STRATEGY OPTIONS AND ECONOMIC CONSIDERATIONS:

Toward a Strategy Analysis Matrix for Use in USAID/Dakar Programming

INTRODUCTION

The purpose of this paper is two fold:

1. to present a first cut at a strategy analysis matrix that can be used by USAID/Senegal in thinking through its strategy options for the promotion of development in Senegal.

2. to present an economic analysis of the consequences of various strategies. Six strategies -or strategy emphases- are presented, and these are crosscut by four large categories of "consequences", i.e., the projected outcomes of the adoption of one or the other strategy. Consequences categories are subdivided into discrete effects which are quantified on a scale of 5 to 5, with the negative values indicating adverse or undesirable effects, the positive values indicating beneficial or desirable effects, and indicating no effect or a neutral effect. The matrix is designed is such a way that analysts can weight the effects according to the relative importance they accord them and can then add the columns to arrive at a quantitative comparison of the overall consequences of the adoption of various strategies.

The matrix presented in this paper will be incomplete with respect both to form and substance. Its form -i.e., the concrete strategies

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and consequence categories that constitute its columns and rows- can, and probably should, be revised and refined as options expand or narrow or as more analysis makes the nature of the various strategies and consequences clearer. Its substance -i.e., the numerical values inserted in the boxes- will have to be completed as the results of non-economic categories of analysis come in. I have completed only four rows relating to four economic effects of the various strategy options.

In using the matrix it is important to note the time dimension over which consequences are projected, for experience shows that investments can have long lead times before showing positive benefits, or, conversely, can have immediate pay-offs by dwindling or even negative returns over the long-run. For the purpose of the economic analyses presented in this paper, I have chosen to project consequences over a 10-15 year period. This is an intermediate time span, chosen because relatively new strategies cannot be expected to produce significant results in a shorter period of time, and because government and donor attention spans (hence funding cycles) cannot be expected to last any longer period of time.

It should go without saying that this matrix, like any analytic tool, has limitations. It is two-dimensional, thus obscuring relationships and inter-causality between categories. The values, as well as the weights, attached to various categories will

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inevitably involve some measure of judgment as well as objective analysis. Thus, the matrix should be seen as a tool, rather than a substitute, for decision-making.

However, USAID/Senegal is at a point now where it could make use of some type of tool that would permit it to integrate the various analyses that have already been conducted (Bienen, Gellar, Berg, etc...) as well as others that will be commissioned in preparing the CDSS. The strategy analysis matrix provides a way to formalize a framework of analysis in a way that may be helpful in decision-making.

STRATEGY EMPHASES

The columns of the matrix consist of the following strategy emphases:

1. Irrigated Agriculture: An emphasis on irrigated agriculture would be in direct support of GOS priorities, and would involve a major coordination effort with other donors. It would mean emphasis on the Fleuve or Casamance regions, or both. It would be direct mainly at increasing the production of rice for domestic consumption.

2. Dryland Farming: An emphasis on dryland farming would entail research, training and other services in support of diversifying and increasing agricultural production in rainfed areas. It would probably entail a number of small and medium-sized projects, concentrated in the Peanut Basin, the Casamance and possibly Senegal-Oriental.

3. Support for Private Initiatives: This strategy would support private agro-business as well as initiatives in other sectors, such as small industries, light or intermediate manufacturing, and commerce. It would seek to attract American private investment either directly or through OPIC and would sponsor American PVOs such as technoserve or Partners for productivity that have concentrated on assisting private business in developing countries.

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4. Balance of Payment and Budget Support: The purpose of this strategy would be to respond directly to the immediate econonic crisis in Senegal by providing the GOS direct assistance in meeting the foreign exchange and local currency costs of its development investments. Instruments might include a commodity import progeam, sector support loans and Food for Peace Programs.

5. Infrastructure Institution-Building and Environmental Restoration: Unkike direct production-oriented strategies (such as 1 & 2 above), this strategy would seek to relieve intermediate constraints to increase in productivity or production. Programs might include road and bridge construction, training (e.g., management and technical personnel), agricultural research, trade/market analysis, and the like. Environmental restoration would involve programs such as a reforestation/revegetation and range management. It would also seek mainly to relieve an intermediate constraint to increased agricultural and livestock production although certain forestry projects could also be directly production (of hardwood or firewood) oriented.

