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Mr. Stuart T. Baron, Director, USAID/T

From: Norman L. Sweet, Program Officer

Subject: U-307 Report - University of Minnesota Contract No. AID/afr-469; PIO/T 664-237-3-70066

EVALUATION OF CONTRACTOR PERFORMANCE REPORT

I. ADMINISTRATIVE DATA

A. Name of Contractor:	The Regents of the University of Minnesota
B. Contract Number:	AID/afr-469 dated May 2, 1967
C. Project Title and Number:	Agricultural Economic Research and Planning 664-237-3-70066
D. Cooperating Country:	Tunisia
E. Cooperating Country Institution:	Ministry of Agriculture University of Tunis
F. Contract Period:	February 28, 1969 - September 30, 1969
G. Name and Title of Contract Representatives	James A. Norris, Program Economist Harold Freeman, Education Advisor
H. Name and Title of Person Preparing Report:	James A. Norris, Program Economist Harold Freeman, Education Advisor

rec'd 5/2/79

II. EVALUATION - Assistance to the Ministry of Agriculture

A. Technical Performance

1. The contractor has a clear understanding of the scope and nature of the contract objectives as outlined in the PIO/T. The work undertaken has been designed to meet these overall objectives.

2. Early in 1969, following consultation with the GOT and USAID, the University of Minnesota team submitted a new 5-year work plan which included a research plan for the period April, 1969, to March, 1970. The planned program of research continued to place emphasis on 1) economic policies and marketing of commodities and 2) economic analysis of investment projects.

The program of commodity research had as its primary goal the examination of the feasibility of target growth rates for the most important agricultural commodities from the point of view of price projections, production coefficients and supply bottlenecks. With regard to investment analysis it was planned to a) develop a system of initial project analysis to sort out projects that were not worth further analysis, b) expand the analysis of promising projects in order to optimize the benefits from each project, and c) integrate project analysis with aggregate development and planning analysis. The program of investment analysis was to involve the application of research methods at the farm or project level. Increased emphasis was to be placed on production economics, analysis of farm management and organization, and on the development of realistic production coefficients.

3. During the reporting period, the University of Minnesota Team collectively prepared an analysis of the 1969-72 Agricultural Development Plan which included a discussion of investment in the agricultural sector, the background of the planning process, the plan objectives, and the realism of the demand, supply and export projections. This analysis was mimeographed and transmitted to the Program Office of the Mission. Subsequently, it was edited, translated into French, and discussed with Mr. Haouet. Mr. Haouet indicated that it not only provided useful ideas and comments of substance for further work, but it also considerably enlarged his conception of the skills and analytical tools used by agricultural economists.

The Contract Team prepared a third report on cereals entitled "An Analysis of Some Alternative Cereals Production Policy Choices for Tunisia." This report indicated that given the yield and area assumptions in the Agricultural Plan, 1969-72, and the planned growth in the livestock sector, there is little prospect for Tunisia's attainment of overall self-sufficiency in total cereals - bread wheat, durum, and barley - by 1972, and import needs will be reduced only slightly by 1980. While yeild improvements anticipated between 1969 and 1980 are quite substantial, they are applied to a declining area devoted to cereals. Most of the increased cereal production will be absorbed by growth in human demand and increased needs for livestock feed.

Jim
I believe you agree with the above conclusions
I have, I intuitively commit about you?
HCT
Yes/Jim

A preliminary draft has also been completed of a study on Olive Oil Pricing and Marketing Policies in Tunisia. Among the conclusions of the report are the following: (1) primary emphasis has been given to increasing government regulation and control of the olive oil sector. Market control was believed to be essential to supply domestic demand with cheaper edible oils in order that higher priced olive oil could be exported. Assuring olive oil producers a higher share of the export price was also an objective of marketing control by the Government. (2) The report indicates that the rationale given by the government for its takeover of oil marketing (i.e. the existence of imperfect competition) needs further study. (3) The report implies that the stated long-term GOT goal of self-sufficiency in oil production needs to be re-examined given the profitability of exporting expensive olive oil and importing cheaper soya oil. (4) This report concludes that although producer prices of olive oil were increased in 1967/68 to provide incentives for increased production, this alone may not be sufficient. Further price changes and more efficient processing and handling operations may be necessary, as well as technological improvements in cultural practices and the development of new olive varieties.

A study of the economics of the livestock sector is also underway. Much of the data necessary for the first phase of this study has been collected and a paper entitled "Performance and Potential of the Livestock Sector in Tunisia" is being prepared.

Van Wesch

A draft report entitled "Agricultural Project Appraisal by Short Cut Methods" has been prepared. In addition, approximately 40 agricultural investment projects were analyzed for the 1969-72 Plan under the supervision of Dr. Purvis.

As an outgrowth of the Team's work on the analysis of the 1969-72 Agricultural Plan, a research paper is now being prepared entitled 'Agricultural Employment and the Rural Labor Force in Tunisia.' This paper will be ready for submission to the Agricultural Development Department within the next month.

Dr. Vernon W. Ruttan made an inspection visit to the project from May 31 to June 8, 1969. He met with the Team to discuss the research that is currently underway and, after meeting with Mr. Haouet, Director of the Agricultural Development Department and USAID personnel, he also explored with the Minnesota staff future research needs and priorities. Dr. Ruttan also discussed future staffing plans and the allocation of participant trainees for the project with Minnesota Team, USAID and the GOT. He also gave a seminar to the faculty and students of ENSAT on the role of agriculture in economic development. Dr. Ruttan, together with members of the Minnesota Team, met with Dr. Skouri, Director of ENSAT, and Professor Tassin, who is responsible for all of the teaching of agricultural economics at the School. No formal instructional contributions by the Minnesota Team at ENSAT have been arranged to date because of limitations in personnel resources. However, the team will continue to keep in touch with Dr. Skouri and the ENSAT faculty to offer help and advice on curriculum development in agricultural economics as well as teaching assistance when needed and requested in areas where the Minnesota Team is well staffed to render such assistance.

Two short-term consultants from the University of Minnesota faculty of agricultural economics visited Tunisia during the past six months. Dr. Jerome Hammond was in Tunis from June 5-18, 1969, during which time he consulted with the Team on fruit and vegetable marketing. Dr. Fred Koller also made a consulting visit from September 19-26, 1969, to study the organization of Tunisia's agricultural marketing system and formulate recommendations for research on marketing efficiency and costs.

4. The reports prepared by the contract staff have provided very useful information and analyses concerning important elements of the agricultural sector. In most cases, these reports have been policy oriented. However, in certain instances, some junior contract staff members have not made the conclusions of their reports explicit enough and have not given sufficient emphasis to the policy implications of their analysis. The senior contract staff is aware of this problem, and, in those instances where necessary, is beginning to provide needed guidance.

b. Personnel

1. USAID considers all members of Contractor's staff to be well qualified technically. At the end of the reporting period, the U.S. staff consisted of a Marketing Economist (Dr. Reynold P. Dahl, Chief of Party); a Production Economist (Dr. Malcolm Purvis); and two associate economists (Drs. Van Wersch and Al-Zand) on board. Dr. Daves, another associate economist, is currently receiving French language training at FSI. Thus, the Contractor's staff will continue to have five positions. In addition, short-term consultants will be provided by the University to assist the permanent staff on specific problems, as mutually agreed by USAID and the Chief of Party.

