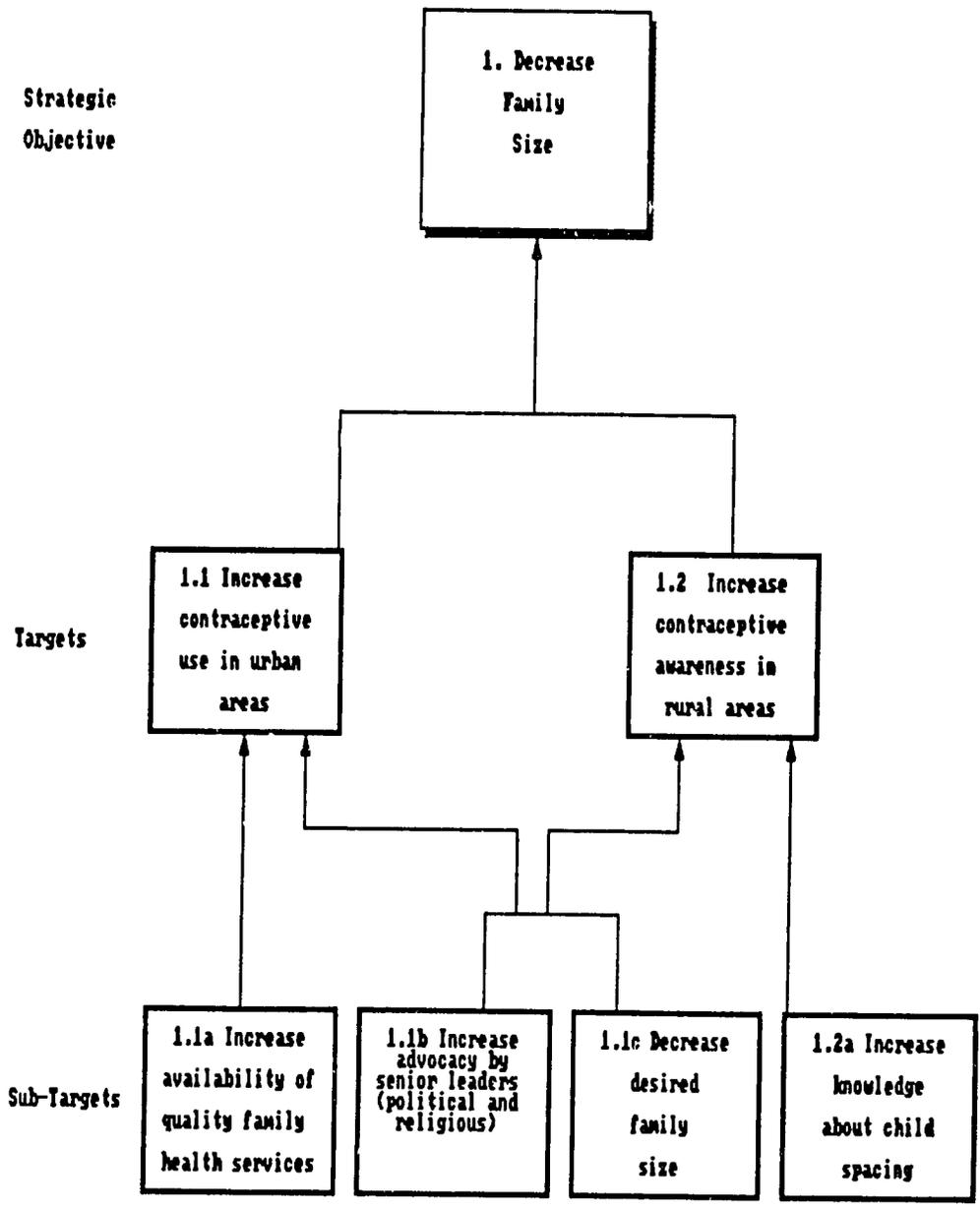
Finally, in reviewing the indicators included within the CPSP, it was found that the relationship between the Mission's expected impact and the performance of the Senegalese economy was poorly articulated. For this reason, it was agreed that the existing indicators would be complemented by the incorporation of GDP data within the Goal and Sub-Goal 0.1 Statements.

Table I: Goal and sub-goal indicator matrix

Statement	Indicator	Source	Responsibility
GOAL			
0. Increase private incomes from natural resources	GDP increased by 3.2% per year.	GOS statistics	PROG Office
	Natural resource income increased by \$___ million annually by 1997 over 1991 baseline.	MDRH crop production estimates.	ANR Office
Sub-Goal			
0.1 Increase availability of natural resources income per capita	GDP growth rate of 3.2% per year exceeds population growth rate of 2.7% per year.	GOS statistics	PROG Office
	Per capita income from natural resources in zones of reliable rainfall increased from ___ in 1991 to ___ in 1997.	MDRH crop production estimates Baseline and follow-on surveys.	ANR Office
0.2 Increase value of marketed output	Value of marketed production increased from ___ in 1991 to ___ in 1997 (without USAID program) and to ___ in 1997 (with USAID program).	MDRH crop production estimates. Baseline and follow-on surveys.	PROG Office ANR Office
0.3 Increase value of home consumption	Value of home consumption increased from ___ in 1991 to ___ in 1997 (without USAID program) and to ___ in 1997 (with USAID program).	MDRH crop production estimates. Baseline and follow-on surveys.	PROG Office ANR Office

Figure 2

Strategic Objective # 1 : Population Objective Tree



IV. STRATEGIC OBJECTIVE #1: POPULATION SUB-SYSTEM

A. Introduction

The information, evaluation and reporting systems of the population portfolio are described in this section and presented graphically in Figure 2 and Table II. The PRISM work flow chart for population is in Annex 1.

The major report toward which the population PRISM sub-system contributes is the Assessment of Program Impact (API). Information from the sub-system will also be utilized in the Project Implementation Review report, although input data is not the thrust of the PRISM. The Program Office uses this data in preparing the Annual Budget Submission (ABS) and Congressional Presentation (CP.) The bulk of the Health, Population, and Nutrition (HPN) Office's information system is used for regular project monitoring and evaluation purposes. On a slightly less regular basis, the system also provides requisite information for sector analysis, new project designs and the Country Program Strategic Plan (CPSP).

The Health and Population Office operates in a somewhat different context than do the other offices in the USAID. All of its activities contribute to the same strategic objective. The principal distinction between these activities is their project focus which is either family planning or rural health services/child survival. This has resulted in a simplification of data sets not shared by the other program areas where projects overlap strategic objectives.