6. Basic needs: This strategy would emphasize social services and other measures aimed at directly improving the quality of life among the poor. Included would be programs in health, literacy, village water supply an urban low-costs housing.

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It should be clear that these strategies are neither all-inclusive, nor are they mutually exclusive. It is likely that USAID/Senegal opt for some mix of programs incorporating several of the above strategies. The real question is one of strategy emphasis, i.e., where the Mission will choose to place the preponderance of its assistance. It is this decision that this paper and the strategy analysis matrix are designed to assist. It should be noted also that these strategy options as well as the overall strategy analysis matrix can be used in negotiating a division of responsibilities with other donors. Donors could divide responsibilities on a regional basis (each donor taking one region), a sectoral basis (each donor taking a sector or one of the above strategy emphases), or within projects (each donor taking a component of a particular project). Whichever way responsibilities are divided, there should first be some overall donor/GOS consensus on strategy emphasis.

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CONSEQUENCES

The rows of the matrix consist to four categories of consequences of the adoption of the various strategies. The four categories are, in turn, subdivided into discrete effects. I have attempted to be fairly inclusive and detailed in the listing of economic effects, but only illustrative in the listing of effects under the other categories.

I. Economic Consequences

- A. Effect on production and income
- B. Effect on the Balance of Payments
- C. Effect on the GOS budget/recurrent costs
- D. Effect on Employment
- E. Effect on the productivity of
  - 1. Land
  - 2. Labor
  - 3. Capital
- F. Effect on Prices
- G. Effect on the Distribution of Income

II. Social and Environmental Consequences

- A. Effects of an alteration of the environment
- B. Effects of Health
- C. Effects on social Stratification and Sociocultural Behavior

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D D. Effects on Women

E. Effects on the Quality of Life

III. Political Consequences

A. Effects on Domestic patron-client relationships

B. Effects on domestic political stability

C. Effects on U.S.-Senegalese relations

D. Effects on the distribution of power among regions

IV. International Consequences

A. Effects on Regional (West African) integration

B. Effects in the United States (i.e., acceptability in AID/W, Congress, among the public, etc).

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IRRIGATED AGRICULTURE

General Justification

Irrigation is most frequently justified in terms of import substitution and food security. In recent years Senegal has been only about 50 percent self-sufficient in the production of foodgrains (less than 25 percent in rice). With irrigation, it is estimated that in ten years Senegal could increase rice production four-to five-fold, thereby increasing the ratio domestic foodgrain supply/domestic foodgrain demand to 75 percent. Irrigation would also greatly decrease production risk, thereby increasing food security.

Other economic arguments in favor of irrigation are that it increases the efficiency and therefore the economic returns, to, a previously inefficiency used resource - water; that it increases incomes in relatively low income rural areas of Senegal (1); that it has high spin-off potential in terms of economic benefits in other sectors (e.g., agro-processing, transportation, social services, etc...); and that it promotes regional economic integration (through the OMVS).

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(1) Increasing rural incomes is not just an argument for equity but also an argument for growth since it is generally considered that rural incomes have a higher multiplier effect than urban incomes. With the very poor, however, the propensity to consume is such that the increased demand resulting from increased income may not be offset by increased savings, a situation that could lead to higher prices with little or no growth in output.

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Effects on Production and Income

The potential increases in production stemming from irrigation are substantial. Currently, less than 200,000 ha are being cultivater under irrigated conditions. Full water control from Diama, Manantali and other dams would create more than 200,000 ha of irriguable land in Senegal. Perhaps 50,000 ha could be brought under cultivation in the next 10-15 years. (1)

Output that could be expected depends to a large degree on assumptions concerning the technology to be employed and the crops to be cultivated. The most important crop, of course, will be rice, but significant increases in production can also be expected from such crops as corn, millet, sorghum, sugar and tomatoes, as well as from livestock. Increases in production along the Senegal River will stem mainly from increased land under production while in Casamance, production increases will stem mainly from intensification. Yields per hectare for a single rice crop will range from about 2.5 mt/ha to about 4.75 mt/ha depending on the type of water control technique and inputs employed. However, with the possibilities for double cropping offered in the middle valley, total yields could attain seven mt/ha.