2. The Chief of Party has provided effective leadership for his staff. His improved French has enabled him to more effectively plan the work of his staff with the staff of the GOT Development Department. Working with the other members of the contract team, the Chief of Party has been able to coordinate efforts and produce sound, well-balanced studies.

3. The team has maintained good working relationships with the USAID, the GOT and local citizens.

C. Training

The GOT has met the current training goal for the project by providing four new trainees in 1969 who will go to the U.S. for graduate level training in agricultural economics.

The scheduled visit of Mr. Haouet, Director of the Agricultural Development Department, to the United States during the first three weeks in October was postponed in mid-September when important changes in policy affecting the agricultural sector were announced in Tunisia and a new Minister of Agriculture was appointed. It is hoped that Mr. Haouet's visit to the U.S. can be rescheduled in early spring of 1970.

D. Procurement and Support

1. Commodities and supplies have arrived as scheduled.

2. Contractor's backstopping for the Team has been satisfactory. USAID continues to provide support as required. The GOT provides adequate support through the Trust Fund.

E. Contract Terms

The contractor has complied with the contract terms as set forth in the contract as amended, including appendices "A" and "D."

F. Reports

1. The Contract Team has submitted its semi-annual progress reports as required under the contract.

2. The technical and progress reports prepared by the Team are well presented and quite comprehensive.

G. Source of Information

This evaluation is based upon the personal knowledge of the reporting officer of the operation of this contract. The reporting officer is the Mission's Project Manager.

III. ASSISTANCE TO THE UNIVERSITY OF TUNIS

During this reporting period, the six participants mentioned in the last report began their studies in the U.S. -- three at Michigan State and three at Minnesota. Due to a combination of academic and personal problems, one returned to Tunisia within a month and one other returned in July, 1969. The other four proceeded with their program of studies as planned; i.e., auditing non-credit undergraduate courses until June, then attending the Boulder, Colorado Summer Institute of Economics and, finally, reporting back to their respective schools in September to begin their graduate studies in economics. When Professor Brownlee came to Tunisia in March, 1969, as the third short-term visiting professor scheduled under the contract to lecture at the Faculty of Economics, it was agreed that he would return in June to interview students graduating from the Faculty who were recommended by the Dean for participant training in economics at U.S. universities. At that time, Dean Ayari presented him with seven of the top graduates of the Faculty, and Professor Brownlee selected five with the understanding that with the help of the Chief of Party one would apply to Minnesota and the other four would apply to four other leading institutions with graduate programs in economics. Upon his return to the U.S., Professor Brownlee assisted this application process by personally contacting Chicago, UCLA, Yale and Johns Hopkins. A similar program is planned for these five students as was conducted for the group selected last year -- intensive English language training in Tunisia beginning in October with the understanding that those who pass will go to Minnesota in early 1970 to audit undergraduate courses, to be followed by the summer at Boulder and then placement in the fall of 1970 in regular programs of graduate studies.

The three visiting short-term professors, who came to Tunisia for three-week periods in February and March, 1969, to present seminars to the staff of the Faculty of Economics, all performed their assignments satisfactorily although inadequate command of the French language was an inhibiting factor in one case. One very positive aspect of their visits apart from the seminars was the professors' informal discussions with the Dean and other members of the Faculty concerning the latest trends in curriculum and teaching patterns in the field of economics. With the results of these seminars in mind, plans for seminars to be held in 1970 were discussed with Professor Brownlee during his June visit to Tunisia. Dean Ayari indicated that he would prefer to limit the number of seminars to two and hoped that two persons could be found who could lecture in French, could work with senior undergraduate students as well as the staff and, possibly, could stay longer than three weeks.

In addition to the two visiting professors for 1970, Professor Brownlee also agreed during his June visit to look for a professor to accept a full-time assignment in Tunisia at the Faculty of Economics for the 1970-71 school year. This person, in addition to teaching in his area of specialization, would have a good background in economics research and would assist the staff to increase their research capabilities. It was hoped that the type of person recruited could also informally serve in a general advisory acapacity to the Dean of the Faculty.

During this period it was decided that the Faculty was not ready for assistance in the library field and, accordingly, provision of U.S. library consultant services to be financed under the Minnesota contract would be postponed for consideration at a later date.

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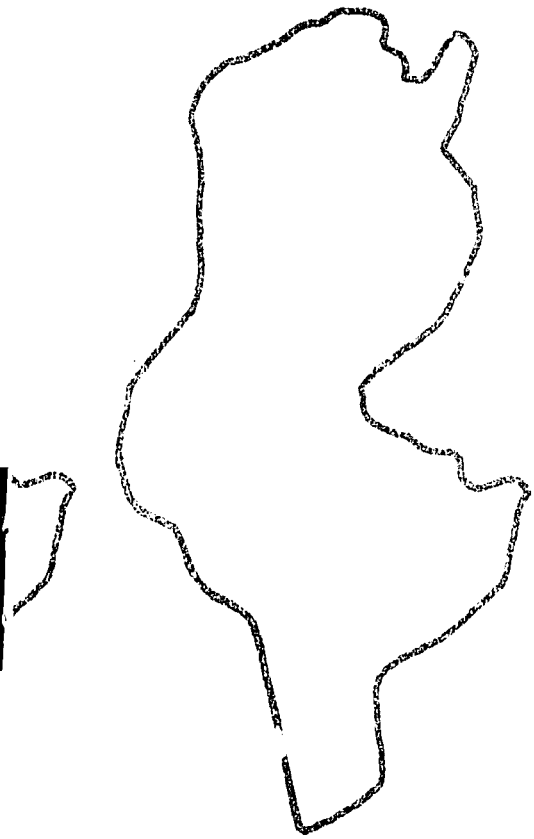
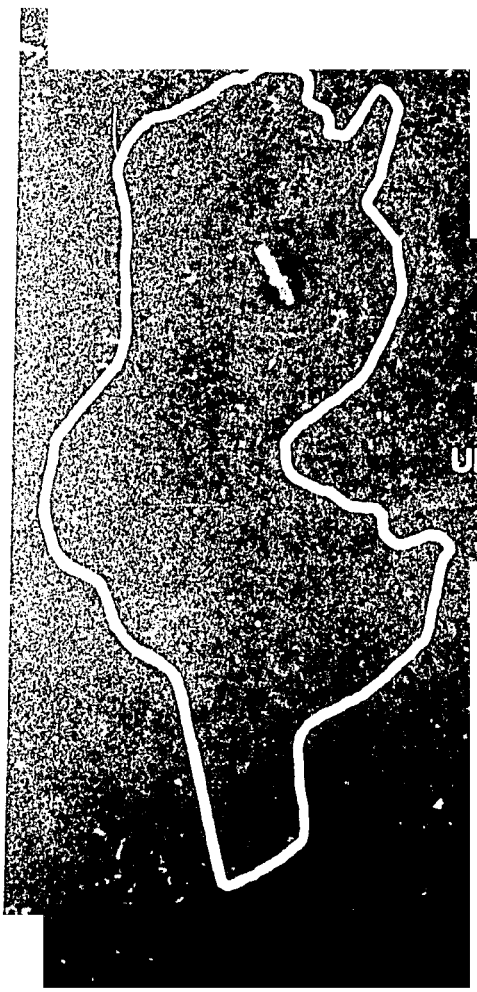
BUILDING AN ECONOMIC ANALYSIS ORGANIZATION in Tunisia





Contract No. AID/afr-469
Final Report
December 1976
UNIVERSITY OF MINNESOTA

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ACRONYMS USED IN THIS REPORT

