PD-AAX-691

USAID/Senegal
BP 49, Dakar
Senegal

April 14, 1988

Mr. Thomas A. Reardon
Research Fellow
IFPRI
1776 Massachusetts Avenue, N.W.
Washington, D.C. 20036

000172

Subject: Grant No. 685-0281-G-00-8064-00

Dear Mr. Reardon,

Pursuant to the authority contained in the Foreign Assistance Act of 1961, as amended, the Agency for International Development (herein after referred to as "A.I.D." or "Grantor") hereby grants to the International Food Policy Research Institute (hereby referred to as "IFPRI" or "Grantee"), the sum of $504,500 to provide support for a program in the Republic of Senegal as described in the Schedule of this grant and the Attachment 2, entitled "Program Description".

This grant is effective and obligation is made as of the date of this letter and shall apply to commitments made by the Grantee in furtherance of program objectives during the period beginning with the effective date and ending four (4) years later.

This grant is made to the IFPRI on condition that the funds will be administered in accordance with the terms and conditions as set forth in Attachment 1, entitled the Schedule, Attachment 2, entitled "Program Description", and Attachment 3, entitled "Standard Provisions", and Attachment 4, entitled "Optional Standard Provisions", which have been agreed to by your organization.

Please sign the original and seven (7) copies of this letter to acknowledge your receipt of the grant, and return the original and six (6) copies to USAID/Senegal.

Sincerely Yours,

George Carner

George Carner,
Grant Officer

Attachments:
1. Schedule
2. Program Description
3. Mandatory Provisions
4. Optional Standard Provisions

ACKNOWLEDGED:

IFPRI

By : Thomas A. Reardon

Title: IFPRI Project Leader/Research Fellow

Date : April 14, 1988

FISCAL DATA

Allocation:	
Appropriation:	72-11X1012
Budget Plan Code:	GSHX-87-21685-KG13
PIO/T No.:	685-0281-3-70042
Project No.:	685-0281
Total Estimated Amount:	$902,064.00
Total Obligated Amount:	$504,500.00
DUNS No.:	07-031-3540
IRS Employer Identification Number:	52-1041632
Funding Source:	Transfer of Technology (TT) Project (685-0281)
Technical Office:	USAID/Senegal

SCHEDULE

A. Purpose of Grant

The purpose of this Grant is to provide support for an applied agricultural price policy research activity in collaboration with the Institut Senegalais de Recherche Agricole (ISRA), as more specifically described in Attachment 2 entitled "Program Description".

The project will be implemented as a sub-project of the Transfer of Technology (TT) project.

B. Period of Grant

1. The effective date of this Grant is the date of the cover letter. The expiration date of this Grant is four (4) years after the effective date.

2. Funds obligated hereunder are available for program expenditures for the estimated period of 2 years and 5 months as shown in the Grant budget below.

C. Amount of Grant and Payment

1. The total estimated amount of this Grant for the period shown in B.1. above is $947,564.00 including direct procurement by A.I.D. for the Grantee under this activity, which is estimated at $45,500.

2. A.I.D. hereby obligates the amount of $504,500 of which $45,500 is reserved for procurement by A.I.D. and $504,000 for program expenditures during the period set forth in B.2. above, and as shown in the Financial plan below.

3. Payment shall be made to the Grantee in accordance with procedures set forth in Attachment 3, Standard Provision, Payment - Letter of Credit.

4) Additional funds up to the total amount of the Grant shown in C.1. above may be obligated by A.I.D. subject to the availability of funds, and to the requirements of the Standard Provisions of the Grant, entitled "Revision of Financial Plans."

D. Financial Plan

The following is the Grant Budget, including local cost financing items. Revisions to this budget shall be made in accordance with Standard Provisions of this Grant, entitled "Revision of Grant Budget."