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(1) This is only one-half of official GOS projections, but is closer to the projections of the IBRD and others.

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Combining the above estimates of increased acreage and yields, it is possible to roughly calculate an average annual rice output of 200,000 mt per year by 1990-95 plus perhaps 50,000 tons for other crops. In 1978 prices, the annual values of this increase in production can be estimated at about $100 million.

Calculation of the private and social returns from the investment in irrigated rice differ a great deal depending in the assumptions and methodology used by the analyst as well as on the type of technology employed. Most analysts agree that private returns will be substantially greater than social returns for almost all technologies due mainly to net subsidies in the direction of the producer (1). Analysts also concur that labor-intensive, participatory technologies, such as are used in parts of the Middle valley and the Casamance, have greater returns than the more capital-intensive, state farm techniques employed in the Delta. The choice of technology social profitability also depends on collection and milling technique, distribution point and rice quality: social profitability has been found to be inversely correlated with public milling and distance from production to distribution point. It appears that Casamance rice is potentially competitive with imported rice in Dakar, but at current factors costs and using current technologies whereas quality and cost

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(1) However, when risk is quantified and factorial in to the equation social profitability is increased. See Cathy Jablon.

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factors combine th Fleuve rice is too expensive to complete with imports in the major Dakar market.

Estimates of social profitability range from extremely pessimistic - ie., negative returns from almost all types of irrigation techniques (Franzel, Tuluy) - to reasonably optimistic -- 7 to 11 percent (Gibb) -- or even optimistic -- 17 percent (Brown), 20 percent (Bakel PID). Much depends on the analysts's time perspective as well as on more technical assumptions such as international commodity prices and the opportunity costs of labor. Another extremely important factor is how the initial costs of the dams are treated in the analysis. The Mekhemjee analysis, which became the basis of the economic assessment in the OMVS PID, threats the costs of Diama and Manantali as "sunk costs", the amortization of which is therefore, not calculated in the IRR. The Gibb analysis shows a positive rate of return but only after discounting the investment in the dams over a period of fifty years. If net social profitability is 10 percent and if the total value of output that can be expected from the dams (most of which will be from irrigation) is $100 million per year,

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(1) The analyses cited here are not strictly comparable. Brown and Franzel analyse only one irrigated project, Tuluy does a comparative analysis of several types of irrigation schemes; Gibb analyses returns to the overall OMVS investment in irrigation. However, the results illustrate the wide range of disagreement over the socioeconomic wisdom of investment in irrigation.

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then a simple calculation shows that it would take 80 years to fully recoup the $800 million that is now seen as the Senegalese private figure for the dams and associated investments.

However, this estimate, like the ones cited previously, is subject to so many "guesstimate" assumptions that perhaps the only reasonable conclusion to draw is that the economic returns to the investment in irrigation are simply unknown. What is known is that initial investments, as well as continued operations and depreciation, will be extremely costly by far the most costly of all the strategic alternatives to be analyzed in this paper. Potential returns, particularly from rice and other crops, are also very high, but whether the returns will compensate adequately for the costs of investment is still an open question.

Evaluation: 1

Explanation: Increased output will be substantial, but social returns will be low, perhaps even negative.

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Effects on the Balance of Payments

The effects of irrigation strategy on the Balance of Payments is closely related to the foregoing discussion on social profitability. To the extent that the investment is profitable, there will be a positive effects on the balance of payments; to the extent that it is unprofitable, the effect on the balance of payments will be less favorable, even negative. The reason for this is the very large part that foreign exchange plays in financing initial irrigation infrastructure as well as its ongoing operations.

On the positive side of the ledger, the benefits of irrigation will come almost entirely from the import substitution effects of rice. Very little that is produced by irrigation will be exported (tomatoes could be a minor exception). Rather, the positive effects will come from the reduction of imported rice as increased quantities of domestic rice are produced. The value of this import substitution will depend on a number of factors, the most important of which will be the equilibrium price for domestic rice at various distribution points. At present, domestically produced rice (even after it is broken) is able to compete with imported broken rice at markets very close to the points of production. Government pricing policies (e.g., input subsidies or consumer price subsidies) could of course, make domestic rice artificially competitive with imports, but this would entail a substantial burden on governmental finances.

