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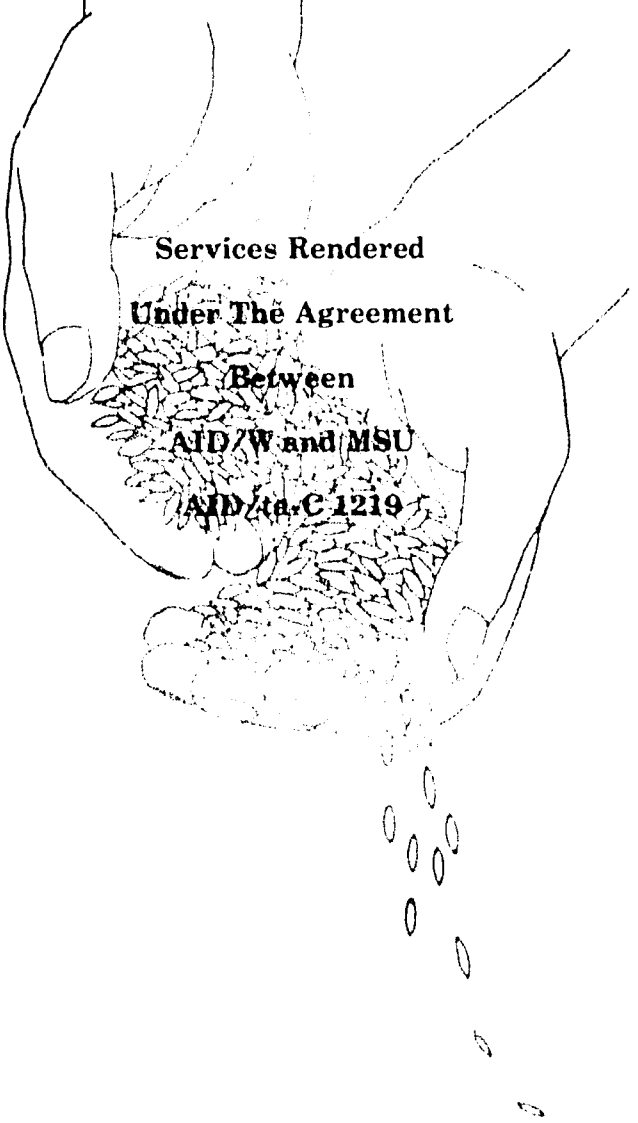
DOMINICAN REPUBLIC
AGRICULTURE SECTOR LOAN II



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AID/ta-C 1219

SEED TECHNOLOGY LABORATORY
MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI STATE, MISSISSIPPI

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REPORT SUMMARY

TITLE: Seed/Plant Materials Multiplication/Distribution: Dominican Republic, Agr. Sector Loan II.

CONTRACT NO.: Mississippi State University - AID/ta-C-1219

CONSULTANTS: James C. Delouche and G. B. Welch

TDY PERIOD: 22 August - 3 September, 1976

SUMMARY

1. Services were requested under AID/ta-C-1219 to follow-up on previous consultation (Report No. TA 76-03). Specifically, assistance was requested to review the seed/plant materials activity as incorporated in the DR-Agriculture Sector Loan II Project Paper, to confer with USAID/DR and DR workers on implementation of the activity and to determine facility and equipment needs.

2. Comments and observations related to general aspects of the seed/plant materials activity were given. Recommendations were made regarding reorganization of the SEA seed activities, training, technical assistance for the plant materials element, steps and actions needed for implementation of the activity.

3. Most of consultants' time was spent inspecting existing facilities and equipment to determine remodeling, new construction, new equipment, and equipment repairs needed to achieve capacities programmed in the PP.

5. This report encompasses general commentary on the seed/plant materials activity and specific recommendations on organization, implementation and related aspects. A second report is being prepared covering facilities and equipment and will include designs, layouts, and specifications.

ACKNOWLEDGEMENTS

We wish to express our appreciation to Bill Janssen and the USAID/DR-AGR staff, Ron Pollock, Jack Jordan, John Warren and Harry Wino for their assistance during our consultation. Domingo Marte again served as our leader, guide, interpreter, and source of information, and we are most grateful to him.