FINANCIAL PLAN

Description	Year 1 $	Year 2 $	Year 3 $	Year 4 $	Total $
I. USAID DIRECT PROCUREMENT COSTS					
Project vehicles (2)	28,000				
Moped (10)	10,000				
Motorcycles (3)	7,500				
Total: USAID Direct Procurement	45,500				45,500
II. IFPRI GRANT BUDGET					
A. Non-field Salaries and Fringe Benefits					
Research Fellow	16,667	14,000	14,700	19,295	64,662
Outposted Economist	23,333	36,750	38,500	43,000	141,583
Research Assis./Sec'ty	7,590	7,667	8,050	12,678	35,985
IFPRI Net Salaries	47,590	58,417	61,250	74,973	242,230
Fringe Benefits	14,277	17,525	18,375	22,492	72,669
Subtotal: Personnel	61,867	75,942	79,625	97,465	314,899
B. Transportation & Per Diem					
Research Fellow	4,160	4,160	3,850	0	12,170
Outposted Econ./R.A.	12,230	4,105	4,105	6,640	27,080
Subtotal: Transportation	16,390	8,265	7,955	6,640	39,250
C. Indirect Costs					
IFPRI Indirect Charge	25,373	25,914	29,829	36,028	117,144
Subtotal: Indirect Costs	25,373	25,914	29,829	36,028	117,144
SUBTOTAL: NON-FIELD	103,630	110,121	117,409	140,133	471,293

Description	Year 1 $	Year 2 $	Year 3 $	Year 4 $	Total $
Field and Collaborative Expenses in Senegal					
D. Field Salaries					
Enumerators (10)	8,000	48,000	30,400	4,800	91,200
Supervisors (3)	8,400	20,160	20,160	1,680	50,400
Data Entry (2)	1,920	11,520	11,520	2,880	27,840
Secretary	0	5,760	5,760	5,280	16,800
Driver	4,000	4,800	2,400	0	11,200
Consultants	3,750	2,500	2,500	0	8,750
BAME Research Assts.	1,440	8,640	8,640	4,320	23,040
Subtotal: Field Salaries	27,510	101,380	81,380	18,960	229,230
E. Field Expenses					
Transportation	15,840	21,720	21,588	2,496	61,644
Computers (1)	7,000	1,000	1,000	0	9,000
Supplies	3,000	3,000	3,000	0	9,000
Communications	500	500	500	500	2,000
BAME Travel to IFPRI	5,810	0	15,000	0	20,810
Outposted Econ. Housing	6,600	13,200	13,200	9,900	42,900
Subtotal: Field Expenses	38,750	39,420	54,288	12,896	145,354
F. Contingency					
15% of Field	9,939	21,120	20,350	4,778	56,187
SUBTOTAL: FIELD	76,199	161,920	156,018	36,634	430,771
TOTAL DONOR/GRANT FUNDING REQUIRED	179,829	272,041	273,427	176,767	$902,064
TOTAL LOP FUNDING INCLUDING USAID PROCUREMENT COSTS					$947,564
IFPRI CONTRIBUTION					
Salary and Fringe Benefits					48,000
Transportation and Per Diem					30,000
Indirect Charges					38,380
Subtotal: IFPRI Contribution					116,380
TOTAL LOP FUNDING INCLUDING IFPRI CONTRIBUTION					$1,063,944

E. Reporting and Evaluatic

Under this Grant, there will be a series of intermediate methodology and preliminary results documents and final analysis and results documents. These documents shall be submitted in the following manner:

1. End of 1988: Presentation of a document on sample selection and characteristics of zones, and survey methodology.

2. Beginning of 1990: Presentation of a document containing preliminary results from the first year of the survey.

3. Mid-1990: Presentation of a final version of the above document.

4. July 1991: Presentation of a draft of the final results

5. End of Grant:
   a) Organization of a seminar (subject to availability of funds).
   b) Submission of the final document.

In addition, periodic reports showing key results will be disseminated to GOS and AID. Quarterly seminars at AID, and periodic meetings with the committee may be requested by USAID or IFPRI in order to facilitate discussion of research results.