AID	Agency for International Development
BPDA	Bureau for Planning and Agricultural Development
D/PAEEP	Direction for Planning, Economic Analysis and Project Evaluation
FAO	Food and Agriculture Organization of the United Nations
FSI	Foreign Service Institute
GOT	Government of Tunisia
INAT	National Agronomy Institute
INRAT	National Institute for Agricultural Research
PIOT	Project Implementation Order/Technical
USDA	United States Department of Agriculture

FOREWORD

From 1967 to 1976 the University of Minnesota carried on an AID sponsored project in Tunisia under contract AID/AFR/469. The project was designed to assist the Ministry of Agriculture in building a capacity for economic analysis relating to agricultural development planning and policy making. Like most developing countries, Tunisia has been struggling with the problems involved in creating a viable rural economy. Like many other developing countries, it lacked significant capacity for sustained economic analysis of the functioning of the rural economy, of various agricultural policy alternatives and of their probable consequences. It lacked reliable information on which to base long-range development plans. The Tunisian rural development effort was seriously impaired because of the lack of a foundation of economic analysis of the agricultural sector.

The project produced an organization, staffed by U.S.-trained Tunisian economists, capable of providing useful economic analysis to guide policy making and planning in the Ministry of Agriculture. Economic analysts now provide the senior officers of the Ministry with a flow of information including situation reports on the principal agricultural commodities, analyses of policy issues, evaluations of project and policy proposals and projections of important demand and supply situations. The economic analysis staff also provides leadership for the Ministry's annual economic planning and quadrennial development planning efforts.

Other developing countries are coming to realize that their development efforts are impaired by lack of economic analysis of national agricultural policy and planning problems. They find their development planning efforts hampered by a lack of reliable demand and supply projections and by the inadequacy of available information on economic activities in the agricultural sector. Policy making too often is done without adequate knowledge of the probable economic effects of proposed policy decisions.

The Tunisian model is beginning to be studied by other developing countries. The system of a team of sub-sector analysts, each with continuing responsibilities for maintaining an overview of an important area of the rural economy, may well have applicability in many other countries. The sector analysis system, based on a quantitative economic model of the Tunisian rural economy and designed to be used in connection with computing equipment available in the country, provides a new and powerful tool for continuous study of the rural economy and of the interactions at work within it as development takes place.

There is also increasing interest by international agencies in sponsoring similar efforts to provide developing countries with systems of rural sector analysis. This final report on the Minnesota project has been prepared as an evaluation of the principle features of the project.* It is hoped that this evaluation will be helpful to others concerned with the design and operations of similar projects in other countries.

John Blackmore, Project Director
University of Minnesota, 1976

*Readers with special interests in project accomplishments are referred to the report of the joint evaluation team. It is an appendix to the project progress report for the period July 1 - December 31, 1975.

I DESIGNING THE PROJECT

A University Designed Project

A perennial problem of technical assistance projects has been the adequacy of the initial project design. A major joint effort by the Agency for International Development (AID) and the land-grant universities was made 10 years ago to develop a new system for the design and operation of technical assistance projects to be carried on by U.S. universities. A principal feature of the system was a pre-project planning period during which the university would station a small team in the cooperating country. The university team was to work directly with host country staff for as much as a year in designing the project. There were a few trials of the system but it was not universally adopted. Instead, AID seems to have moved in the direction of project planning by its own staff supported by teams of consultants. These projects, after AID administrative approval are proposed for implementation by contractors, including universities.

The Minnesota project in Tunisia is an example of a university-designed project. The design took the form of an effort to arrive at a workable project goal, a set of project strategies, a staffing plan and a system of annual project planning that would permit adjustments in project operations as required to attain the agreed-on goal. There were significant inputs by AID and the government of Tunisia into the design process both in the initial stages and throughout the life of the project. Minnesota's experience in Tunisia argues strongly for design responsibility to be assigned to the operating university with supporting cooperation from AID and the host government. The Tunisia project experience also demonstrates the need for a project design that includes a mechanism for continuing review and modification of the project over its lifetime.

The initial project design was based on a review of available materials and site visits. University project designers benefited from two studies of Tunisia's rural economy by Professor Montegue Yudalman for AID. In addition, the University sent two survey teams to Tunisia, for short visits. The Director of International Agricultural Programs and a University administrative officer made a preliminary visit, followed by a visit by a team of Department Heads and other staff from the College of Agriculture. The second team visit report was the primary basis for the project design as reflected in the Project Implementation Order/Technical (PIOT) and in the contract.

A longer planning period of a few months of residence in the country by a qualified University representative may have been worthwhile. It would have permitted the University and the government of Tunisia (GOT) to learn to work effectively together. There was much that the University needed to learn about the Ministry of Agriculture and much that the Ministry needed to learn about the U.S. university system and the University of Minnesota.

This was Minnesota's first experience in working in a French language country. It was the first experience for the GOT with a U.S. university team working on potentially sensitive policy problems. A longer planning period might have improved participant selection procedures and clarified the relationships of the visiting experts to the on-going work of the Ministry of Agriculture's project planning group. It might also have clarified the need for a significant University contribution in the development of professional instruction and agricultural research capacities for the Ministry. The University survey team and the government recognized these needs but they did not develop, primarily because the AID Mission was not initially convinced of their worth as parts of the project plan.

Identifying the Needs

When the project was being designed, it was evident that the GOT had an abundance of foreign assistance. However the GOT had only minimal capacity to make use of all the assistance available. It inherited some of the institutional infrastructure of a modern agriculture as part of its colonial legacy, but these institutions tended to be more appropriate to a colony of a developed industrial nation than to an independent, largely agricultural, developing country. Some agencies were simply empty shells, without significant professional staff. A particularly serious deficiency was the new government's limited capacity for effective policy making related to its agricultural development. During the colonial period the agricultural policy-making function had been oriented to French needs. The new government had only limited capacity to evaluate all the development assistance projects being proposed by donor governments or to fit them into a coherent national development program.

The newly independent government had adopted a policy of national economic planning. Early Tunisian planning for agricultural development took the form of a review of the state of development of the rural sector and a compilation of projects approved for action during the plan period. Economic policy considerations were largely neglected in those early planning efforts. The government's senior officials in their regular day-to-day work were engaged in agricultural policy-making activities separate from the planning activities. Their decisions affected such things as prices for farm inputs and products, land tenure and agricultural credit. Decisions were based on very limited, unsophisticated analysis of the economic factors involved.

AID officials believed that U.S. assistance would be valuable in the development of a capacity for economic analysis in the Ministry of Agriculture. They believed the focus of such analysis should be the policy and planning problems involved in accelerating agricultural development. This became the central objective of the Minnesota project.

The senior officers of the Ministry of Agriculture were either political figures or "technocrats." Their principal European advisors also tended to be engineers, agronomists or animal specialists. Modern economics was almost unknown. The Ministry of Agriculture staff did not include a single person trained as a professional economist. One of the needs was for the training of a group of agricultural economists for the Ministry. Another need was for the organization of these economists as a staff of analysts to provide the senior officers of the Ministry with the economic information needed for policy making and development planning purposes.

From the outset it was evident that such training and institution building would take a long time and that Tunisia could not delay its agricultural development until a Tunisian-staffed economic analysis unit was in place. There was an immediate need for economic analysis and thus a team of U.S. agricultural economists was needed for the first phase of the project. There was an even more immediate need to demonstrate for the officials of the Ministry the usefulness of systematic economic analysis as a part of the basis for decisions on troublesome policy problems.