J.C.D. and G.B.W
Mississippi State University
September 9, 1976

SEED/PLANT MATERIALS MULTIPLICATION/DISTRIBUTION

DOMINICAN REPUBLIC

AGRICULTURE SECTOR LOAN II

I. BACKGROUND

The need for improvements in the multiplication, production and distribution of high yield crop varieties in the Dominican Republic was identified in preparatory phases for Agriculture Sector Loan II. A preliminary proposal for improving the seed/plant materials production and supply system was formulated by Domingo Marte, consultant to the USAID/Mission-DR on Dominican agriculture, in collaboration with Dominican specialists working in the seed production/supply area.

Consultative services and technical assistance available from Mississippi State University (MSU) on seed program/industry development under contract AID/ta-C-1219 were requested in February 1976 to review the preliminary proposal for improving seed production/supply and to revise and develop it as necessary to provide a basis for inclusion of a seed/plant materials element in the Project Paper (PP) for Agriculture Sector Loan II.

James C. Delouche, MSU seed specialist, spent the period 29 Feb.-13 Mar., 1976, on TDY with USAID/DR. Based on the preliminary proposal and with the continued collaboration of Domingo Marte, and DR specialists, a detailed, comprehensive seed/plant materials project was developed and prepared in the form of a consultation report (Report No. TA 76-03. MSU, to USAID/DR, and AID/W). The project proposed took into account the substantial on-going seed activities in the DR and improvements needed to increase the quantity and to improve the quality of seed and plant

materials available to the Dominican farmer. It was also interfaced as closely as possible with other revelant elements under consideration for inclusion in Agriculture Sector Loan II.

The main feature of the seed/plant materials project proposed were:

(1) Reorganization of the present "seed program" to facilitate better planning of seed and plant materials supply, to improve management of operations, and to provide for a more effective allocation of responsibilities among involved entities of the SEA-DR and the emerging private sector.

(2) Provision of adequate funds for the seed/plant materials program to support an adequate staff of professionals, technicians and laborers, to develop facilities and provide equipment needed for quality seed operations, to finance seed production and other operational costs, and to provide for proper maintenance and repair of facilities and equipment.

(3) Participation of both the public and private sectors in seed production and supply.

(4) Designation of the Juma Rice Station as the seed production/supply center for rice seed; CNIECA (San Christobal) as the center for maize, bean and pidgeon pea seed production and supply, and of seed inspection, control, and coordination of activities.

Funds required for implementation of the program proposed were estimated at $2,890,543 for a three year period. During preparation of the PP seed/plant materials production and supply targets were increased, and proposed 3-year budget was increased to $3,500,000.

In early August, 1976, USAID/DR requested services available under the MSU-AID contract to review several matters connected with the

seed/plant materials element of Agriculture Sector Loan II, to advise on implementation of the project, to prepare designs and layouts for modification of existing facilities and new ones, and to prepare equipment lists and technical specifications for same.

James C. Delouche and G. Burns Welch of MSU were assigned to provide the consultation services requested by USAID/DR. They arrived in Santo Domingo on 22 August and departed 3 September, 1976.

II. GENERAL COMMENTS ON PP

1. Recommendations made and program proposed in previous consultation (improved Seed and Plant Materials Program for the Dominican Republic, Report No. TA 76-03. April 1976) and the Seed/Plant Materials Multiplication/Distribution component in the Project Paper for D.R - Agriculture Sector Loan II were reviewed. We find them to be as applicable and revelant now as when first formulated in April-May, 1976.

2. The 3-yr. budget was increased from RD $2,890,000 in our original proposal to RD $3.500,000 in the Project Paper. This was a wise step in view of continued inflationary pressures.

3. The "objectively verifiable indicators" in the Logical Framework of the PP indicates the following targets of improved seed produced and distributed by the end of FY-1980:

100,000 qq. of rice seed
24,000 qq. of maize seed
54,000 qq. of bean seed
5 million cuttings of cassava
4 million rhizomes of plantain

The rice seed target should be met easily, and most likely substantially exceeded. Bean seed production/distribution will be

highly successful if it exceeds a cumulative 40,000 qq. by the end of FY-1980, while maize seed production/distribution probably will not exceed 18,000 qq. unless there is a considerable increase in the area planted to maize. The targets for cassava and plantain materials are also rather high, and an intensive, well managed effort will have to be made to achieve them.