F. Standard Provisions

1. The Mandatory Standard provisions for U.S., Non-Governmental Grantees (attached as Attachment 2) and the Optional Standard Provisions (attached as Attachment 3) constitute the Standard Provisions of this Grant.

G. Special Provisions

1. AID will process vehicle waivers and procure vehicles.

2. The following optional Standard Provisions (included as Attachment 3) are hereby deleted from this Grant:

Payment - Periodic Advance
Payment - Cost Reimbursement
Negotiated Indirect Cost Rates - Predetermined
Voluntary Population Planning
Protection of the Individual as a Research Subject
Care of Laboratory Animals
Government Furnished Excess Property
Title to and Care of Property (Grantee Title)
Title to and Care of Property (U.S. Government Title)

3. The AID liaison official is Mr. Wayne Nilsestuen, ADO, or his designee(s).

4. Local cost financing is authorized.

5. Cost Sharing - The Grantee's contribution to the Program is estimated to be $116,380, and may be made in kind.

6. In accordance with provisions of the Grant Agreement for the Transfer of Technology Project (685-0281), between the Government of Senegal and the United States Government, Standard Provisions Annex, Section B.4 Taxation, this agreement and the Grant will be free from any taxation, fees or import duties imposed under laws in effect in Senegal. All commodities financed under the Grant will be free of Senegalese import duties.

7. The Grantee shall have 15% flexibility among budget categories B thru F, 5% flexibility for budget category A and 100% flexibility within each of the budget categories; any other changes will require prior written approval from USAID/Senegal.

H. Indirect Cost Rate

Fringe benefits are to be calculated at 30% of "non-field" salaries as classified in Attachment 1, Financial Plan. Indirect charges are to be calculated at 36% of:

1) "Non-field" salaries as adjusted. Adjustment for the outposted economist will reflect her/his salary not to exceed:

Year 1	Year 2	Year 3	Year 4	Total
17,333	27,300	34,888	39,900	119,422

2) "Non-field" fringe benefits as adjusted using the outposted economist cap explained above;

3) "Non-field" travel.

The rates stated above are not subject to change based on actual costs incurred.

I. Title to Property

At the expiration date of this Grant, all property procured under the project will become the property of the Government of Senegal.

J. Authorized Georgraphic Code

The Authorized geographic code for procurement of goods and services under this Grant is 000 and Senegal.

PROGRAM DESCRIPTION

A. Introduction

A major concern of Senegalese policymakers, reflected in the New Agricultural Policy enacted in 1984, is the promotion of domestically produced coarse grains (millet, maize, and sorghum) on both the consumption and supply sides. This is linked to a desired decrease in imports of rice and wheat, and thus relief from balance of payments problems as well as to an improvement in rural incomes. Increased producer prices for the coarse grains, coupled with institutional reforms, are counted on to increase supply; it appears to be presumed that consumption would follow suit.

In this context there is a crucial need to understand consumption patterns, by zone and income group, of millet, maize, and sorghum, vs. rice and wheat, and how these patterns vary with changes in prices, as well as non-price factors such as income location, transformation infrastructure. Moreover, in rural households consumption decisions are intermeshed with decisions concerning market supply and purchases, production, and stocking. Hence, policymakers need to know the simultaneous demand and supply effects of price policy changes.

Building this needed knowledge from household level data allows the policymaker to see what factors are driving the responses, how they differ between poor and rich and rural and urban households, and households in different zones, and how the welfare effects of policy would differ over the diverse groups. It is best that these data reflect seasonal and yearly differences in order to distinguish short and medium run responses to policy.

The purpose of the ISRA/IFPRI project is to respond to the above needs. The objectives are: 1) to measure the level and composition of household food consumption with particular reference to millet, maize, and sorghum vs. rice and wheat, and supply of coarse grains vs. cowpeas, peanuts and cotton; 2) to measure the responsiveness of the items in (1) to changes in output and input prices, incomes, and other non-price factors.