Tunisia had other pressing needs as well. The Minnesota survey team found that Tunisia needed not only economic research but also almost every other kind of agricultural research useful in developing plans and programs to accelerate agricultural development. Also, there were serious inadequacies in the Tunisian systems for dissemination of technical information to farmers and inadequate facilities for producing the trained professionals needed by the Ministry of Agriculture to plan, organize and manage all the new agricultural projects and activities. At the outset of the survey team's visit, the GOT asked Minnesota to provide a large team to undertake the training and development of an effective extension staff. The matter was referred to the AID Mission. Nothing further was heard of it.

The need for university level training for agricultural professionals had been recognized. AID was financing a project under which Texas A and M University was attempting to build a modern college of agriculture from the ground up. No assistance was being provided to the former French colonial School of Agriculture. When the Texas A and M project was abandoned, Tunisia was left with no assistance on one of its most fundamental problems. It lacked an adequate facility for professional training in agriculture.

The Minnesota survey team report recommended action along two lines. It proposed a team of U.S. economists and a training program to develop a Tunisian staff for a "Bureau of Economic Studies" in the

Ministry of Agriculture.* It also proposed a program of cooperation in research along several lines, such as is now provided for in Title XII of the Foreign Assistance Act. A research advisor was provided for the first year of the project, but Tunisia's research needs were seen differently by AID than by the University. AID moved to assist the GOT along "commodity" lines, first wheat and later livestock. The Mission put emphasis on comprehensive commodity projects and did not encourage the development of cooperation between Minnesota and the GOT in the agricultural research area. The Minnesota research advisor was withdrawn after one year and the project then continued to relate only to the development of a Bureau of Economic Studies in the Ministry of Agriculture.

Setting the Objectives

The central, long-run objective of the project was the development of a "Bureau of Economic Studies." The project was not undertaken to develop a planning bureau for the Ministry of Agriculture. The Ministry already had such a facility. The project objective was to provide support for Tunisia's planning and policy-making efforts in agriculture by creating a staff capacity for economic analysis. Efforts to improve the planning process itself were emphasized only late in the project.

The project objective was discussed with and agreed on by the Minister of Agriculture and his senior staff at the outset of the project. It was recognized that the objective could only be attained through progress toward several intermediate objectives, of which training of a staff of Tunisian economists was seen by the University to be the most important. However, Tunisian interests initially centered on the potential contributions of the U.S. economists sent to Tunisia. As a consequence of the shortage of professionally trained Tunisians, the GOT found it necessary to utilize the services of many foreign experts, not only as advisors, but more often as officials of the Ministry. At first, the Minnesota economists were considered just another group of foreign experts undertaking work necessary to the GOT. The "institution-building" and "training" functions of the Minnesota team were not strongly regarded. Ministry officials readily agreed that some Tunisians should be trained in agricultural economics, eventually, but

*Initially, the Minnesota team was assigned to work with the Ministry of Agriculture's "Division of Agricultural Development," which, among other things, was responsible for development planning. Subsequently, the Division was reorganized as "Bureau for Planning and Agricultural Development" (BPDA). A few months before the end of the Minnesota project, it was again reorganized as the "Direction for Planning and Economic Analysis and Project Evaluation" (D/PAEEP). In this report, for purposes of simplification, the acronym D/PAEEP is used throughout.

they pointed to the severe shortage of professionally trained Tunisians of every kind and the small number of students in the training pipeline. It was only in the third year of the project that a specific training objective was agreed on. The Director of Planning for the Ministry came to feel that the proposed Bureau would need a total of 40 economists. AID was reluctant to fund the training of the full staff. Prolonged discussions resulted in agreement that the project should undertake the training of 25 members of the staff. It was further agreed that all should be trained to the M.S. and possibly five should have further training to the Ph.D.

Despite general acceptance of the fact that the shortage of agricultural economists was a main barrier to the development of the new Bureau, it was only in the fifth year of the project that the work plan first mentioned cooperation in the improvement of Tunisian professional school facilities for training agricultural economists. The University found it difficult to generate either Tunisian or AID interest in developing a Tunisian capacity for training economists for the Ministry of Agriculture.

Another objective was to demonstrate what modern economic analysis could contribute to the policy-making and planning processes of Tunisian agriculture. While it had been Minnesota's intention to operate along the classic lines of production economics and marketing, this soon proved to be impossible. The economic analysis had to be addressed to commodity problems of immediate concern to the senior officers of the Ministry of Agriculture. The first members of the project team had only arrived in Tunisia when the AID Mission staff began to recognize the need for economic analysis in connection with wheat and other commodity project interests. Initial economic analysis related to wheat production, pricing and marketing. Based on early experience with studies relating to wheat, analyses of the livestock sector, fruits and vegetables and olive and olive oil production were begun. These studies provided new information for the planning and policy-making processes of the Ministry.

Project Strategies

From the beginning of the project the University had recognized that a set of effective strategies were needed if the project objectives were to be attained. Among the strategies utilized for this project were the following:

1. Begin with "felt" needs. From the beginning, the interests of the senior officers of the Ministry of Agriculture were solicited. They indicated that studies relating to wheat, livestock, fruits and vegetables and olive oil were of primary importance.

2. Anticipate needs. It was a Minnesota strategy also to anticipate analytical needs. The team undertook to initiate a few studies of problems that might not be of current concern to the Ministry officials but which, by the time the study was finished would likely be of considerable interest. Initially, work on irrigation economics had little or no support from Tunisian officials, but the study completed by Dr. Daves has proven to be highly valuable and much-used. Similarly, the study begun by Dr. Wick of water pricing policies was actively discouraged by some of the leadership of the Ministry when it was proposed and even after it had been started. After the study had been abandoned, the Ministry of Agriculture came to realize that it had some serious water pricing problems and expressed regret that the study had not been finished.

   The choice of study problems is extremely important when the purpose of the analysis is to assist a foreign government in the analysis of its policy and planning problems. It is often easier to get concurrence for studies that will confirm what is already perceived than it is to get concurrence for study of problems that are currently sensitive policy issues. The Minnesota team found that it was possible to anticipate concern for policy issues and to initiate research well before policy options were limited by political sensitivities. In several instances the Minnesota economists were able to provide the officials of the Ministry of Agriculture with the results of economic analyses of sensitive policy problems before, or at the beginning of public concern over the problem.

3. Response to Tunisian Initiatives. The project team tried to anticipate and to be prepared to respond to initiatives and requests of the Tunisian government consistent with attainment of the project objectives. It tried to avoid responding to requests not consistent with these objectives. The training objective was so central to the project that Minnesota made every effort to respond positively to every proposal for U.S. training made by the Ministry of Agriculture. While not every candidate was accepted, every candidate for U.S. graduate level training who was qualified to take advantage of such training had an opportunity to have such training. A few of the candidates were of limited ability as graduate students, but their programs were carefully planned so as to provide them educational experiences consistent with their abilities. Special tutorial assistance was provided when necessary.

   At the same time, when the GOT wanted to divert the energies of the U.S. economists to the analysis of individual development project proposals and thus lay their economic analysis work aside, these requests were discouraged. Dr. Purvis and others studied the system of project analysis and

proposed several changes that saved time and increased the effectiveness of the project review process. Also, it was evident for a long time to the Minnesota team that the Ministry of Agriculture needed to improve its statistics collecting facilities. Recommendations were made to this end with little result. However, when the Ministry, as a result of the success of a USDA-assisted livestock survey, asked the University for a consultant to assist in the area of statistics collection, the University made special arrangements with the USDA to have such a consultant provided promptly.