4. While it will be natural to push the public sector agencies involved in the seed industry to achieve and exceed programmed targets, this should not be done in ways, e.g., underpricing, or to an extent that will be detrimental to the emerging private sector operations. During this consultation, we again visited PROSEDOCA (private seed company near Santiago). PROSEDOCA is in the midst of a considerable expansion program. Its facilities have been remodeled to accomodate modern, high capacity seed processing/grading equipment, which is already on hand. Additional storage has also been constructed. When fully operational by the end of 1976, PROSEDOCA's new facilities will have a processing/grading/bagging capacity nearly equal to the combined capacities proposed for the CNIECA and Juma seed centers. Furthermore, PROSEDOCA should be able to sell processed/packaged seed to the SEA Seed Department for distribution at a reasonable price, while still marketing on its own and perhaps exporting a modest quantity of hybrid maize, hybrid sorghum and soybean seed under its agreement with Pioneer Hi-Bred International (Des Moines, Iowa). We strongly believe that the emerging seed industry in the Dominican Republic with full participation of both the public and private sectors will best serve the needs of developing agriculture.

III. OBSERVATIONS AND RECOMMENDATIONS

A. Working Capital/Revolving Account Seed Fund

Establishment of the working capital/revolving funds needed for recurring, short term financing of seed program operations within the mechanism of the Supervised Credit Fund (SCF) of the SEA is a very satisfactory arrangement. Together with appropriate guidelines for use of the funds, this arrangement should insure that the funds will be efficiently used and not steadily eroded to the extent that they are no longer adequate.

We discussed the idea of using the "Seed Fund" for other purposes during "idle times" with Roger Sandage. This is possible as there will be times when a substantial portion of the funds will be "idle" and their use for other short term credit needs would maximize their imput. One good use for some of the funds would be to finance operations of seed producers under production contracts to the SEA and private seed companies. Since seed producers need production cycle credit, while the Seed Units mainly need financing to "pay off" seed producers and maintain inventories from harvest until the next sales (planting) season, the match-up in terms of needs should be quite good. An analysis of projected or actual cash flows within the seed operations will point up the periods and extent to which the seed fund can be used for both purposes, i.e., financing seed production and seed processing/inventory, as well as, possibly other activities.

Guidelines or criteria for use of seed fund should be established and enforced within the mechanism of the SCF. We suggest

the following:

1. Eligibility of producers for credit from seed fund to be established on basis of an executed seed production contact with the SEA seed units, or a private seed company.

2. SEA seed units to be granted a line of credit based on seed production targets, but actual drawn down to be the basis of seed delivery bills for each seed producer. Each seed producer should be given a bill or invoice showing the kind, variety, and quantity of seed delivered to the pertinent seed unit, contract price of seed, etc., payable on presentation at an SCF window. Payment to be drawn against the seed unit's established line of credit and account number.

3. Unless all operational funds are otherwise provided, the SEA seed units should be granted credit to cover selected operational costs, especially for expendable supplies such as fuel for drying, seed treatment chemicals, bags and other packaging materials.

4. Repayment should be due promptly at end of harvest/delivery period for seed producers, and at end of sales (planting) season for seed units. Some provision for re-financing should be made to cover poor production seasons and poor "selling" seasons.

B. Organization

The project paper indicated that the Seed/Plant Materials Multiplication/Distribution activities will be implemented by the Seed Department, Subsecretariat for Research and Extension. While this is an entirely logical arrangement, we have reservations regarding the capacity of the present Seed Department Administration to manage implementation of the activity. Existing rivalries between the Seed Department at

CNIECA and the Juma Station in seed production and supply operations add to our reservations. Although, we have obviously had neither the time nor the local background to delve deeply into current administrative and organizational arrangements, capabilities, and deficiencies, we urge that serious consideration be given to the general organization proposed in our previous consultation report (TA 76-03) (pages 15-18). These were with some modification:

1. Appointment of a strong coordinator for the seed/plant materials activity by the Subsecretary for Research and Extension.
2. Establishment of a National Seed and Plant Materials Committee (NSPAC) with representation from CNIECA, Seed Department, Estacion Experimental Arrocera,CENDA, IAD. Ag. Bank, private sector, etc. This committee would advise the Subsecretary or Research and Extension on: (a) crops and varieites to be included in seed production and plant materials multiplication programs; production targets for foundation and commercial or certified seed (i.e., seed to be distributed to farmers); allocations of resources needed by seed units; pricing policies; seed inspection and control arrangements and procedures; guidelines for use of seed fund for credit purposes; and broad policies relating to seed industry development.
3. Reorganization of the present Seed Department into a strictly seed inspection, testing, and control unit. Thus inspection and control would be separated or they should be.
4. Establishment of a Seed Production unit at CNIECA to take over seed production responsibilities presently handled by

the Seed Department. This will involve a transfer of facilities and possibly some staff from the Seed Department to the Seed Production unit.