Rapid population growth has seriously affected the quality of the natural resource base. Senegal is approaching its human carrying capacity in terms of cereals production and sustained forest yields, in the absence of trade. Reproductive fertility remains high and modern contraceptive prevalence remains low. Therefore, the strategic objective of the HPN Office is to decrease family size which is measured in terms of decreased national fertility rates. The objective tree representing the population program is presented on the previous page as Figure 2. The population strategic objective information matrix, presenting relevant objectives and indicators, follows as Table II:

Table II: Population strategic objective indicator matrix

Statement	Indicator	Source	Responsibility
Strategic Objective			
1.0 Decrease family size	National total fertility rate decreased from 6.6 in 1986 to 6.0 in 1997.	National Census DHS KAP	HPNO
Targets			
1.1 Increase use of modern contraceptives (urban, i.e. over 10,000 population)	Urban contraceptive prevalence (modern methods) increased from 6.7% in 1986 to 18.0% in 1997.	DHS KAP	HPNO
1.2 Increase contraceptive awareness in rural areas (concentrating IEC where access exists)	Women's knowledge of modern contraceptive methods increased from 58.1% in 1986 to 75% in 1997. Men's knowledge of modern contraceptives increased from ___ in 1993 to ___ in 1997.	DHS KAP	HPNO
Sub-Targets			
1.1a Increase availability and quality of family health services	FP services increased to 1/4000 (proportional to population) in urban centers w/growth rate over 2.7%. Mothers report decreased prescriptions of antidiarrheal drugs from 23% in 1989 to 12% in 1997. Increased % of health providers correctly performing high risk assessment of pregnancies (in project areas).	GOS statistics DHS KAP	HPNO
1.1b Increase advocacy by Sr. Leaders (Political and Religious) Note: this sub-target is also attributable to target 1.2.	% of people reporting having heard leadership commentary on population matters increased from ___ % in 1993 to ___ % in 1997.	DHS KAP	HPNO
1.1c Decrease desired family size Note: this sub-target is also linked and attributable to target 1.2.	Desired number of children decreased from 5.5 in urban areas in 1986 to 4.0 in 1997 for WRA; and from ___ - 1993 to ___ in 1997 for men. Desired number of children decreased in rural areas from 7.6 in 1986 to 6.6 in 1997 for WRA; and from ___ in 1993 to ___ in 1997 for men.	DHS KAP	HPNO
1.2a Increase knowledge about child spacing	Knowledge of 3 benefits of child spacing increased from ___ % in 1993 to ___ % in 1997 for both men and women.	DHS KAP	HPNO

B. Managing Information at Different Program Levels

i. Mission goal, sub-goal and strategic objective

The Mission's manageable interest in the population sector is identified in strategic objective #1, "decrease family size." This decrease will be measured by a reduction in the total fertility rate from 6.6 in 1986 to 6.0 in 1997 and contributes to the sub-goal and goal. In reviewing the program objective tree, the Working Group noted that progress toward the sub-goal was not only dependent upon strategic objective 1, but also dependent upon progress made in the Mission's other three strategic objectives. Thus, decreasing fertility rates alone could not dramatically affect "increased availability of natural resources per capita" (sub-goal #1). Similarly, achieving or exceeding the family planning strategic objective will not have a marked impact on the sub-goal or goal for at least 17 years. In addition, the indicators for the Sub-Goal were not directly linked to Strategic Objective 1. Thus, the indicators were modified to include an indicator which measured increased GDP growth rate versus population growth rate. The rationale for this indicator is that FP activities should in the short-term at least maintain population growth stable and other program efforts should show GDP increasing.

The Working Group agreed that the primary performance indicator, "decrease in fertility rate", measured impact in terms of people-level impact, was valid, and should remain. The only concern was that the Mission may have underestimated the projected target of 6.0 in 1997. A recent analysis of the 1988 census showed that fertility had already decreased to 6.3 and was projected to decrease further to 6.1 by 1993. It was decided that after the 1993 DHS, the HPN office would reassess the projected target and modify it if necessary.

ii. Targets and sub-targets

Population targets under the strategic objective were not really at the same level and, therefore, do not directly and straightforwardly flow from the strategic objective. Target 1 "increased use of modern contraception in the urban area," directly contributes to decreased fertility rates and decreased family size. However, Target 2, "increased awareness of modern contraception," is only one of several necessary elements to affect decreases in fertility rates. Rural population awareness leads to knowledge which in turn leads to a behavioral change which is translated into an increased use of contraceptives in the presence of adequate access to contraceptives. The Mission understands that the targets are bifurcated and at different levels, but has opted to retain the target which focuses on rural information, education and communication (IEC) to demonstrate progress toward the adoption of family planning methods in the rural areas. It was also decided that IEC activities would be concentrated in areas where access to family planning services exists. The Mission is aware that increased awareness stimulates demand which should be balanced with an adequate supply. While the focus will remain on the demand side, a small pilot activity in social marketing distribution will be undertaken in a rural target area as a component of the new family planning and population project. In addition, a social marketing project is planned for 1993.

There were no significant changes made to performance indicators at the target level. The only notable concerns were that there was a possibility that the target indicator for urban contraception was too high and that there was no data collected for men. The urban contraceptive rate indicator was lowered to 18% to more accurately reflect present trends and data regarding men would be addressed by the 1993 DHS.

While there were no changes to sub-targets, indicators were either supplemented or deleted -- for example, some indicators were gender disaggregated. Indicators for sub-target 1a, "increase availability and quality of family health services," only addressed family planning service provision outputs. Therefore, the indicator "decreased use of prescription drugs for diarrheal disease" was added as an indicator of quality for child health services and "% of health providers correctly assessing high risk pregnancies" was added as a measurement of quality of maternal health services. The indicator measuring women's continued use of contraceptives was dropped because data was not readily available and required a special survey. Under sub-target 2a, "increase knowledge of child spacing," the working group thought that the indicator, "knowledge of one benefit of child spacing," was too modest. It was pointed out that everyone knows at least one benefit; a greater challenge would be to increase knowledge of three benefits by greater percentages of both men and women.

iii. Special considerations

Strategic objective #1 is targeted to women and collects data primarily for women at the people-level. An urban KAP survey in 1990 will provide data on men's attitudes when the analysis is completed. Wherever useful and possible the Mission should include data on males as well as females. For example, a male sample will be included in the 1993 DHS survey and in the future KAP surveys which will provide the baseline for several indicators identified above.

iv. Population PRISM sub-system work flow chart

Data sets for the population program are standard and straightforward. With the exception of the sets listed under the heading of access to knowledge, they feed back into the critical measure of fertility. Some of the measures are gathered at the national level, while others are geographically focused in smaller regions, such as separately by urban and rural areas. Management responsibility for the population PRISM sub-system lies with the Direct Hire and FSN Health/Population Officers. These Officers also coordinate the flow of performance information from GOS agencies and private sector organizations through USAID-assisted projects.

It is suggested, to the extent possible, that the Ministry of Health staff be enrolled in the process of PRISM so they may benefit for purposes of their own data collection and reporting needs.

V. STRATEGIC OBJECTIVE #2: CROP SUB-SYSTEM

A. Introduction

The information, evaluation and reporting systems of the crops portfolio are described in this section and presented graphically in Figure 4 and Table IV. The PRISM work flow chart for crops is in Annex 1.