4. Developing Tunisian Administrative Capacities. At an early stage in the project, the Director of the Division for Agricultural Development was invited to the U.S. and Canada for a study tour to observe the administration of economic analysis activities in several institutions and agencies. The tour was highly successful. He gained better understanding of North American institutions and administrative systems and insights into many aspects of the administration of his own Division.

   At various times the Minnesota team made suggestions to improve the administrative structure of the emerging Bureau of Economic Studies. Many were incorporated into the scheme that was adopted. In retrospect, it would have been highly desirable to have identified a candidate for U.S. training in economics and administration from the mid-career group of the staff of the Ministry of Agriculture early in the life of the project. It might thus have been possible to have provided the new Bureau with a professionally trained director early in the project.

5. Emphasis on the Analysis, Not the Policy. The project team undertook economic analysis of problems to illuminate the policy alternatives. The Minnesota project economists carefully avoided making policy recommendations to the Ministry of Agriculture. Governments of developing countries are understandably nervous about foreign experts making public pronouncements on sensitive policy matters. Minnesota did not tell the Tunisians what they should do about price policies, land tenure, market structure or irrigation developments. The project team emphasized the utility of modern economic analysis in illuminating such problems and in facilitating a choice between alternative courses of action. Emphasis on the solutions to policy problems, rather than on the methods and usefulness of economic analysis would probably have resulted in early invitations for the U.S. economists to leave the country.

6. Begin at the Beginning. The Minnesota team began with the simple and worked toward the complex. The first economic analysis activities were based on the readily available data. These analyses were incomplete but provided much useful information. Their inadequacies suggested the possibilities of further analysis based on the collection of more data. The first studies led to studies based on the collection of new data by fairly informal and inexpensive means. These in turn, helped demonstrate the need for a more adequate system for the regular collection of essential basic statistics on Tunisian agriculture.

The first studies dealt with sub-sectors of the Tunisian rural economy. Studies of wheat, olives and livestock produced new and valuable information. These also raised questions answerable only by more sophisticated studies. These set the stage for the commitment by the Ministry of Agriculture to undertake the development of a quantitative system for analysis of the functioning of the whole agricultural sector including the interactions among the various sub-sectors. There had been an aborted effort earlier to produce a sector model for Tunisian agriculture. It was never finished because the first computer runs were incomprehensible to the Tunisian staff and seemed to be in no way related to the real problems of everyday life in the Ministry of Agriculture. The Minnesota-FAO model was eagerly awaited by the senior officers of the Ministry of Agriculture because they felt they understood what the model could do in relation to some of the policy problems pressing on them.

II STAFFING THE PROJECT

Staffing Problems

The 13 persons who served as resident staff members in Tunisia in the nine-year life of this project are listed in Table 1 (with information on their ranks, length of service in Tunisia, nature of their assignments and, where appropriate, dates when they served as party chief). There were six party chiefs in the nine years. Dr. Dahl, the first party chief, served the longest - 37 months. The frequency of turnover in party chiefs was a problem in project operations. More continuity in resident leadership of the team would have been helpful.

Other staffing problems included:

1. French-speaking agricultural economists were in very short supply,
2. Regular University faculty members were not easily attracted to serve two years or more in Tunisia,
3. The working environment in the D/PAEEP made it difficult to recruit well-qualified U.S. economists to serve in Tunisia,
4. Circumstances were favorable for the effective use of members of the University faculty as short-term technical advisors only as the project ended.

Working in French

The Tunisia project was one of the first U.S. land-grant university projects in the French-speaking developing countries. In 1967, one member of the Minnesota Department of Agricultural Economics spoke some French. He was appointed party chief, given a short intensive program of French instruction and sent to Tunis. With no other French-speaking faculty members available, Minnesota found it necessary to consider recruiting French-speaking economists or providing French training to its staff members. Both lines of action were followed. Three French-speaking agricultural economists were added to the faculty. Two newly graduated agricultural economists who spoke French were appointed. All other staff members who served in Tunisia had 16 to 20 weeks of French instruction prior to their overseas service.

There was considerable and conflicting advice as to the language requirements for effective service in Tunisia. It was suggested by some that the French needs were minimal and could be learned on the job in Tunis. Persons with Tunisian experience, however, encouraged the University to provide its staff members with a minimum of 16 weeks of intensive full-time language instruction prior to their arrival in Tunis. The University not only required 16 (and later, 20) weeks of such instruction, it strongly encouraged the Tunis-based staff to continue its study of French throughout the life of the project. Most of

Table 1.

MINNESOTA STAFF SERVICE IN TUNISIA

Name	Rank	Assignment	Months in Tunisia	Dates When Party Chief
Al-Zand, Osama	Assistant Professor	Olive Sector	37	
Dahl, R. P.	Professor	Cereals Sector	37	8/67 - 9/70
Daves, Thomas	Assistant Professor	Irrigated Sector	40	8/72 - 4/73
Donker, John	Professor	Agricultural Research Planning	12	
Hammond, Jerome	Associate Professor	Prices, Horticulture Sector	24	9/71 - 8/72
Klein, Harold	Associate Professor	Annual Planning	18	
Purvis, Malcolm	Associate Professor	Project Analysis	39	9/70 - 9/71
Reeser, Robert	Professor	Institutional Development	31	4/73 - 3/75
Roe, Terry	Associate Professor	Sector Analysis	24	
Schamper, John	Assistant Professor	Sector Analysis	18	
Stickley, Thomas	Associate Professor	Credit	29	4/75 - 3/76
Van Wersch, Herman	Assistant Professor	Livestock Sector	42	
Wick, Pascal	Assistant Professor	Water Pricing	19	

the staff residing in Tunis continued some study of French as long as they were on the project staff. As a consequence of this project, there now is a small group of French-speaking U.S. agricultural economists mostly at the University of Minnesota. Many of them subsequently have served on short assignments abroad in French-speaking countries on behalf of USAID or international bodies.

Several staff members received French language training in the State Department's Foreign Service Institute (FSI). Others were trained in a private facility. Both training programs were good, but on balance the FSI program produced somewhat better results. Based on the Minnesota experience, an optimum French training program would consist of these elements:

1. A basic orientation to French grammar may be obtained by taking one or two quarter-length courses of beginning French
2. 16 weeks at the FSI devoting a minimum of six hours per day to language study
3. Four weeks in France in an advanced course at the University of Besencon, possibly combined with intensive conversational experience with professionals in the student's special field
4. Immediately starting one's assignment in the French-speaking country with two to five hours of tutoring per week for at least a year.

An effective working knowledge of French was particularly important in the first years of the project, when there were no Tunisian economists to serve as counterparts of the Minnesota team. In the last years of the project there was a partial shift to English as a working language. Much of the conversational relationships were with Tunisian economists recently returned from U.S. study programs. With an English-speaking Tunisian staff largely in place now, short-term economic advisors going to Tunisia will find it possible to work effectively with little or no working knowledge of French.