5. Designation of the Juma station as the seed prodution center for rice seed (essentially the present arrangement).
6. Establishment of a Plant Materials Multiplication unit at CENDA.

We are convinced that a closely knit and coordinated organizational frame and forceful, resourceful management will be needed to achieve the objectives of the seed/plant materials activity and to build the kind of seed production and supply industry needed in the DR in the years ahead. Steps should be taken to insure that a workable organizational structure is established and forceful management installed before beginning implementation of the seed/plant materials activity.

C. Training

In our previous report we recommended two M.S. degree (2 yr.) fellowships in seed technology for study programs in the U.S. (preferably in Agronomy-Seed Technology at Mississippi State University). However, we note that no specific 2 yr. fellowships in seed technology were provided in the PP. Considering the very substantial financing of seed program/industry development to be provided under Loan II, and the lack of any indepth expertise in seed operations in the DR, we strongly urge that provision be made for the two 2 yr. fellowships. In our experience development of the human resource to a level adequate for both the short and long range goals envisaged is crucial for any undertaking.

Participation of four workers from the SCA and one from PROSEDOCA in the two week seed training course scheduled for Oct. 31 - Nov. 13, 1976 at the Escuela Agricola Panamericana (Honduras) should be of immediate benefit in getting the project off to a good start. The training course was organized by Mississippi State University under its TA contract with AID/W in cooperation with the EAP. Instruction will be provided by MSU specialists assisted by EAP staff, and specialists involved in seed operations in Honduras and possibly Costa Rica.

As a third step in implementation of a seed training program, two or three workers with English facility should be enrolled in the 10 week Seed Improvement Course offered each summer (e.g. 1 June - 15 August) at Mississippi State University. This course is organized and coordinated by the USDA under its participant training program for AID. Six weeks of the course are devoted to intensive, comprehensive training at MSU in all aspects of a seed program, while the last four weeks are given to a study tour of seed producers, processors, certification agencies, testing laboratories, etc. in Arkansas, Texas, Oklahoma and Illinois. The nomenclature of the course is as follows:

Course No. 136-2, Seed Improvement Course

In country, "on-the-job" training as provided for in the PP will be most helpful and should be scheduled when the re-modeling and re-equipping of the Zamorano and CNIECA facilities are completed.

The above training activities are all concerned with seed propagated crops. Training in plant materials multiplication, i.e., cassava and plantain, is also important and should not be

neglected. Such training can be accomplished by sending selected participants to tropical centers with good breeding/multiplication programs (CIAT, IITA) and by bringing in an expert instructor for an in-country training course for plant materials multiplication workers (see Technical Assistance below).

D. Technical Assistance

We continue to feel that technical assistance needed during implementation of the "seed activity" can be provided for within the frame of the MSU contractual agreement with AID/TAB/W. The plant materials component, however, might be a different story. Our earlier impression was that sufficient expertise in cassava and plantain multiplication existed in the DR. During the present consultation, however, we have become much less sure on this point. Inasmuch as MSU does not profess any in-depth expertise in vegetative propagation of tropical plants, it would be well to consider drawing on another source for technical assistance should it be needed during planning for and implementation of this activity. The technical assistance needed might amount to a 1-2 week consultation to assist with planning, and a 2 week in-country training course. CIAT, IICA and IITA are possible sources of expertise.

There is some evidence that substantial expertise in plant materials multiplication exists a CNIECA, but had not been brought to bear in the preliminary planning being done at CENDA. If so, then the situation is just another case of poor coordination and further supports our recommendations for a more effective and harmonious organization.