The research would cover diverse zones and income groups, of rural and urban households, within the Peanut Basin and Eastern Senegal. The survey would generate two years of bimonthly household level data on the sample in those regions. Analysis of household level data would center on simulating the effects of price and non-price policy options on demand, supply, and real income, with aggregate consequences for the balance of payments and the government budget, in the policy context discussed above.

The research would be undertaken collaboratively by IFPRI and BAME/ISRA by staff economists from each institute. A major concomitant goal of the project is to build capacity in the BAME to undertake continued high-quality policy-oriented research on these issues.

B. Knowledge Issues and Policy Questions

1. Background, and Knowledge Gaps

In the early 1980's, almost 9/10 of cereal output was composed of coarse grains. The great majority of the latter was from the Peanut Basin and Eastern Senegal. The other 1/10 was rice, coming mostly from the Fleuve and Casamance.

The Peanut Basin and Eastern Senegal comprise around 85% of the rural, and about 60% of the total population. Nearly all of the Peanut Basin's production is millet and peanuts; the peanut output from that region comprises nearly 9/10 of the country's peanut output, and the majority of the country's millet crop. Recently the GOS has taken steps to promote cowpeas in the Northern Peanut Basin, as a substitute for peanuts. They are short cycle, and well adapted to drought-prone zones.

Eastern Senegal (specifically in the case of the Project, Tambacounda), by contrast, produces peanuts, millet and maize, as well as a little rice and cotton. It is the country's major maize zone.

Apart from some limited potential for increasing rice production in irrigated perimeters in the Fleuve and Casamance (see Martin and Crawford, 1987), the main hope on the part of policymakers for increased cereals output is centered in the Peanut Basin (millet increasing relative to peanuts) and in Eastern Senegal (increasing the output and marketings of maize).

By contrast, in the early 1980's about 1/2 of cereal consumption in Senegal was composed of rice and wheat (in ratio 4:1), and the other 1/2 of coarse grains (Delgado and Reardon, 1986).

While production patterns are more or less known, there is very little knowledge of consumption patterns, except for short periods in specific zones (Kramer, 1984). Hence it is not clear how the large demand for imported rice, nor for that matter any other cereal, is distributed over the population. While it is clear that rice and wheat are widely consumed in Dakar, various limited-extent surveys have turned up evidence of important rice consumption in rural areas (e.g. Benoit-Cattin, 1987). Moreover, the responsiveness of these patterns to changes in prices and incomes are not known. Kramer (1984) points out that "income elasticities are largely unknown for Senegal.

The same is true of price elasticities of demand... there are almost no estimates of cross-price elasticities for major cereals". This has been found by researchers to be a severe constraint when attempting to model aggregate response to price policy options in Senegal (see Braverman and Hammer, 1986; and Abt Associates, 1985).

2. Knowledge Issues Linked to Policy Questions

The issues can be categorized into four groups: the 1) composition, 2) sources, 3) level, and 4) responsiveness, of consumption and supply.

For every set of questions, we implicitly ask (and thus do not repeat);

1) how the responses vary over income groups, zones, or specific locations (such as proximity to the Gambia, the Fleuve, or Dakar);

2) how the responses vary according to the presence of other non-price factors such as zone production levels (deficit, surplus), the presence and extent of non-cropping income (e.g. livestock, commerce, migration remittances), access to markets, degree of urbanization or urban influence, employment patterns of women, etc.; and

3) how the responses vary over seasons and years.

3. Composition

(i) Are households in these regions consuming substantially rice and wheat? i.e. To what extent have these products "penetrated" extra-Dakar consumption patterns?

(ii) Is there substantial effective demand for maize? How does this differ between households which produce maize and those which do not?

(iii) How is the crop composition of consumption, production, sales and purchases linked to the overall resource/cash flow strategies of rural households? How do millet/sorghum fit in? Maize? Peanuts? Cotton?