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Without such pricing policies, it is estimated that the import substitution value of domestically-produced rice would range from $30 - 40 million over per year (at current prices) over the next 10-15 years.

On the negative side of the balance of payments ledger is the cost of the investment in irrigation. It is estimated that 80 to 90 percent of this investment will be required to pay for such things as construction equipment, pumps, fuel, and of course, the components of the dams themselves. Over time, irrigation will continue to require large outlays of foreign exchange, particularly for maintenance, repair and replacement if imported equipment, and for fuel. It is instructive to note in this regard that Sudan, which has some 50 years experience with irrigation, is currently in severe balance of payments difficulties, almost all of which can be traced to the increased costs (especially depreciation and and fuel) of maintaining its irrigation infrastructure.
The annualized foreign debt obligations that Senegal would entail to amortize and maintain its investment in irrigation are difficult to estimate. To take a stab however, it could be argued that if Senegal's Total credits in foreign loans for irrigation are, say, $500 million at soft terms over 30-40 years, then annual external debt service would be in the neighborhood of $ 20-30 million per year.

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Comparing these estimates of foreign exchange savings and foreign exchange costs, it can be seen that the net effect on the balance of payments is moderately positive. However, the margin is slim and could be swiftly diminished (or expanded) by sudden changes in factor prices (e.g., fuel).

Evaluation: 2

Explanation: The overall balance will probably moderately positive with import substitution effects outweighing debt service liabilities by $10 to $20 million per year.

Effects on the GOS Budget/Recurrent Costs

Since the implementation of projects in irrigated agriculture will be largely a government responsibility the rapid expansion of activity that is projected for this sector will inevitably entail large increases in expenditures from the government's ordinary budget (1). The main categories of expenses will be administration (couts d'encadrement), maintenance, subsidies on inputs and finance charges. As larger areas are brought under irrigated cultivation, certain economies of scale might be realized in the administration category; costs per hectare in the other categories, by contrast, would be unaffected directly by increases in land under cultivation.

Administration costs will be greatly affected by the type of water control and perimeter organization strategy used. Available evidence shows that the small, high-farmer-participation perimeters are much less costly for the administration than are the larger, state-farm-type operations. According to Garrity, administration costs in 1978-79 on SAED's larger perimeters were 55,000 fcfa per hectare, whereas on the small perimeters they were only 29,000 FCFA per hectare (1). Assuming a more rapid expansion of the small than the large perimeters and accounting for economies of scale, a per hectare administration cost of, say, 30,000 FCFA would mean that the 50,000 ha that we have

1) It should be pointed out that whereas governments and other institutions distinguish, from an accounting point of view, between ordinary (recurrent) and investment expenditures, the distinction is [illegible] from an economic point of view.

projected to be under cultivation within 10-15 years would entail an administration cost of 1,5 billion FCFA per year (2). Other costs are more difficult to project because they will vary a great deal according to the effective subsidy the state allows for inputs (e.g., fertilizer, water) and services (e.g., land preparation, pump maintenance, etc...) However, working from Garrity's figures on the dividion of primary effects on value added (p. 38) it can be estimated that the other recurrent costs would be about equal in value to direct administration costs. This would add, therefore, another 1,5 billion FCFA to the annual bill for 100,000 ha, bringing total recurrent costs to F CFA 3 billion (about $1,5 million) per year. This sum can be compared to Garrity's calculations of 1978-79 recurrent costs for irrigation of CFA 200 million ($ 1 million). Over a period of 10-15 years, this brings the GOS recurrent cost burden very close to the estimated total investment, ($500 million), meaning that for every dollar of investment expenditure, nearly one dollar of public recurrent expenditure will be necessary to maintain the investment. It is difficult to see how public revenues generated by this investment (direct and indirect taxes) could compensate for this cost burden.

Evaluation: g

Explanation: SAED and other public and parapublic organizations and activities will have to be heavily subsidized to sustain themselves. The tax structure is now such that the irrigation sector will generate very little in the way of public revenues.

(1). No estimates given for Casamance irrigation

(2). Unadjusted for inflation.