Team Size and Composition

In planning the project, considerable thought was given to the size of the team and its make-up in terms of professional specializations and work experience. There were no Tunisian economists in the Ministry of Agriculture and the need for immediate action on a wide variety of economic analysis problems was very great. It was tempting to consider placing a relatively large team in the country, but this was not done. Principal reasons were the costs, the unavailability of qualified French-speaking candidates and the limited capacity of the Ministry to make effective use of the results of economic analysis in connection with either planning or policy making activities. The initial team was to consist of four or five economists. The University had a policy of staffing overseas projects with regular members of the

University faculty to the extent possible. There was the language problem also. It was decided that the initial team should consist of not more than two senior economists assisted by two or three "research assistants" who had recently completed their graduate studies.

It was a good plan but it didn't work. It was a highly workable scheme from the University's point of view. Dr. Dahl and Dr. Purvis were tenured University faculty. Dr. Dahl was a longtime faculty member. Dr. Purvis occupied a new position created by the University in recognition of the growth of interest in the world's agriculture and its development.

Three highly qualified "research assistants" were appointed to the initial team. All had recently completed Ph.D. programs at Minnesota. Dr. John Hyslop was appointed to work with Dr. Dahl in the Cereals sector. Dr. Herman Van Wersch was appointed to work in the Livestock sector. Dr. Osama Al-Zand was appointed to work on the Olive Oil sector.

The "research assistants" immediately found themselves working as independent research workers. Tunisia needed economists capable of planning and carrying on major studies of key aspects of Tunisia's rural economy. The junior members of the team soon were functioning as research specialists. The junior staff members were promoted to Assistant Professor after two years. All subsequent appointments were at the regular academic ranks. The Tunisians strongly favored the change. They would like to have had only senior, experienced economists, but they soon learned that the young American economists were as productive as most of the more senior, but less qualified foreign experts working in Tunisia.

Young, relatively inexperienced economists are at a disadvantage on their first foreign assignment. They do not know how to plan, organize and initiate a study project in an unfamiliar administrative environment as more experienced professionals do. This deficiency quickly can be overcome with effective leadership by an experienced party chief. Their usually superior training and relative ease in learning a new language are distinct advantages. This kind of project required U.S. economists trained to the level of the Ph.D. Any less training in economic theory and methods of quantitative analysis would have been inadequate.

A Staffing Alternative

An alternate model may have worked well in Tunisia. The five-man team was appointed since five men can do more than one or two if time is limited. The University made a special effort to impress AID officials during contract negotiations that this kind of project could not be successful in much less than 10 years. AID initially had wanted Minnesota to take a three- or five-year contract. The University would not do this. If the University and AID could have reached an initial agreement on a

10-year project life, built around the primary need for training a Tunisian staff of economists for the D/PAEEP, a team of two or perhaps three U.S. economists might have been enough. Two or three research workers over a longer period probably would have produced the same result as the five-man team. They would have demonstrated the utility of skillful economic analysis in providing a foundation for public policy making and for development planning.

On the other hand, given the rapid turnover in Ministers of Agriculture, in Directors of the Planning Bureau and in the senior officers of the AID Mission, there is the possibility that a smaller team, working on a stretched-out schedule might not have had the opportunity to produce a sufficiently impressive volume of results. It must be kept in mind that the succession of AID Mission Directors and officers had had no experience with the work of agricultural economists.

There was also a constant state of anxiety in the Mission's program office that the project was taking too long and producing too little. That these concerns were unfounded is demonstrated by the effective work of the Tunisians trained under the project, by the long list of reports and publications produced by the resident team of U.S. economists and by the development of the sector analysis system which is of such high applicability in small developing countries all over the world.

Using the University's Regular Faculty

Members of the regular faculty in agricultural economics were not easily attracted to serve two years or more in Tunisia. They were busy with their regular work. With one or two exceptions, they spoke no French. The rewards system in U.S. universities does not give any premium for overseas service. Staff members who have served overseas have been penalized in terms of promotions and salary increases in too many cases. They lose the opportunity to carry on research and to publish. A well-qualified faculty member with an active research program, graduate students and responsibilities for teaching will not accept for usually modest financial incentives. They must learn a new language and devote two or more years to activities for which there may be little or no professional recognition. The senior Professors in the Department with international interests all had numerous opportunities for either short- or long-term service in countries of considerably more professional interest than Tunisia. Professors approaching retirement are often interested in international assignments. The French language requirement was a barrier to their service in the case of Tunisia.

At the other end of the academic spectrum are the young Assistant Professors. They tended to view an assignment in Tunisia as a diversion from their career goals. They were reluctant for the most part to give up on-campus opportunities for recognition through research. They

tended to see the route to professional success as being via the traditional activities of an on-campus assignment. Potential hazards associated with a foreign assignment such as the health and education of children were important considerations to all the Department faculty members.

The staffing of the project reflects the difficulty of attracting many resident faculty for extended service in Tunisia. Five of the 13 who served in Tunisia were tenured faculty members of the Department of Agricultural and Applied Economics. Three others had had their graduate training in the Department. Five were appointed without tenure to the Department staff for service on the project.

The working environment in Tunisia did not make it easy to attract and keep well-qualified U.S. economists on site. The Ministry of Agriculture had poor data sources. Some statistical information was available, mostly series initiated when Tunisia was a French colony. Also, responsibilities for the collection of agricultural statistics was shifted out of the Ministry of Agriculture into a new central statistical institute just as the Minnesota project was starting. Data held by the operating agencies of the Ministry, including the Office of Oils and Office of Cereals, were not easily accessible to the D/PAEEP. Neither the D/PAEEP nor the Minnesota project had significant resources for the collection of new data. It was often difficult to obtain authorization and funding for field data collection activities. Although there had been a massive effort to collect accounting information on the state operated farms, little of this information was useful for economic analysis. The U.S. economists found it necessary to restrict their analytical activities to the available secondary data or to spend a great deal of time in the field collecting new information during most of the life of the project.

Team members also tended to become discouraged by the apparent lack of support for long-range work by the senior officers of the Ministry in the early years of the project. The senior officers of the Ministry at first placed a low priority on policy-oriented economic analysis. They desired Minnesota team members to share directly in analysis of the economic feasibility of proposed development projects. This project analysis function consumed most of the time of the very small staff of the D/PAEEP. The projects mostly involved potential foreign funding, and thus were of priority interest to the senior officers of the Ministry. The Minnesota economists were told on several occasions that they would have to defer long-time economic studies and devote their energies to project evaluations. Each time the Ministry was told that this was not the purpose of the project and not a responsibility of the Minnesota economists.

It took several years for the situation to change. Dr. Purvis made a major contribution by developing and installing a system for project evaluation that was more effective and less time-consuming.

The development of the FAO project establishing an organization for project evaluation finally solved the problems by shifting the responsibility from the D/PAEEP staff to the new agency.

The research reports completed by the members of the Minnesota team finally began to demonstrate to the leadership of the Ministry that some investment of time in thoughtful analysis of policy problems was advantageous. There was an increasingly favorable response by policy level officials of the Ministry to the economic analysis activities of the D/PAEEP after several U.S.-trained Tunisian economists returned.

The lack of opportunity for publication of results of one's research was a further deterrent to service in Tunisia by well-qualified U.S. economists. Developing country government officials tend to be sensitive to the possibly adverse effects of the release of economic information to potentially unfriendly persons. There was no local Tunisian tradition of widespread public distribution of the results of policy-oriented studies. There was no experience with the issuance of economic research reports under the name of an individual research worker. There was a concern that the conclusions drawn in such a report might be interpreted as the official view of the Ministry. There was a concern that few readers would be capable of making a "correct" interpretation of the research results. Research reports began to be published in a series established by the D/PAEEP for the purpose and given some restricted distribution in the project's fourth year. The series continued as long as the original director of the Bureau was in office. There were no additions to the series after he was replaced.