The crop sector is an important element in the Mission program. The Mission has defined a natural resource development strategy, which together with reduced family size, constitutes the strategic plan for the country. The Mission goal is to increase private income from natural resources. The strategic objective of the crop sub-sector is to increase productivity in the areas of reliable rainfall. This has been defined by the Mission as areas in which the annual rainfall is 400 mm or greater in 80 percent of the years. Since crop productivity is the basis of much of Senegal's GDP, reaching the strategic objective will support development of the national economy.

ANR will gather data for both the crops and forestry strategic objectives through an annual ANR survey and by reviewing Ministry of Rural Development and Hydrology (MDRH) and the Centre of Ecological Monitoring (CSE) statistics. The objective tree representing the crops program is presented on the previous page as Figure 3. The crops strategic objective information matrix, presenting relevant objectives and indicators follows as

Figure 3

Strategic Objective # 2: Crops Objective Tree

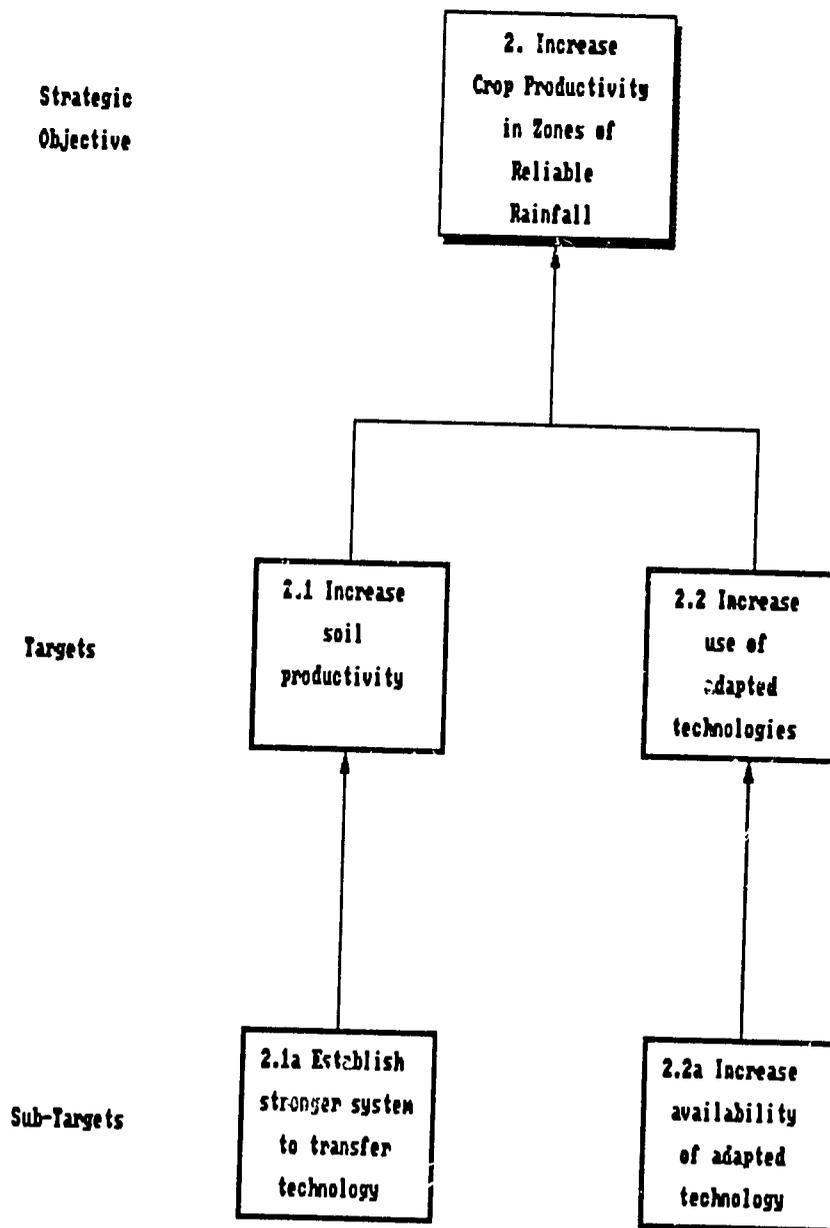


Table III: Crops strategic objective indicator matrix

Statement	Indicator	Source	Responsibility
Strategic Objective			
2.0 Increase crop productivity in zones of reliable rainfall	Adjusted Kg/ha. for key crops (rice, millet, maize, sorghum, groundnuts) increased from ___ in 1991 to ___ in 1997 in targeted zone.	CSE Annual farm survey MDRH crop production estimates	ANR Office
Targets			
2.1 Increase soil productivity	Indicators in target 2.2 below are proxies for target 2.1 (see text).	See 2.2	ANR Office
2.2 Increase use of adapted technologies	Number and percent of compounds utilizing improved technologies increased from ___ (%) in 1991 to ___ (%) in 1997.	Annual farm survey	ANR Office
Sub-Targets			
2.2a Establish stronger system to transfer technology	Number of farmers receiving information from government and non-government sources increased from ___ in 1991 to ___ in 1997.	Project and program reports Annual farm survey	ANR Office
2.2b Increase availability of adapted technology	Number of natural resources-enhancing technologies available in target zone increased from ___ in 1991 to ___ in 1997.	ISRA reports Annual farm survey	ANR Office

B. Managing Information at Different Program Levels

i. Mission goal, sub-goal, and strategic objective

The Mission's manageable interest in the crop sub-sector is identified in the strategic objective as increasing crop productivity. This is measured by an increase in the yield per hectare of the key crops: rice, maize, millet, sorghum and groundnut. No absolute figures were provided as targets for the increase. A measure of the productivity in 1991 will be serve as the baseline with 1997 productivity estimates being the target year.

The Working Group decided to use a yield measure based on a normal rainfall year. This will require that yield results be adjusted to compensate for departure from average rainfall conditions. To determine the feasibility for such an adjustment, the group met with the personnel of Centre of Ecological Monitoring (CSE) which has developed and tested a method for determining rainfall where there are no gauging stations. CSE has been developing and testing a method of using satellite data to determine rainfall in small areas. The results correlate well with actual rainfall estimates. Using rainfall data and adjusting actual yields either up or down based on rainfall, the Mission can report the crop yields normalized for an average rainfall year.

In addition the Working Group noted that the Mission statement on increases in crop yields does not reflect the important concept of sustainability and strongly recommended that this modification be added. The Mission agreed that sustainability of crop increases was essential and interpreted sustainability as being implied within the statement.

ii. Targets and sub-targets

The targets under the strategic objective were not really at the same level and therefore there is not a logical flow from each target to the strategic objective. "Increased use of adapted technology" -- in strict analytical terms -- is really a sub-target of the objective "increased soil productivity." That is, typically an objective tree would place the former beneath the latter since it is one of its causes. However, for purposes of the assignment, the sub-targets were accepted as presented, with the Working Group concentrating on identifying indicators and the source of the data.

iii. Special considerations

In addition to the formulation of the strategy, the Mission staff and the Washington team has reviewed in some detail the methods of data collection and data analysis. An annual sample survey of farming activities will provide the basic data for productivity, adoption of adapted farm practices, technology transfer, and the effect on people in the targeted zones. To the extent that data can be gathered and to the extent that it is significant, it will be disaggregated by gender.