E. Facilities and Equipment

Most of our time during this consultation was spent in discussions with Dominican workers on ways by which existing facilities could best be renovated and expanded to handle the targeted quantities of seed. Measurements and/or scaled drawings of existing buildings and surrounding areas were obtained. Preliminary layouts indicate that remodeling and expansion of the facilities will be simpler than anticipated. The information obtained and general ideas developed are being translated into appropriate facility designs and equipment layouts. We do not plan to develop any designs or layouts for the plant materials activity at CENDA. The main items needed there are land, several concrete desinfection tanks or troughs, and one or two open sided field sheds for selection, trimming, desinfection and packaging of the vegetative propagules. These items can and should be specified by the CENDA staff assigned to the activity.

All seed equipment on hand was inventoried and inspected to determine their condition and to identify inoperative or worn parts which need replacement. Technical specifications for all seed equipment items and replacement parts that need to be ordered will be developed in conjunction with the final design and layout work, as many of the equipment details will depend on the latter. Equipment needed for the plant materials activity consists mainly of standard tractors, associated implements, rototillers, hand tools, etc. These can best be specified by the CENDA staff. They should "match-up" with equipment on hand as much as possible to facilitate maintenance and repair.

The designs, layouts, equipment list and technical specifications will be completed by September 30, and issued as 2nd part of this report. SEA engineers will then need to make appropriate construction drawings showing materials to be used, footings and foundations as needed, etc. If our layouts and designs are followed in drawing up construction details, ordering of equipment need not wait on completion of construction drawings, but can be ordered as soon as loan is signed.

F. Food Production Packages

Inclusion of the "food production package" distribution component in the proposed loan project is an excellent addition to an already comprehensive program. It will greatly facilitate the implementation of the Seed/Plant Materials program by providing an assured outlet for some of its production, especially the plant materials. Special care should be taken to avoid involvement of the seed and plant material units in production of propagating materials, such as some kinds of vegetable seed, for which climatic conditions in the D.R. are poorly suited, and/or facilities are not being provided. Importation of such items is the indicated cause.

G. CVMA - Seed Packaging

We visited Ing. J.M. Gomez, Director, CVMA, along with Jack Jordan to discuss problems that can arise in breaking down large sealed containers of vegetable seed into small packages suitably sized for small farmers. The high humidity and temperature that prevails in the D.R. can cause rapid deterioration of the seed if

the sealed package (i.e., tin can) is opened and allowed to sit on the shelf too long. There are several approaches to this problem, and Director Gomez is already considering at least two of them. Some vegetable seed companies package seed in cans as small as 2 oz. size. This would be a suitable size, but seed so packaged would be relatively expensive. A newer packaging material for seed with essentially the same moisture vapor-proof properties as the tin or aluminium can is being offered by several seed companies. This is an aluminium foil-polyethylene laminated "envelope" which can be heat sealed. A variety of sizes are available. Costs would be up because the package is expensive, although not as expensive as metal cans. Another approach to the problem would be to take advantage of economies in purchasing seed in larger, more "standard" containers, and to repackage for distribution to the input centers. On a small scale this could be accomplished using seamless polyethylene tubing (minimum of 5 mil. thick) and a heat sealer. The tubing comes in widths ranging from 1 in. to 12 in. The appropriate quantity of seed could be repackaged in a tube section of appropriate size and heat sealed at both ends. To make things more attractive, a small card or sheet could be lithographed with color picture of vegetable, e.g., tomato, with blank space for varietal name. This picture could be stamped with variety name and date packaged and inserted picture side out in the polyethylene tube,(i.e., envelope) before final sealing. For larger scale operations a dehumidified room would be needed to prevent the seed from reabsorbing water during repackaging. More details on these various approaches will be sent to Jack Jordan.

IV. REGULATIONS FOR IMPLEMENTATION OF THE DR SEED LAW.

IICA had retained a Chilean seed specialist under its auspices to assist the Seed Department in the formulation of appropiate regulations for implementation of the Seed Law enacted in 1971. The Childear specialist, Fernando Arancibia, with whom we had worked extensively in training programs at MSU and in Chile in 1959-62, was on hand approximately two months before he suffered cardiac arrest and subsequently passed away in a Santo Domingo hospital. This tragedy is a serious loss to both Chile and the DR. Fernando was a knowledgeable, experienced seed specialist and would have been invaluable in assisting the Seed Department with formulation of seed regulations and implementation of same.