Attention increasingly was given to the preparation of analyses for the official use of the policy-making officers of the Ministry. These "Notes" usually were reproduced and given limited distribution within the government, but were not published for general distribution.

The U.S. economists began to prepare comprehensive reports of their research which were transmitted to appropriate officials of the government but were not published. These reports tended to find their way unofficially to interested persons in the government, in USAID and in international agencies. In a few cases, members of the Minnesota team were invited to prepare papers for presentation at professional meetings outside of Tunisia. These activities caused some concern to officials of the D/PAEEP. In every case, such papers were offered to the AID Mission and to the D/PAEEP officials for review prior to publication.

While scholarly publication was never an objective of the project, opportunity for it is essential to a professional economist. In another project of this kind, more attention should be given to policies and groundrules which recognize both the host government's interests and the professional interests of the visiting staff.

It should be possible to make effective use of the specialized talents of many members of the faculty of a univerity's department of agricultural economics as short-term consultants in similar projects. Especially in a country where resident service involves learning a new language, it should be possible to use a department's senior Professors as short-term consultants to take advantage of their skills and experience. The Minnesota experience in Tunisia indicates that this cannot be done easily in the early stages of developing a capacity for economic analysis. Only two of the senior Professors of the Department were short-term consultants, and they consulted primarily with their Minnesota colleagues.

The AID Mission staff insisted at one point that Minnesota provide a planning consultant to the Director of the D/PAEEP in connection with the completion of a quadrennial plan. One was provided but the Director of the Bureau did not involve the consultant in the planning process, even though the consultant spoke French and had had considerable planning experience in other developing countries.

Tunisian interest in making use of senior, short-term U.S. advisors increased only when a substantial number of U.S.-trained, English-speaking Tunisian economists had returned to the staff of the Bureau. Even then, there was little recognition on the part of the Tunisian officials of the administrative difficulties of obtaining and making effective use of such consultants. Dr. Terry Roe has continued to provide short-term consulting assistance on the sector model after his tour of service in Tunisia. There have been no other short-term consultants.

The project was terminated by the University because the Ministry of Agriculture would not agree to the continued presence in Tunisia of a resident representative to work directly with them in arranging for the services of short-term consultants. The Ministry officials said they had no need for such a person. They did not recognize that the contracting University had such a need. It is questionable that the Ministry of Agriculture will be able to make all the necessary arrangements as it thought it could for the services of U.S. consultants. In time the Ministry should be able to do this, but for an interim period of two or three years, a resident contractor's representative would have been useful. With no one to work with directly, arrangements for consulting services must be made by correspondence, or by infrequent visits by someone from a U.S. institution. Either of these methods will be inefficient and slow. It will be difficult to avoid misunderstandings such as took place in connection with the assignment of an advisor on planning. If there are such misunderstandings, other qualified advisors will probably show little interest in serving in the country.

On the other hand, the work in statistics provides a potential model for effective short-term consulting. When the need for improved data collection facilities was recognized as necessary by the Ministry of Agriculture, Minnesota arranged for a qualified consultant to be provided by the U.S. Department of Agriculture. The University felt that the USDA was much better qualified than any university to provide this kind of assistance. It was also recommended by Minnesota that arrangements be made for the USDA to provide continuing assistance to the GOT for the development of the needed statistical capabilities. When the administrative processes of the AID Mission proved cumbersome, Minnesota arranged directly for the first consulting visit of a USDA statistician.

The arrangements with the USDA have worked very well. A Minnesota-trained Tunisian economist was assigned as leader of the new data collection activities. He has made effective and continuing use of USDA consultants and facilities. His experience suggests that effective use of U.S. short-term consultants requires that a well-trained Tunisian professional who has knowledge of what an American consultant can bring to his work head the activity for which consulting is needed. The Tunisian specialist must take the leadership in defining his needs for consulting assistance and in making the arrangements for effective use of the consultant while in Tunisia. Only when it has well-trained professional staff members can an organization for economic analysis make effective use of highly specialized short-term consultants.

III DEVELOPING THE ADMINISTRATIVE ARRANGEMENTS

The Moving Planning Horizon

AID first suggested a three-year contract, but the University felt that the assignment would take at least 10 years to complete. After some preliminary discussions, it was proposed that the contracting period be extended to five years. The University believed that this was not enough time to attain the project objective of developing a Tunisian capacity for economic analysis. No trained Tunisian economists were on the staff of the new Bureau. Tunisia could provide not more than three to five candidates for such training each year. Seven or eight years would be needed to train an adequate staff. More time would be needed for that staff to have the necessary supervised experience to function effectively.

It was not possible at the outset to plan in detail for a lengthy project. The standard AID contracting procedure has been to arrange for a definite term contract. If necessary, AID negotiates an extension near termination. Because of the generally unsatisfactory experience of U.S. universities with AID contract extensions, Minnesota was not agreeable to following the procedure. The University wanted AID to commit itself to support the project until the objectives were attained, and with sufficient flexibility so that adjustments in project operations could be made to reflect project experience. It was agreed that project funding could be on an annual basis, so long as the "planning horizon" for the project was five years or more.

The University proposed, and AID accepted, a contracting arrangement under which a five-year contract was signed, but with a provision that each year when a work plan for the five years ahead had been agreed on by AID and the University, the contract life was automatically extended for the required additional year.

It was agreed that when it became apparent that programmed activities were not needed for a full five years, these could be phased out. New activities consistent with the overall project objective could be phased in at appropriate times. The whole project would phase down as rapidly as experience found it possible. An arrangement was developed under which the University, the Mission and the GOT would each year jointly develop the five-year work plans.

The "moving planning horizon" system worked well for the University but was troublesome for AID. A five-year moving planning horizon gave the University a sense of security in arranging for the staffing of the project. It also permitted the University to phase its activities to meet the needs and capabilities of the Tunisian government. For example, in the first few years of the project, major emphasis was put on the initiation of economic analysis activities by the U.S. team

in Tunisia; training and institution-building were not emphasized. As the project work proceeded, the annual work planning process revealed both the need and opportunity for greater attention to U.S. training and to institution-building activities. These received increased emphasis in later stages of the project.

AID's middle management group found the Minnesota contract troublesome because it was different. It did not fit the standard mold for AID contract operations. It may have complicated AID relationships with Congressional committees and to some AID officers it represented a loss of AID "control" over the operation. Frequent changes in contract officers in Washington and program officers in the Mission necessitated a continual education task as to how this unusual contract was to be handled. There were occasions when the process of actually amending the contract consumed much too much time. Fortunately, for the University, the project had an ample "pipeline" of funding. Even though contract documentation was sometimes delayed for months, the project operations continued without interruption.

This system was used for five years. In 1973 AID insisted on setting a fixed termination date for the project (1978) and also the abandonment of the system of five-year project planning, going instead to an annual planning procedure.* The University agreed primarily because by 1973 it was clear that 1978 was a reasonable termination date. The project could achieve its central objective by that time.