To what extent and why are households selling coarse grains? How is this related to decisions concerning: a) consumption and purchases; b) peanut and cotton income; c) non-cropping income, such as from livestock, commerce, migration, food processing, etc.; d) stocking.

For example, do households prefer to sell peanuts or earn non-cropping income rather than sell coarse grains? Do they prefer to buy rice and maize and sell millet? If they earn income from non-coarse grains cropping, what do they use it to buy: what cereals, what non-cereals food, what non-food? How are these decisions influenced by marketing opportunities and transfers?

Do gender issues have an effect on the above behavior? For instance, Ndoye (1987) suggests that they might have an important influence on sales behavior. He points out that women in certain zones of the Peanut Basin switched their own cropping from peanuts to millet (to a significant extent) when peanut credit diminished after 1984, and proceeded to sell millet, in proportions which appear to have exceeded those of males in the households. What are they buying with these revenues? How is this affecting consumption patterns?

4. Source

(i) For rural households in these regions, how important is purchased food in total consumption? How important are transfers (say, from family in Dakar, or donor food aid, or gifts from villagers)? (N.B. the sources of consumption are purchases, transfers, home production, and gathering.) What effect is this having on the composition of consumption?

For example, in another Sahelian country (Burkina Faso) Reardon and Matlon (1987) found that poor peasant households consumed substantial proportions of their food budget from purchases and food aid; this was in contrast to the image of almost autarkic Sahelian peasant households. In some cases a high proportion of the purchased cereals was of types not produced much in the zone (such as substantial maize in the Sahel, coming from resold food aid and interregional/international trade). The policy conclusion was that the real incomes of farm households could be very sensitive to consumer as well as producer price policies, as well as marketing, infrastructure, and food aid targeting policies. This needs to be explored systematically for the case of Senegal.

(ii) What is the origin of the purchased cereal? For instance, in the case of rice, it is imported (official vs. unofficial, e.g. from the Gambia), or domestic? Where is maize purchased from?

Are the purchases and sales mainly taking place in the village itself, or in the regional market? To what extent are rural and urban households depending on purchases from government sales points? What are the patterns and effect of CSA sales? Depending on the degree of market integration, this will influence the degree to which regional market policies would influence household decisions within the village economy context.

5. Level

(i) Are there entire zones, or at least specific groups within zones, which are "at-risk" in terms of food consumption? What characteristics identify these households? What is the relative nutritional position of women and children in the households of the "at-risk" groups? (We will attempt to delve into this issue as much as practicable in the context of a large survey.) The latter is useful to target food aid and other welfare-augmenting interventions.

Research in Burkina has shown that in "surplus zones" there can be substantial pockets of underfed households. Moreover, the real nutritional problems are not necessarily located in zones with relatively low crop output. These latter zones may have alternative income sources which maintain their purchasing power in "bad years" (see Reardon, Delgado, and Matlon, 1987; and Reardon and Matlon, 1987). This issue needs to be explored systematically for the case of Senegal.

6. Responsiveness

(i) How sensitive is the consumption of millet in the face of changes in its price? To changes in income? in the face of changes in the prices of rice, maize, or sorghum? If millet consumption drops in the wake of a millet price increase, toward what cereals would households substitute?

Do households wait until carryover stocks are depleted to begin purchasing? The latter question is a corrolary of whether millet consumption is price sensitive.

On the other hand, are millet stocking levels sensitive to the relative price of millet? A negative answer might mean that farmers have target stocks and even high sales prices might not induce them to reduce carryover stocks.

(ii) A similar set of questions to those in (i) above can be posed for rice and maize.

(iii) How sensitive are sales of millet and maize to changes in their own prices? To changes in peanut or cotton prices? To changes in income from non-cropping sources and overall income? How sensitive are output levels and composition to price changes? How does this reflect on demand for inputs?