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Effect on Employment

The investment in irrigation will have a large and positive impact on rural employment. Each hectare of irrigated land employs two or three persons depending on the degree of mechanization -- throughout the agricultural year. Thus, it can be seen that 50,000 additional hectares of irrigated land would create employment for 110,000 to 150,000 people. In the two regions affected by irrigation, it is estimated that the active labor force will be 950,000 (380,000 in Fleuve and 570,000 in Casamance) (1). Thus, irrigation can absorb a significant percentage of this labor force.

The costs of job creation through irrigation compare favorably to costs in other sectors. The World Bank estimates that costs less than $2,000 (1978 prices) to create a job in irrigated agriculture. The cost of job creation in industry, by comparison, ranges from $13,000 to $175,000.

Evaluation: 3

Explanation: The number of jobs created will be significant on a regional basis and not insignificant on a national basis.

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(1). It is estimated that, at constant fertility, the active labor force in Senegal will be 3.8 million by the year 2000 and that 2.9 million new jobs will have to be created in the years 1995-2010. (RAPID, pp. 10, 12). The Fleuve region has about 10 percent of the population of Senegal, Casamance about 15 percent.

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RAINFED AGRICULTURE

General Justification

Investment in rainfed agriculture is generally justified in terms of its effects on rural incomes, overall production food self-sufficiency and foreign exchanges earnings. It is estimated that 65 percent of Senegal's active labor force earn their living from rainfed farming. Overall, agriculture (excluding livestock, fisheries and forestry) contributes about 17 percent to Gross Domestic Product and to Value Added, a percentage which has held remarkable steady since independence (1). By far, the two most important crops produced under rainfed conditions are millet and groundnuts; together these crops constitute between 75 and 80 percent of the total value of all crop production. Millet (sorghum) is the staple food of rural senegalese outside the rice-growing areas. And groundnut products continue to be the main source of foreign exchange for the senegalese economy. (2).

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(1). Most value added in the crop sector has come so far from rainfed, rather than irrigated, agriculture due to the nascent state of development of the latter.

(2). However, because of the poor groundnut harvest in 1979, fish products may, for the first time, overtake groundnut products in terms of expert value.

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Effect on Production and Income

The prospects for increased output in rainfed agriculture may be characterized as moderate to good. Much, of course, will depend on the climate; over the last fifteen years, there have nearly as many bad rainfall years as there have been good. But much also will depend on reorganization and policy changes within the sector.

Students of the sector are in general agreement that significant increases in output could be realized by a series of relatively straight forward policy changes. These changes would include a decontrol of the producer price of millet, a reduction of the effective tax burden on groundnut producers, an elimination, or variable (by region) reduction, on input subsidies (including the cost of credit), and decentralization and less monopoly control of input supply, credit and marketing. The overall effect of these measures, it is generally agreed, would be to increase producer incentives to put more land under production and to adopt higher-yielding input packages, with no reduction, and probably even an increase, in government revenues from the sector.

Donors will have little influence (beyond powers of persuasion) on the adoption of these policy changes since they depend more on internal political forces than on outside resources. Yet it is the "investment" in these policy changes that promise the greatest return to the sector. By comparison to the returns that can be expected on these "policy investment", most observers agree that the short and medium term returns to other types of investment in

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the sector -- e.g., research, training, infrastructure development, technical assistance -- will be marginal. Production packages that most observers consider optimal (given current scientific knowledge and Senegal's natural and human resources endowments) are already developed and farmers are already familiar with them. In place also is basic infrastructure -- assembly of animal traction, equipment, warehouses for input distribution and harvest collection, extension and administrative services, etc... There is still -- for most of the major crop-growing areas. There is still room for fine tuning of the technology and for improvements in the efficiency of input delivery, extension, marketing and administration, but no one believes that such improvements -- however laudable -- will by themselves (i.e., without the policy changes mentioned above result in large-scale increases in input. The foregoing arguments should not be contrued to mean that donor inputs will not be desirable or necessary in the Rainfed sector. On the contrary, it is likely that donor investment will be necessary for sometime to come simply to maintain current levels of output. From an economic point of view, moreover, investments in the rainfed sector make sense because, even with no absolute growth, rainfed agriculture remains profitable from both a private and social point of view -- more profitable than irrigated agriculture. (1).