It is our understanding that IICA will recruit another seed specialist from Chile as replacement. Hopefully, therefore, the work will be continued to completion.

As an interim measure and to set forth the alternative of a less rigorous philosophy of seed control, we will draft a set of inspection and control regulations for rice, maize, pidgeon pea, sorghum and bean seed. Since our schedule is very crowded, this might not be accomplished until late October, 1976.

V. IMPLEMENTATION STEPS AND PRIORITIES

We agree with the proposed Condition Precedent "E" relating to execution of a memorandum of agreement between the SEA "Seed Department" and the Supervised Credit Department establishing the seed revolving fund and criteria for its use. We do not foresee the need for other CP's.

The following steps and actions are recommended in implementation of the seed/plant materials activity under Agriculture Sector Loan II.

A. Pre-Project

1. Appointment of a seed/plant materials coordinator by the Subsecretary for Research and Extension.

2. Appointment by the Subsecretary for Research and Extension of a Working Group responsible for developing a 3-yr. implementation-operational plan with budget for the seed/plant materials activity. Working Group should consider and recommend organizational changes needed, allocation of responsibilities, staffing needs, a uniform seed production contract for use by all SFE Units in contracting for seed production with private farmers, type and degree of seed control and regulation needed, procedures for producing and allocating foundation seed, and production targets by crop kinds, variety (as possible), and quantity phased over 3 yr. period. The Working Group should be strongly charged by the Subsecretary with sorting out disagreements and rivalries among units presently engaged in seed production/supply and resolving them. A full measure of cooperation and coordination among the involved units must be achieved. The Working Group should be formed of representatives from the Seed Department, CNIECA, Juma Station, and CENDA with the Seed Program Coordinator as Chairman.

3. Organization and appointment of a National Seed and Plant Materials Advisory Committee (NSPAC) (See III, C. Organization) by the SEA with the Seed Program Coordinator serving as secre-

tary. The committee should advise the SEA on broad policies related to seed program/industry development such as organization, production targets, distribution and marketing, pricing policies, use of seed fund. With representation from the agencies involved in seed production, distribution, and usage, the NSPAC can become an important forum for coordination of all activities from seed production through seed usage. The NSPAC should also review the implementation plan prepared by the Working Group, advise the SEA on revisions needed, and recommend its adoption.

4. Acquisition by the SEA of the land needed for plant materials multiplication at CENDA and informing of USAID/DR when action is finalized.

5. Reorganization should be completed prior to implementation of the seed/plant materials activity (See III, C. Organization). Staff should be assigned, and responsibilities clearly defined for each unit in the organization.

6. Preparation of construction blueprints and specifications for remodeling and new facilities on basis of design and layouts submitted by MSU.

7. Five workers to participate in 2 week seed training course at EAP, Honduras. (Oct. 31 - Nov. 13, 1976)

8. Two specialists to be programmed for master's degree studies at MSU in Seed Technology (as early as possible).

B. Immediate Post-Project

9. Let contracts for remodeling and construction of facilities.

10. Order equipment (specifications to be provided by MSU).

11. Complete review of and adopt 3-yr. implementation/operational plan.

12. Formulate draft regulations for implementation of the Seed Law.

13. Activate seed revolving fund.

14. Begin stepped up seed operations.

15. Schedule two participants for Course No. 130-3 at Miss. State University (June-August, 1977).

C. Mid-to-Late Project

16. Adopt and implement control and regulatory measures for seed under Seed Law. Quality control measures including field inspections, seed inspections and seed testing, should begin as soon as project is implemented so that problems can be ironed out and needs of on-going operations satisfied before formal implementation of provisions of the Seed Law and regulations promulgated thereunder.

17. Review of progress by NSPAC and revision of implementation plan as needed.

18. Organize and schedule in-service training course as soon as remodeling, construction and equipping of facilities is completed.

VI. FOLLOW-UP

Follow-up consultation by Dr. G. B. Welch or another of our facility-equipment specialists is recommended. This consultation should be scheduled after designs, layouts, and equipment specifications, have been received and reviewed by USAID/DR and the SEA. SEA architect or engineer who will be involved in development of actual remodeling/construction blueprints should be available to participate in discussions. Four to five days should be sufficient for consultation to permit full discussions and clarification of designs, layouts, and equipment specifications. Timing of consultation visit could be last week in October.