The ISRA/IFPRI project is designed to address the above knowledge issues and policy questions. The answers inform policymakers of potential effects of changes in food price policy on demand and supply of the traditional food crop, millet, a crop seen as having great potential, maize, and cereals which figure importantly in food imports, rice and wheat. Moreover, they allow decision-makers to judge the welfare effects of policies on rural and urban families in the regions, as well as to design welfare augmenting interventions for at-risk populations.

The potential effects at the demand and supply level have impacts on aggregate level variables such as the balance of payments and the government budget. The latter, along with the welfare of populations in these regions, are central concerns of the GOS in the second half of the 1980's and into the future.

C. Specific Research Objectives and General Approach

1. Objectives

The following are the specific objectives of the project, responding to the questions posed above. Before proceeding, it is necessary to define the household as a production unit. However, a production unit can encompass several consumption units, or a consumption unit can exceed a given production unit. Thus, we will be choosing compounds and then examining the production/consumption units therein, with our basic unit of reference being the production household. The structures are often quite complex and will require some preliminary study in order to adapt best the survey methodology within given zones.

(i) For rural and urban households in the Peanut Basin and Eastern Senegal, determine by zone, income and social group and over seasons and years:

a) consumption of cereals, other food, and non-food, from all sources: own production, purchases, transfers, and gathering;

b) output of items in (a) and input use;

c) sales of items in (a);

d) cereal and animal stocks;

e) non-cropping income (e.g. livestock sales, commerce, migration remittances, agricultural wage labor, food processing, etc.)

f) demographic data;

g) supplement on-going BAME efforts to collect price/unit data (deriving prices from transactions and unit weight data).

(ii) Characterize sample households zones in terms of location, degree of urbanization, equipment ownership, access to markets and other infrastructure, degree of market integration, agroecologic profile, and institutional structure e.g. presence of arrangements with SODEFITEX, SODEVA, SONACOS or the presence of CSA.

(iii) Using data from (i), for each stratum and zone, derive:

a) levels and shares of consumption of the various products and sources, purchases, transfers, etc.);

b) levels and shares of products in output, sales;

c) total household income, and breakdown into crop, livestock, and off-farm income components.

d) household size in per capita and adult equivalent terms, as well as other socioeconomic results.

(iv) Using the household level observations on levels of consumption, output, sales, and stocks, plus price data, derive product-specific elasticities of demand and supply with respect to own-prices, cross-prices, and income. These elasticities represent the responsiveness to price policy and income changes, in the short to medium run, of the patterns evoked in (iii) above. Explore statistically specific effects due to other non-price factors (such as those evoked in section II above).

(v) Use the levels, shares, and elasticities calculated in parts (iii) and (iv) above, to construct an economic simulation model for the regions. This would contain consumption, output, supply, and stocking functions, as well as functions for regional price levels, the government deficit, the balance of payments, and the real incomes of the income strata in the diverse zones. Policy alternatives such as an increase in the producer price of peanuts, a fertilizer price decrease, or an introduction of food aid could be analyzed with regard to their short and medium term effects on demand, supply, prices, and incomes. It would also show the "comparative static" effects on the balance of payments and government budget, although these can only be interpreted as the effects coming from the economies of the two regions (i.e. the effects on the Dakar, Fleuve, and Casamance economies would not be represented).

(vi) Although the above elasticities cannot be cast as "longrun", if cautiously used and interpreted they can be used to indicate the demand outlook for coarse grains, rice, and wheat over the next decade, given various price policy scenarios and other conditions specified. These projections have implications for agricultural research and investment plans. For example, if it can be shown that there is strong effective demand for maize, and it is price sensitive and income elastic, this might be interpreted as an optimistic outlook for maize favoring increased research to lower its costs of production and increase its output. In the case of maize, whether this demand is for "green maize" or "maize in grain form" would have policy implications as well.

2. Operational Approach

The following is the calender of the project, with description of general functions in each phase. A more detailed calender is presented in a later section.

(i) Pre-field phase: (May 1988): ISRA researcher assigned full-time to the project will go to IFPRI to work with IFPRI outposted economist for three months to work on conceptual and operational framework of project.