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(1) The general consensus among observers seems to be that rainfed agriculture has a higher net social profitability than irrigated agriculture. Brown calculates an 18 percent return to the SODEVA cereals project. The World Bank estimates that rainfed agriculture returns about 20 percent compared to 10 percent for irrigated agriculture.

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[illegible] investment could lead to considerable growth.

It is difficult to quantify the increases in output that [illegible] result from policy and investment combinations because of uncertainties with respect to rainfall, the pace and nature of policy changes and other exogenous conditions. A [illegible] tistics, however, will demonstrate the potential for growth. First, only about one-third of all cultivable land in Senegal is actually being cultivated: it follows that at constant [illegible] the exploitation of all cultivable land in the country could triple output. Second only about 20-30 percent of [illegible] farmers have fully adopted the input packages that [illegible] calculated to give them optimal increases in production and income.[1] Reaching the remainder of those farmers will depend partially on perseverance in the extension effort, but [illegible] on the adoption of policy changes that will improve adoption incentives and reduce risk. Since the difference in yields between adopters and non-adopters is estimated to be as high as 100 percent, reaching all existing farmers with optimal input packages could increase total output by as much as [illegible] percent. Combining the potential for increases in surface under cultivation and increases in yields, it is theoretically possible, at existing levels of technology, for production to increase sixfold.

This potential is, of course, only theoretical. Realistic [illegible] and projections must take into account financial constraints, labor availability (for the opening up of new lands), administrative implementation limitations (for the extension of [illegible] packages to existing as well as to new lands farmers), and most importantly, the probability that important policy [illegible]

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1. Rates of adoption vary a great deal by type of input and by Region. For example, fertilizer is used by nearly 80 [illegible] of [illegible] farmers in Sine Saloum, but only 19 percent [illegible] [illegible] In [illegible] by contrast [illegible] percent of [illegible] are using fertilizer [illegible] but [illegible] [illegible]

[illegible] agricultural products, the rainfed sector contributes [illegible] Treasury receipts through a variety of other measures [illegible] income taxes, value added taxes and consumption sales [illegible] taxes are not, of course, unique to the rainfed sector, [illegible] nonetheless important because of the size of the population in the sector (85 percent of the total population of the country) and the contribution of the sector to Gross National Income (about 30 percent).

Profits from the rainfed farming sector contribute not just to tax revenues, but also to the direct operating costs of parastatals (especially ONCAD) and to the general fund of the CPSP (Price Stabilization Fund). Contributions to the latter are particularly important often amounting to one-half or more of overall CPSP receipts. As can be seen in comparing the preceding table to the following table, the value of groundnut [illegible] contributions to the CPSP is often equal to or even [illegible] the value of the contribution of groundnut product sales to [illegible] receipts.

CPSP: Overall Receipts and Receipts from Groundnut Oil: 1973/74 — 1977 [illegible] (billion CFA)

	1973/74	1974/75	1975/76	[illegible]	[illegible]
A. Overall Receipts	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B. Receipts from Groundnut Oil	15.3	[illegible]	[illegible]	[illegible]	[illegible]
C. B/A	.85	[illegible]	.07	[illegible]	[illegible]

The CPSP budget began to be calculated on a calendar year basis beginning in 1977.

Source: [illegible], p. 188.

Another lesson that can be learned from an examination of [illegible] two tables is the gradual [illegible] of both [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] CPSP [illegible]

Effect on Employment

The effect on employment from investment in the rainfed sector will take two forms. One will be the direct effects of putting more land under cultivation. The second will be the indirect effects of job creation in industries and services that will be needed to handle the increased production.

Over the next 10-15 years it is projected that total area under cultivation will be expand by about 450,000 ha, (100,000 in groundnuts, 300,000 in millet, 50,000 in diverse crops including cotton.) It is estimated that one person is able to work between one and 1.5 hectares (depending on the person's age, the type of terrain, degree of mechanization, etc.). Taking an average of 1.25 ha per worker, and additional 450,000 ha would create full-time employment during the agricultual season for about 360,000 people.

Indirectly, it is estimated that increased output (both from new lands as well as from increased yields) would create 10,000 to 20,000 new jobs in such secondary and tertiary areas as transportation, commerce, groundnut processing, millet milling, spinning, and weaving, etc. Although the number of these jobs is small when compared to the number created in the primary sector, the secondary and tertiary jobs are presumed to be more productive.