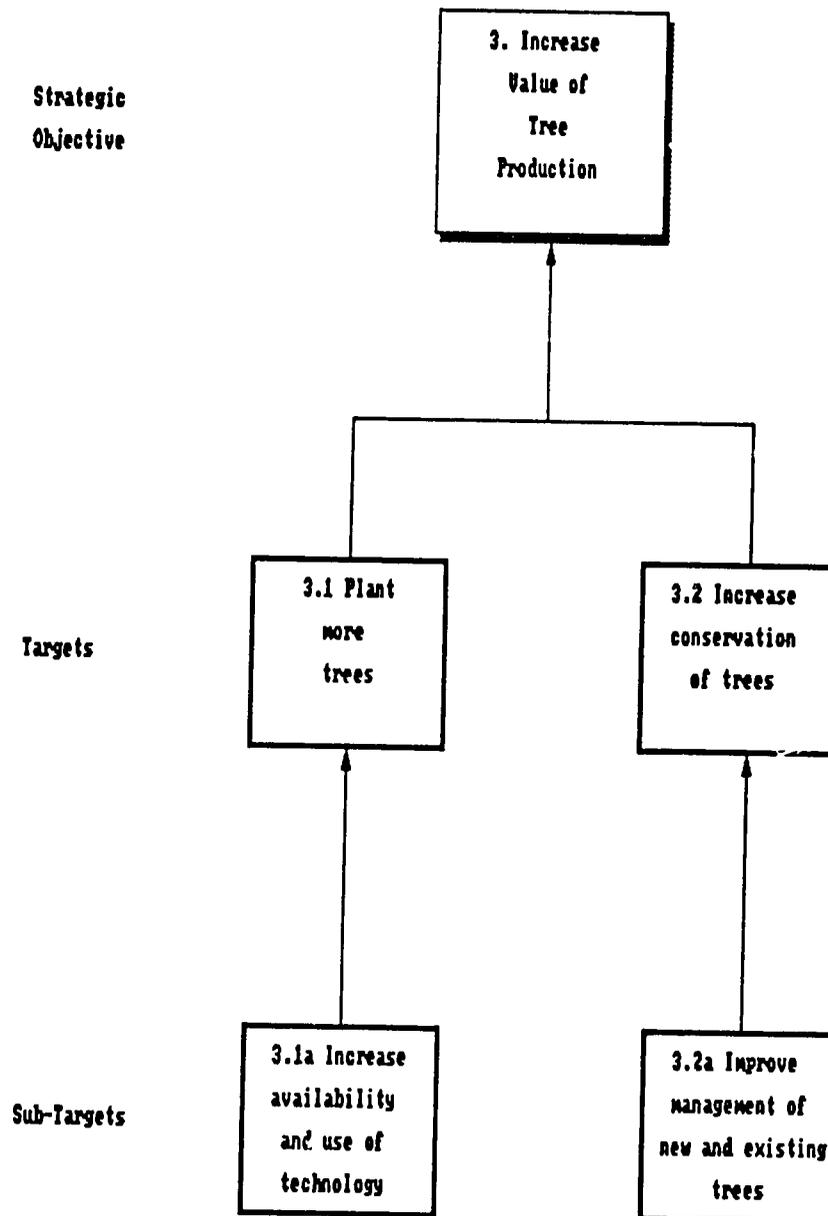
The data collection is not to be used solely to satisfy reporting requirements, but will provide lessons learned as part of the ongoing review of the program. To the extent practicable, the data collection and analysis will involve some branch of the GOS to assure that the necessary data to inform policy changes will become available.

iv. The crop PRISM sub-system work flow chart

The work flow chart for this Strategic Objective may be found in Annex I. As with the forestry strategic objective, the main sources of data are MDRH statistics and the annual ANR rural survey.

Figure 4

Strategic Objective # 3: Forestry Objective Tree



VI. STRATEGIC OBJECTIVE #3: FORESTRY SUB-SYSTEM

A. Introduction

The information, evaluation and reporting systems of the forestry portfolio are described in this section and presented graphically in Figure 5 and Table V. The PRISM work flow chart for forestry is in Annex 1.

The forestry sector is an important element in the Mission program. The Mission has defined a natural resource development strategy, which together with reduced family size, constitutes the strategic plan for the country. The Mission goal is to increase the private income from natural resources by \$6.8 million annually by 1997. The strategic objective of the forestry sub-sector is to "increase the value of tree production nation-wide". Achieving the strategic objective will contribute to the direct increases of rural incomes as well as permit a positive diversification of family income sources. The objective tree representing the forestry program is presented on the previous page as Figure 4. The population strategic objective information matrix, presenting relevant objectives and indicators follows as Table IV:

Table IV: Forestry strategic objective indicator matrix

Statement	Indicator	Source	Responsibility
Strategic Objective			
3.0 Increase value of tree production	Income increased per compound from forestry products from ___ in 1991 to ___ in 1997. Market value of tree stocks per compound increased by ___ CFA annually.	Project and GOS records Annual farm survey GOS records	ANR Office
Targets			
3.1 Plant more trees	___ (#) trees planted and surviving per year. # compounds engaged in forestry increased ___% annually.	Project and GOS records Annual farm survey	ANR Office
3.2 Increase conservation of trees	___ hectares protected and managed to permit regeneration increased.	Annual farm survey Project and GOS records	ANR Office
Sub-Target			
3.1a Increase availability and use of technology	# compounds using recommended technologies increased ___% annually.	Annual farm survey	ANR Office
3.2a Improve management of new and existing trees	Number of compounds involved in natural forestry management increased ___% annually.	Annual farm survey	ANR Office

B. Managing Information at Different Program Levels

i. Mission goal, sub-goal and strategic objective

The Mission's manageable interest in the forestry sub-sector is to increase the value of tree production. Trees are an overused resource in Senegal with charcoal representing the major use. Policies regulating the rights of farmers are unclear. Major deforestation has occurred in an effort to clear more land for agriculture. The strategic objective is an important development intervention for the Mission and for the economic development of the country.