(ii) Start of Field Project: Preparatory Phase (May-September 1988): Selection of sample of 300 households in the Peanut Basin and Eastern Senegal, with rural/urban sample shares proportionate to population shares. Sampling would be stratified by type of zone with random selection of villages therein, and random selection of households therein. The "village list" available at ISRA can be used to change from villages which are discovered to be especially anomalous. Characterization of zones (as in objective (ii) above). Design and pretest of questionnaires; training of project personnel.

(iii) Survey: (September 1988 - September 1990); The full sample would be surveyed in the first year; a representative subsample of 200 households (excluding urban and some rural) will be followed in the second year (to obtain inter-year effects). This would yield one year of panel data on the full rural and urban sample, and two years (harvest to harvest) of panel data on the majority of the rural sample. This corresponds to objective (i) above.

(iv) Data Cleaning and Analysis: (starting at beginning of survey through October 1991); Data entry and cleaning would start immediately in September 1988 and continue through approximately March 1990. After the entry of the first year of data, analysis would begin, aimed at objectives (iii) and (iv). Final analysis and write-up would take place in the year following the termination of the survey.

3. Institutional Approach

The research would be undertaken collaboratively by IFPRI and BAME/ISRA by staff economists from each institute; one BAME Economist and one IFPRI Outposted Economist (resident in Dakar) would work full time on the project, while other BAME Economists and IFPRI Research Fellows would participate part time. At least half of the analysis would take place at ISRA; the BAME Economist working full time on the project would visit IFPRI before the survey preparation, and for three-four months during the analysis phase.

As mentioned in the introduction, a major concomitant goal of the project is to build capacity in the BAME to undertake continued high-quality policy-oriented research on the project terms.

IFPRI researchers have wide experience in the area of consumption and supply field surveys and analysis in Sub-Saharan Africa, notably in Burkina Faso, the Gambia, Kenya, Rwanda, Zaire, and Zambia. The standard modus operandi is to work in close collaboration with national institutions. This is felt to be mutually educative and to yield policy relevant research, both of which are key elements of IFPRI's mandate within the CGIAR system.

Moreover, BAME/ISRA is especially well-suited for this type of research, and an excellent candidate for long-term capacity building. In the 1985 FAO Report to GOS, in Appendix 1, they identify BAME as the ideal institution in Senegal to carry out with external technical assistance, a study of this type: "...because of its prior work on cereals marketing, the BAME is well-equipped to undertake demand-oriented research, and to become an objective counselor, appreciated by policymakers at any given level of the "Organisation de la Regulation du Marche des Cereales" (p. 87 FAO 1985 Report to GOS, my translation.)

BAME has ongoing research programs on cereals marketing and production, as well as seed and fertilizer demand and livestock markets, in the Peanut Basin, and also has experience in Eastern Senegal; this has involved a history of fruitful collaboration with external institutions, notably Michigan State University.

Every effort would be made to link the ISRA/IFPRI work, with the BAME's ongoing "systems" work in, for example, cereals marketing. The marketing systems work, for example, explores the links between household, village, and regional market levels. The intensive study of the integrated household economy in the ISRA/IFPRI research would link conceptually with the systems work, each enriching and serving to explain the other. For this, it will be necessary to ensure a certain degree of methodological compatibility, as well as sustained interaction.

There would also be significant complementarity with other survey work that would be contemporaneous with the ISRA/IFPRI project. The most notable here would be the World Bank/Direction de Statistiques Structural Adjustment Study for Senegal. A note on this complementarity appears in the appendix to this document.

C. Survey Design and Implementation

The survey would take place during the period of September 1988 through September 1990. This allows two years to harvest data ideal for consumption and supply analysis. The full sample would be surveyed in the first year. A representative subsample of 200 households (excluding the urban households as well as part of the rural sample) will be followed in the second year (to obtain inter-year effects). This would yield one year of panel data on the full rural and urban sample, and two years (harvest to harvest) of panel data on the majority of the rural sample. Following are details concerning the data collected, and the participation and location of project personnel.