Evaluation: +3

Explanation: The rainfed sector will continue to be the primary source of employment for the Senegalese work force.

General Justifications

Two general arguments can be made for a strategy of support for private initiatives. One is that public sector initiatives in Senegal have proven to be inefficient and have resulted in low productivity and lack of growth; private sector initiatives would increase efficiency and productivity, thus stimulating growth. The second argument is that the best prospects for rapid growth in the economy will come from investments in sectors in which private enterprises already have, or could have, a comparative advantage and to which private investors could most easily be attracted.

The first argument --- concerning the inefficiency of public sector initiatives --- is one that is well documented. Senegal's rural development agencies, for example, are sustained almost entirely through the largess of donors, and using almost any indicator -- capital/output ratio, recurrent costs/input, etc. -- the productivity of these public enterprises is very low. The result is low or even negative profitability and a lack of savings (even depreciation) that could be used for new investment. Hopes that the RDAs will become financially viable have been largely discarded. In the case of ONCAD, for example, its outstanding debt is currently nearly double its total assets. The negative argument that public enterprises are inefficient does not, of course, prove the converse, i.e., that private enterprises would be efficient. It may be that the overall constraints of the sectors in which the RDA's are operating make it impossible for any agency of change -- public or private -- to become financially self-sustaining. If this is the case, then the best strategy might be to continue with publicly subsidized enterprises in the rural primary sector while encouraging private initiatives in other sectors. The economic argument here is that, whereas for reasons of food security, income distribution, etc., continued investment in the rural primary sector is necessary, the potential for economic growth may be greater in alternative sectors.

[illegible]

<u>General Justification</u>

Whereas the first three strategies concentrated on activities that would directly increase production and income, this strategy would finance programs designed to relieve intermediate constraints to production. The general argument justifying this strategy is that in the long-run, increases in production and income can only be realized if these intermediate constraints are removed. Direct production activities undertaken before addressing these constraints, according to the argument, can have only limited success.

According to this strategy, three problems are seen as [illegible] constraining. The first is a lack of physical infrastructure [illegible] roads, bridges, wells, dams and storage facilities: [illegible] production would increase, it is argued, if this type of infrastructure was improved. The second problem is a lack of [illegible] institutions that are needed to manage production activities [illegible] to alleviate this constraint, training in management and [illegible] skills related to the improved efficiency of particular [illegible] is advised. The third problem is the poor quality and fragility of Senegal's soils; to address this problem, anti-erosion and soil restoration measures such as reforestation and vegetation [illegible] indicated.

<u>Effect on Production and Income</u>

None of these measures would have an immediate or short-term [illegible] on production and income [illegible] because, by their very nature, [illegible] gestation period is necessary before the facilities or [illegible] conditions that [illegible] in place by these programs could [illegible] to increase production. (See discussion under preceding strategy Balance of Payments and Budget Support). Their long-term [illegible] on production, on the other hand, could be substantial. [illegible] [illegible] [illegible]

They [illegible] investment in long-term improvements [illegible]. Other [illegible] include village woodlots, major reforestation, and range management (including controlled grazing and pasture fallow). Most of these [illegible] (including the long-term use of phosphate fertilizer) have not been in existence long enough for their results to have been [illegible] evaluated.

[illegible]

BASIC NEEDS/SOCIAL SERVICES

Best Available Copy

STRATEGY ANALYSIS MATRIX

	Irrigated Agriculture	Rainfed Agriculture	Alt.Sectors/ Priv. Inits.	BOP & Budget Support	Envir. Rest.	Rend.
ONOMIC EFFECTS*						
Production and Income	+ 1	+ 2	+ 3	+ 1	+ 1	0
Balance of Payments	+ 2	+ 2	+ 4	+ 5	- 2	- 3
GOS Budget/Recurrent Costs	- 4	+ 2	+ 4	+ 5	- 5	- 4
Employment	+ 3	+ 4	+ 2	+ 1	+ 3	+ 3
SUBTOTALS	+ 2	+ 10	+ 13	+ 12	- 1	- 1
Productivity						
Prices						
Income Distribution						
IFICAL EFFECTS						
IAL/ENVIRONMENTAL EFFECTS						
ERVATIONAL EFFECTS						