The Working Group approved two indicators for the strategic objective, increased income for the farm unit from trees and an annual increase in the value of tree stocks. Both indicators will be measured by an annual farm survey, the same instrument used to measure much of the data for the crop sub-sector.

ii. Targets and sub-targets

The two targets were directed to the strategic objective, plant more trees and conserve those already planted. There was some discussion of one of the sub-targets, "increase natural regeneration." There was uncertainty as to whether the Mission would be directly involved in any program that would promote natural regeneration. Although there is no Mission program directed towards regeneration, activities of supported PVOs will be directed towards this end.

iii. Special considerations

Both policy change and policy implementation directed toward tree tenure and tree use will be encouraged by the Mission. The present policies do not provide secure tenure to encourage farmers to grow trees. The working group also addressed the need for new and deregulated markets for trees.

iv. The forestry PRISM sub-system work flow chart

The work flow chart for this strategic objective may be found in Annex I. As with the forestry strategic objective, the main sources of data are MRDH statistics and the annual ANR rural survey.

VII. STRATEGIC OBJECTIVE #4: MARKET LIBERALIZATION SUB-SYSTEM

A. Introduction

The information, evaluation and reporting systems of the marketing portfolio are described in this section and are presented graphically in Figure 5 and Table V. The PRISM work flow chart for marketing is found in Annex I.

The marketing sub-system is unlike the sub-systems for population, crops, and trees in that the Working Group consists of economists located in the Agricultural and Natural Resource Office, the Program Office, and the Office of the Controller rather than a single technical office. The data generated as part of the marketing sub-system is integral to that of the other sub-systems as well as to the higher level sub-goal statements.

The major report toward which the marketing sub-system contributes is the API. Information from the sub-system also generates information to contribute to the PIR Report. Due to the inter-relationships between crops, forestry and marketing, data is collected and analyzed initially by the ANR Office. The Program Office uses data from this office in preparing the ABS, CP, API and the PIR summary.

The bulk of ANR's information system is used for regular project monitoring, and evaluation purposes. The data and subsequent analyses, however, will also serve to advise the Mission of the real and expected impact of A.I.D. investments within the agricultural and natural resource sector. This information, complemented by analytic agenda findings and the PIR process is expected to improve the design and implementation of activities.

Increased market liberalization of agricultural commodities is a pressing need in Senegal. If the nation is to achieve the CPSP goal and increase economic output, it is essential that: (1) agricultural markets become more efficient through workable competition which permit a more optimal allocation of resources; and (2) the deficits to the GOS treasury be reduced which will help create a macro-economic environment conducive to growth in investment, incomes and employment. Given this dual objective of market liberalization, the Mission decided it considers market liberalization to be one of its strategic objectives, rather than a target. The objective tree representing the marketing program is presented in Figure 5. The corresponding information matrix is presented below:

Figure 5

Strategic Objective # 4: Markets Objective Tree

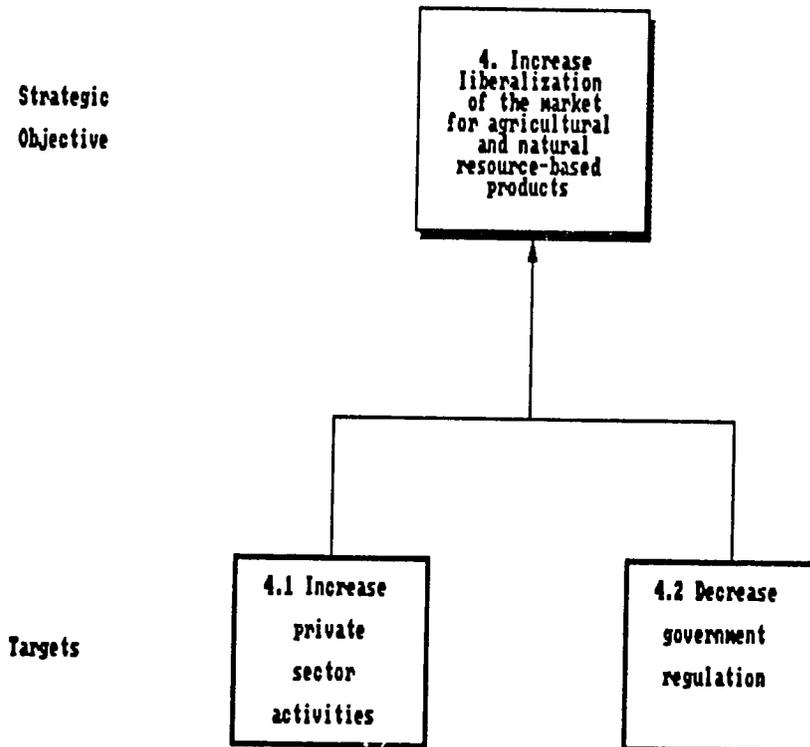


Table V: Market liberalization strategic objective indicator matrix

Statement	Indicator	Source	Responsibility
Strategic Objective			
4.0 Increase liberalization of the market for agricultural and natural resource-based products	Reduced difference between producer/consumer prices and border prices plus in-country marketing costs. Percent of total agricultural product marketed through private sector increased from 46% in 1991 to 56% in 1997.	Rapid market surveys Consumption surveys	ANR Office
Targets			
4.1. Increase private sector activities	Number of wholesale cereal traders increased from ___ in 1991 to ___ in 1997. Number of medium-scale processors increased from ___ in 1991 to ___ in 1997.	CSA/SIM Rapid market surveys	ANR Office
4.2. Decrease government regulations	Rice transport subsidy eliminated. Buying and processing of local rice by SAED eliminated. Wholesaling of local rice by CPSP eliminated. Deregulation of prices and imports for unbroken rice implemented.	GOS reports	ANR Office

B. Managing Information at Different Program Levels

i. Mission goal, sub-goal and strategic objective

The Mission's manageable interest in relation to the marketing function is identified in strategic objective 4, "Increased liberalization of the market for agricultural and natural resource-based products". The Working Group agreed that by "liberalization" the Mission intended the evolution of a private sector-led market system which transmitted price signals to producers, consumers, traders, and agribusinesses accurately and in a timely fashion. The group was then faced with the quandary of how to best measure people-level impact -- or how to put a human face on the invisible hand of the market.

The Working Group tried to develop an estimate of the direct and indirect impact of market liberalization on producer incomes or consumer welfare -- that is, which groups would benefit or suffer from freer markets. In reviewing the data, however, the group found that this was not a promising tact. First, unlike many other African countries, there is not a consistent policy bias in favor of either consumers or producers. Secondly, if one were to base the impact of market liberalization upon 1991 prices, one would find much less impact than if one projected into the future. Projecting into the future is not easily done, however,

because of uncertainties with regard to the prices of rice, groundnuts, and the CFA. Therefore, while the Mission will continue to monitor these implications of the program, it is believed that a more modest indicator of the strategic objective is appropriate.