1. Data Collected

Following is a list of the data to be collected and a first approximation of the frequency of collection

1.	food consumption	48 hr. recall, biweekly
2.	crop output	Yearly
3.	input utilization	Monthly during season
4.	sales of crops/livestock	Biweekly recall
5.	product purchases	Biweekly recall
6.	cereal and animal stocks	Quarterly
7.	transfer in kind/and in cash	Biweekly
8.	household census	Yearly + Quarterly update
9.	off-farm income	Monthly
10.	prices/units	Biweekly/Quarterly
11.	yields on sub-sample of plots	Yearly

Given that urban households in these regions often have crop production and animal stocks, the full set of data would be collected for both urban and rural households.

2. Participation and Location of Project Personnel

Following is a list of project personnel, according to whether they are full time or part time.

C.2.1. Full Time

(1) BAME Economist: Financed by ISRA; Minimum level; M.S.; Work on conceptualization, administration and supervision of fieldwork, analysis of data, and modeling. HQed in Dakar.

(2) IFPRI Outposted Economist: Financed by project; Minimum level: Ph.D.; same tasks as (1). HQed in Dakar.

(3) BAME Research Assistant: Financed by project; Minimum level: ITS; work on conceptualization and executing of data verification and consistency computer programs, as well as some checking of data by hand, and data analysis; supervision of data entry. HQed in Dakar.

(4) 3 Supervisors: Financed by project; Minimum level: Maitrise, or lower degree plus significant survey experience; supervise enumerators; manually verify each questionnaire, and administer some supplementary questionnaires; help in selection and contact of sample. HQed in Tamba, Kaolack, and Bambey or Louga.

(5) 10 Enumerators: Financed by project; Minimum level: BEPC; administer questionnaires; HQed at survey sites.

(6) 1 Driver: Financed by project: Driving within Dakar and to survey sites; HQed in Dakar.

(7) 2 Data entry full-timers: Financed by project: entering and hand verifying data; HQed in Dakar.

(8) 1 Secretary/data enterer: Financed by project: handle project typing plus data entry when former permits; BEPC plus knowledge of word processing; HQed in Dakar.

C.2.2. Part Time

(1) BAME Director, and 1 BAME Economist: Financed by ISRA: level: Doctor, and M.S.; work on conceptualization and some administration; participation in analysis of data, and modeling. HQed in Dakar.

(2) IFPRI Research Fellow: Financed by project and IFPRI: level: Ph.D.; same tasks as (1). HQed in Washington, spending about three months per year in Senegal.

(3) Consultant: Financed by project: sample selection, methodology, and interpretation/analysis.

(4) BAME Research Assistant: Financed by project; level: ITS; assisting in work on conceptualization of data verification and consistency computer programs. HQed in Dakar.

(5) IFPRI Research Assistant: Financed by project; minimum level: B.A. with strong experience in computer programming assisting in work on conceptualization of data verification and consistency, and analysis computer programs. HQed in Washington with "stage" in Dakar in preparatory phase of project.

(6) 1 Driver: Financed by ISRA: Driving within Dakar. HQed in Dakar.

(7) Administrative Assistant: Financed by project ISRA/MSU and ISRA/IFPRI; administrative tasks and preliminary project accounting; HQed in Dakar.

(8) Secretary: Financed by ISRA; handle occasional tasks; HQed in Dakar.

3. Employment of Personnel

All of the positions above which are termed "financed by ISRA" are regular (not with limited period contract) ISRA employees. All those termed "financed by the project funding as well as IFPRI" are regular IFPRI employees. The latter group also includes the Outposted IFPRI economist, although he/she would be fully financed by the Proje .. The remaining positions (#'s 3-8 in full time category) would be recruited and employed by ISRA and work only on the ISRA/IFPRI project. They would have a limited period contract, and paid by the project.