After lengthy discussions it was agreed that this broad concept could best be measured by examining four complementary and reinforcing indicators: (1) a reduction in the difference between prices for selected goods throughout Senegal and the value of those goods based on border prices plus marketing costs within Senegal; (2) a decrease in marketing margins from ___% in 1991 to ___% in 1997; (3) an increased percentage of farm households who utilize price information when making their cropping decisions; and (4) an increase in the percent of total agricultural products marketed through the private sector. It was agreed that while indicator (1) was the best measure of market transparency, improved markets would only lead to people-level impact if market performance were improved (lower market costs or margins translate to higher prices for producers or lower prices for consumers) and if market information were incorporated in the basic operating decisions of the farm household. Finally, while the private sector is a means rather than an end, the percentage of total agricultural product marketed through the private sector is believed to be a good proxy for improving market performance. In order to decrease the reporting burden, these indicators were eventually decreased to two, eliminating indicators 2 and 3 above.

When the Working Group reviewed the program objective tree, it was found that the strategic objective was also a necessary component to increases in the physical productivity of crops and the increased value of tree production. Indeed, the sequencing of the USAID/Senegal strategy is appropriate to achieving sustainable increases in agricultural productivity. The strategic objective of market liberalization is expected to have a significant effect in years 3-5 of the program. As a result of this change in the pricing environment, the potential impact of the crops strategic objective is further enhanced in years 5-10, and trees in years 7-15. One of the remaining issues that the Mission must grapple with prior to the submission of the API and the design of the Agricultural Sector Grant is what will be the socio-economic impact of the proposed market liberalization program, and what are the appropriate magnitudes of progress at the sub-goal level.

ii. Targets and sub-targets

Market liberalization or improved market performance requires the development of workable competition within the Senegalese rural economy. Workable competition, in turn, requires both an increased number of private sector activities and a reduced role by the Government of Senegal. Therefore, the group agreed that the targets were appropriate as stated in the CPSP. There was some concern with regard to the sequencing of government deregulation and increased private sector activity. The group concluded that in Senegal the two targets must proceed in an inter-locking fashion moving at a parallel pace.

When considering the private sector, the working group faced the question of which dimension is the most appropriate to examine, and how does one measure it. This issue is

vexing at the retail level in the informal sector which is especially vibrant. The working group believes that at some future time a market analysis which examines structure, conduct and performance of Senegalese trade would be appropriate. However, given the resources available, it was determined that the most crucial element of the market chain in Senegal is that of wholesale traders and medium-scale processors. This group is of interest to both USAID/Senegal and the GOS due to the fact that if there is market failure, the emergence of monopolies/monopsonies, or the possibility of exploitation it will be due to the lack of workable competition at this level. The only other modification within this target indicator was to clearly distinguish between wholesale cereal traders and medium-scale processors to better measure the sub-sets of actors.

The target of decreased government regulation remains the same. Indicators of this target in the CPSP focused on reducing subsidies. While the subsidy issue is important, it did not relate to the target of deregulation. Consequently, the group decided that it was most appropriate to include as indicators of deregulation the four regulations which would be addressed by the USAID/Senegal Program.

It was determined that the marketing strategic objective need not be addressed at the sub-target level within the API format due to the fact that these are outputs which are reported in the PIR.

iii. Special considerations

Strategic objective # 4 will affect virtually all elements of Senegalese society-- producers, consumers, traders, and agribusiness. While the API Report will capture the broad trends, the Mission will need to go beyond these indicators to examine the economic and social consequences of its investments within this strategic objective. These supplementary analyses should examine winners and losers by occupation, scale of occupation, gender, farm size, etc. in order that Senegalese, U.S., and other donor decision-makers may be appraised of actual and expected impact in a timely fashion.

iv. Marketing PRISM sub-system work flow chart

The work flow chart for this strategic objective may be found in Annex I. In addition to the data gathered as part of the annual ANR survey, rural market surveys will be conducted to measure progress towards market liberalization.

VIII. MISSION MONITORING, EVALUATION AND REPORTING (MER) MANAGEMENT STRUCTURE

The MER system is a unified system with decentralized management responsibilities. The system is comprised of two basic concentric systems: an over-arching system and inner sub-systems (See Figure 6). Each sub-system is comprised of three parts: project monitoring,

analytic agenda, and program monitoring (See Figure 7). Though there is considerable sharing of data sets within the sub-systems, each sub-system should be managed separately as the chief source of information for certain reporting requirements. For Senegal, the team proposes two sub-systems, one for natural resources (which includes crops, forestry, and marketing) and another for population. If necessary, a separate sub-system can be initiated to handle goal and super-goal reporting requirements.

Responsibility for managing the sub-system should rest with the director of each office. Responsibility to coordinate the overall system should reside in the Program Office. The Program Office should also be responsible for resource allocation across sectors and for finalizing reports at higher levels.

A. Information Sub-System

i. Project monitoring

Each project manager is responsible for maintaining the management information system for his or her project. Project managers are responsible for achievement of project outputs and strive to achieve project purposes. Indicators selected for this purpose comprise the heart of the PIR with respect to each project. Such indicators spring from project management and are generally not part of the Mission's PRISM. Feedback from the indicators will be used to modify project implementation, as necessary.

ii. Analytic agenda

The analytic agenda portion of each sub-system is still being finalized. It will provide sectoral understanding necessary to monitor assumptions implicit in the current strategy and to modify the strategy, if necessary, as experience develops. The population analytic agenda will be managed by the head of the HPN Office and the other analytic agenda will be managed by the head of the ANR Office. In addition, the overall Mission analytic agenda will be coordinated by the Program Office. These individuals are responsible for ensuring that data is collected, analyzed and communicated to top management and the Mission. The chief use of the analytic agenda will be to provide the analytic foundation for the CPSP.

iii. Program monitoring

The chief of each office is responsible for measuring and providing data to the Program Office on the achievement of the strategic objectives, targets, and (where applicable) sub-targets. As implementation of each of the strategic objectives becomes clearer, the office chiefs may wish to delegate responsibility for monitoring the achievement of each of the strategic objectives to certain individuals within the office.

Data from the program system will be used to draft the API and to fine-tune or revise the program strategy.

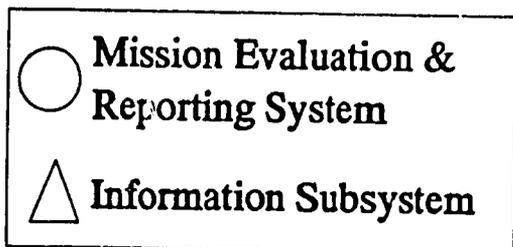
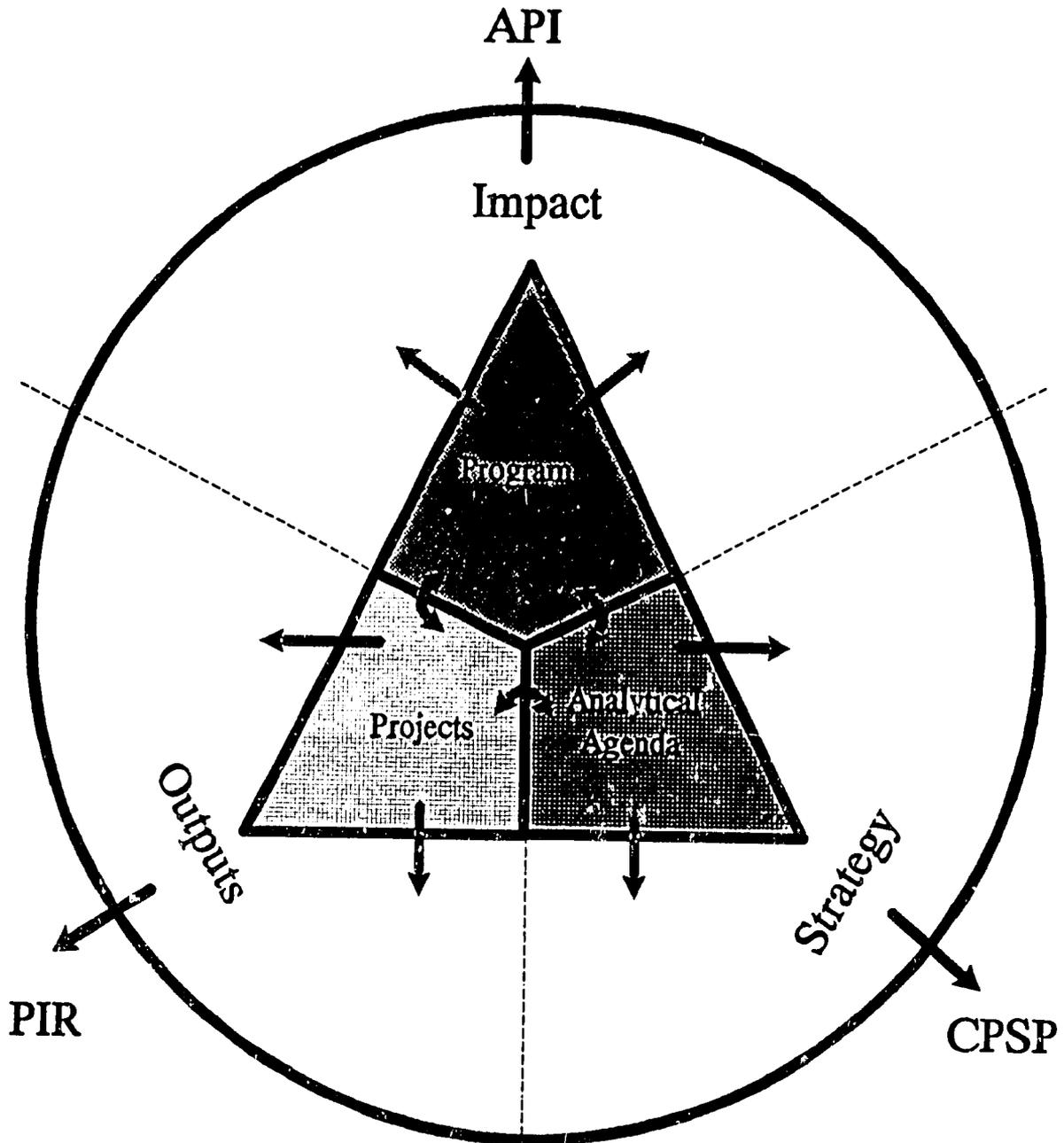
iv. Establishing a baseline

Based on the data sets identified and their sources, the Mission staff should establish baseline data for each performance indicator. Surveys and special studies need to be designed with the objective of developing baseline data for each indicator.

The Senegal Mission has developed a framework for its program monitoring and evaluation system. Senegal Mission management should review the overall framework and the indicators proposed by the working groups. Once the final list of indicators is identified, the Mission should establish quantitative measures for each indicator where they do not currently exist. These indicators could then be shared with contractors and host government ministries so that they can begin to integrate their data collection with Mission data collection needs.

Figure -6

Mission Information System



Responsibility Shared:

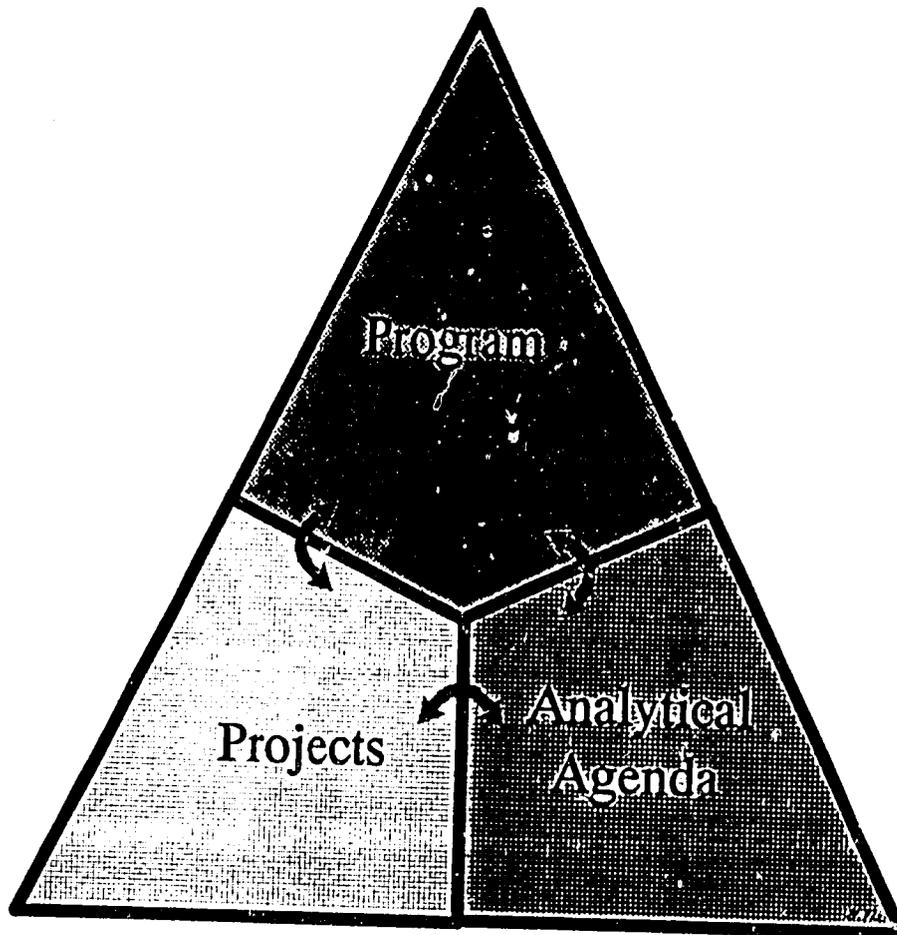
Program Office -

Coordination

Resource Allocation across sectors

Reporting

Information Sub-System



Responsibility: ANR Office
HPN Office

ANNEX I: WORK FLOW CHARTS

POPULATION

Name of Data Set	Level of Reporting/Linkages					Source of Data Sets						Form Data Received					Physical Format		Where Source Data		Aggregation Level of Data				Updating Frequency	Mgt. & Use of Data Set: Person/Pos.		Reports Generated		Who pays for Data	
	Goal	Sub-Goal	S.O.	Targ.	Sub-Targ.	GOS	Grant	Proj	USAID	Special Studies	Other	Raw	Aggr	Compile	Unclass	Anal	Disk	Har	Processed	Nat	Reg	Sub-Reg	Smaller	Responsible		Person/Pos.	Name of Report	Collect.	Analysis		
POP GROWTH	X	X				X								X			X		GOS	X				Annually	Prog. Officer	API	GOS	GOS			
FERTILITY			X			X								X			X		BNR	X	X			4 yrs.	HPNO	DHS/KAP/API	USAID	USAID			
CONTRACEPTIVE PREV.				X		X								X			X		BNR	X	X			4 yrs.	HPNO	DHS/KAP/API	USAID	USAID			
CONTRACEPTIVE KNOW				X		X								X			X		BNR	X	X			4 yrs.	HPNO	DHS/KAP/API	USAID	USAID			
SERVICE COVERAGE					X	MOH								X			X		MOH		X			Annually	HPNO	MOH Report/A	MOH	MOH			
PRECRIP DRUGS DIARR				X		X								X			X		BNR	X	X			4 yrs.	HPNO	DHS/KAP/API	USAID	USAID			
HEALTH PROVIDERS				X		MOH		X						X			X		MOH/Proj			X	X	2 yrs.	HPNO	Project Report/V	USAID	USAID			
LEADERS COMMENTAR				X		X								X			X		BNR	X	X			4 yrs.	HPNO	DHS/KAP/API	USAID	USAID			
DESIRED CHILDREN				X		X								X			X		BNR	X	X			4 yrs.	HPNO	DHS/KAP/API	USAID	USAID			
CHILD SPACING BENEFIT				X		X								X			X		BNR	X	X			4 yrs.	HPNO	DHS/KAP/API	USAID	USAID			

16

Crops; Forestry, marketing

Name of Data Set	Level of Reporting/Linkages					Source of Data Sets				Form Data Received					Physical Format		Where Source Data Processed	Aggregation Level of Data				Updating Frequency	Mgt. & Use of Data Set: Person/Pos. Responsible	Reports Generated Name of Report	Who pays for Data		
	Goal	Sub-Goal	S.O.	Targ.	Sub-Targ.	GOS	Contract/Grants	Project	USAID	Special Studies	Other	Raw	Aggreg.	Compiled	Unanal.	Anec.		Disk	Hard	Natl.	Regl.				Sub-Regl.	Smaller	Collect.
Small farm survey	X	X	X	X	X		X					X		X		X		USAID		X			2 mos	ANR Chief	TBD	AID	AID
Small Market surveys			X	X				X	X			X		X		X		USAID	X				4 mos	ANR Chief	TBD	AID	AID
Small Crop production estimates	X	X	X	X		X								X		X		GOS	X	X	X		annual	ANR Chief	TBD	GOS	GOS
Small /SIM statistics			X	X		X							X			X		GOS	X	X			weekly	ANR Chief	TBD	GOS	GOS
Small Reports (policy change)				X		X					X					X		GOS	X				annual	ANR Chief	TBD	GOS	GOS
Small Statistics	X	X	X			X							X	X		X	X	GOS	X	X	X		annual	ANR Chief	TBD	GOS	AID
Small A Stats				X	X								X			X		GOS		X			annual	ANR Chief	TBD	GOS	GOS

74

ANNEX II: PRISM Working Groups

USAID Dakar
Indicators Workshop
July 29 - August 2, 1991

Participants

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Dwight Al Smith - AFR/TR/ANR/PA - Agriculture/Nat Resources & Markets

Mark Renzi - Contractor MSI - Agriculture/Nat Resources & Markets

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T. Ray

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M. Kieta

L. Thiam

A. Faye

L. Franchette

A. Ndiaye

M. Ndow

ANNEX III: Geographic Information Systems

Use of Geographic Information Systems for Mission Management

Why a GIS?

Geographic information systems (GISs) are an important tool for USAID Missions in the collection, storage, analysis, and presentation of data. The current API exercise with its required updates requires Mission management to be able to show the baseline and changes in a number of indicators selected to show progress.

The data needs of the Mission for the API exercise are heavy and will require the collection and analysis of data from government reports, research institution reports, periodic surveys, project reports and evaluations, and reports of other donors. To complicate the problem, data areas in which the Mission operates are not uniform. The Pop office is concerned with urban and a few rural areas. The ANR office concentrates on zones with an average rainfall of 400mm or more. The southern water zone project operates in a more restricted area of the country.

Even these divisions are too broad in some instances. The above 400mm rainfall zone of concern of the ARN office is further divided into a number of agroecological zones. These are again further divided, for purposes of normalizing sample data to represent normal yields during periods of abnormal rainfall. A spatial record of what is happening is a necessity for a program manager to assess the success or lack of success in achieving the targets and sub targets of the program. In addition, the examination of differential success rates in different areas might provide important "lessons learned" to modify the program implementation.

GIS as a Spatial Database

A GIS will assist in the collection, analysis recall and display of data. Such a system is conceptually a data base with a further tag that will identify an area of land to which it applies. By attaching a unique number to any data set, the data can be designated for a geographic defined space. For example any database program can be used to represent a condition applied to a specific land area. For example, to represent a soil condition within a region four numbers could be used. The first could be the region; the second, an administrative district within the region; the third could be soil type (or could be a data layer of all the soil types), while the fourth could be a physical location within the district. Data in a GIS can be presented as a table, a graph, or a map.

GIS as a Management Tool

The use of a GIS would provide all levels of the Mission with data for project management and assessment, for monitoring of program results, and for review of the Mission strategy. Such a system could also be used by the Mission as an effective tool to discuss conditions

within the country with the government and to depict graphically for AID/W the impact of the country program.

The Mission already has most of the expertise to develop and use such a system. A GOS agency such as CSE could be used to input data. CSE already has a substantial number of data files that would be useful. These files were developed during the operation of FEWS, AGROMET and in research project arising out of an analysis of the data. As an example, Rod Kite working with USGS and CSE developed a report on carrying capacity using a GIS and some of the existing FEWS/AGROMET data.

Hardware and Software

The hardware requirements for a GIS are modest. A fast micro-computer with a large hard disk and a color monitor with a super VGA display format would be ideal. Current competitive costs for such a system are \$3,000. An output device providing color maps cost from \$700. Software programs are available to the Mission at a nominal cost. One that the Mission should consider would be IDRISI, a program developed under a cooperative agreement with Clark University. The cost of the software is \$200. Multiple copies could be supplied to the interested GOS agencies to enter their data. Mission would then be in a position to request data prior to its publication and would be able to access the pertinent records without the need for either the long wait for publication or for re-entry of the data from hard copy to carry out analyses.