A multi-year planning horizon is a valuable administrative device for this type of technical assistance project. It provides the contracting institution with a sense of security. It facilitates staffing such projects with highly qualified people for sufficiently long periods of time to be effective in their assignments. It provides for joint, mutual review and evaluation of the on-going activities by the funding agency, the contracting university and the host government at sufficiently short intervals to keep the project on target. In the Tunisia project it made it possible to phase out unproductive activities (the agricultural research sector) and to initiate needed activities not provided for in the initial project planning (teaching agricultural economics at INAT). It is a means for managing long-term projects with short-term funding.

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*It is interesting to note that this administrative innovation became a central feature of the basic foreign aid legislation with the passage of Title XII in 1976. The legislation provides that the AID shall each year present the Congress with a plan of its activities in relation to agriculture for the five years ahead. The intent of this is that Congressional concurrence in the plan becomes AID's authorization for the work for the moving five-year planning period.

Annual Work Planning and Budgeting

The project operated under an annually prepared work plan and an annual budget. Project planning, budgeting and progress reviewing were almost continuous. Each year the project Director made a project inspection visit six months before the new work plan and budget were to be completed. Mission staff, representatives of the GOT and the members of the University team were consulted at that time as to the general parameters for the work to be undertaken in the next planning period. These were taken as the guidelines in projecting project staffing, participant training and other budgetary elements. A preliminary budget "worksheet" was prepared and circulated within the University and transmitted to various AID offices in Washington and in the Mission. The worksheet was the basis for work plan and budget discussions first with the Mission and later with AID/Washington immediately prior to the end of the budget year. A draft work plan, prepared by the party chief and supplemented by the project Director and the Technical Director was discussed at the same time. The work plan was discussed in detail with representatives of the GOT. These discussions resulted in a document signed by the appropriate officials of the government and the University.

The contract provided that the University should prepare a "work plan" each year. The contract also included an "operational plan" as Appendix B. Initially it was not clear whether AID intended these to be the same or different things. The operational plan, as part of the contract, was used by AID administrators and auditors as a reference base in evaluating project activities. The operations plan proved troublesome unless it was kept up to date by means of amendments. The work plan became the document that defined the working arrangements between the University and the GOT.

The University found it expedient to combine these two plans into one. It initiated a process by which a work or operation plan was developed in cooperation with the government and the Mission. The same document was submitted to AID to be a revised Appendix B of the contract.

As in the case of the moving planning horizon scheme, the system worked well for the University and for the GOT, but was not a success in AID. AID found its internal process of contract amending so difficult, and involving so many people with divergent interests and viewpoints that AID asked the University to shift to a system in which an annual work plan was worked out between the GOT and the University and signed by their representatives. The "Operations Plan" in Appendix B was defined as being an enduring document that could be followed for the life of the project. Appendix B became non-operational in effect and AID accepted the joint work planning of the GOT and University as long as Mission representatives had opportunity to make inputs into the work planning process.

Administrative Leadership

The standard University contract provides for the appointment by the University of a Campus Coordinator to provide day-to-day supervision of the work. The Head of the University's Office of International Programs was named to this position. The University also named a Project Director, a Technical Director and a Student Counselor. The Campus Coordinator served primarily to see that the project was operated within the framework of University policies and procedures. He reviewed proposed staff appointments, draft budgets and work plans, and participated in discussions of major policy problems. He reviewed the work in the field from time to time.

The Project Director was the University's Director of International Agricultural Programs. He was the University officer responsible for disbursements of project funds. He directed the preparation of project budgets and work plans, inspected the project at least twice a year and maintained a close correspondence with the project Party Chief who reported to him. He was the principal spokesman for the University in dealing with the GOT and with AID. He supervised the project from its initiation to its termination.

The Technical Director was the Head of the Department of Agricultural and Applied Economics. He provided leadership for recruiting for the team in Tunisia. He continuously reviewed the research of the staff in Tunisia. All held appointments in his Department. He actively participated in selection of Tunisian trainees and advised on their training. He advised the GOT on the development of an administrative structure for the D/PAEEP that would advance the work in economic analysis, planning and statistics.

The Student Counselor was a Department faculty member with several years' service in Tunisia. He worked with the Tunisian students and their academic advisors to shape individual training programs to best prepare the students to serve as members of the D/PAEEP staff. The University provided the services of the Technical Director and Coordinator without cost to the contract. Salary costs of the Project Director and the Student Counselor were part-time charges against the contract budget. The contract costs for Project Director, Technical Director and Student Counselor were substantially less than the costs of a full-time project coordinator. Yet the project had the variety of specialized skills and experience it needed from the University.

The project team in Tunisia was headed by a Party Chief. The appointment was a compromise. The incumbent was expected to both serve as an economist, to provide day-to-day guidance of the work of his colleagues and to represent the University in dealing with the GOT and with the AID Mission.

The Party Chief effectively represented the University in dealing with the Director of the D/PAEEP and with other units of the Ministry of Agriculture in the early years of the project. In 1973 one of the U.S.-trained Tunisian economists was appointed by the D/PAEEP Director as "Co-Director of the Minnesota Project." He became the communications link between the team and the GOT. He was helpful in persuading the D/PAEEP Director to take action on a variety of problems. The co-director system helped achieve a system of internal organization for the D/PAEEP and assignments with continuing responsibilities of U.S.-trained Tunisian staff members to work in specialized problem areas.

At the same time, the appointment of a Tunisian Co-Director made the Minnesota team feel more remote than ever from the policy makers of the Ministry. The team members had fewer opportunities than before to talk directly to senior officers of the Ministry about their work or its policy implications.

In retrospect, it might have been preferable if the Tunisian Co-Director had functioned primarily as the chief of the economic analysis group. Then the Party Chief and the team could have worked with him to develop a system for planning and administering his group's program of economic analysis.

Communications With AID and With the GOT

The official line of communications between AID and the University was via the Contract Officer. Multiple lines of communication are needed between the University and AID for a successful project. The Contract Officer was not fully informed and was not always technically qualified to make decisions. He served best as a link between AID and the University for official communications such as approval of budgets and work plans, staff appointments and travel arrangements. In almost all other cases, communications were more effective if initiated with either the Mission's Food and Agriculture Officer or an appropriate technical officer on the Washington staff. It was useful to maintain both Mission and Washington contacts simultaneously. In addition, there was a continuing need for communications with Mission program officers, training officers and comptrollers as well as with the Mission Director and often the Mission Administrative Officer also. Communications also were needed with various elements of the Washington staff including the Desk Officer, International Training office, appropriate staff officers of the Technical Assistance Bureau, AID Travel office and various contract officers and regional bureau technical officers. From time to time contacts with senior Bureau administrators were also essential. AID had a large administrative superstructure for the project.

With all these AID officers in the Mission and in Washington involved in the operations of the Tunisia project, considerable time was devoted to the orientation and education of their frequent replacements. During the nine-year life of the Minnesota project in Tunisia, there were three Mission Directors plus two or three Acting Mission Directors, four or five Program Officers, three Food and Agriculture Officers and two other "Project Managers," two comptrollers and three or four Administrative Officers. In Washington at least four different Contract Officers handled the project. In the nine-year period five Technical Officers had responsibilities for the project.

It would have been helpful if AID project responsibilities had not been so fragmented and if staff changes had not been so frequent. Project operations would have been facilitated if it had been possible to communicate directly with a single Technical Officer in Washington who, in turn, would have coordinated AID's various elements including the Contract Office, Desk, Training Office, etc. Similarly the Mission staff involvement in the project seemed overly complicated and to some extent redundant. Program officers, comptrollers, administrative officers and training officers, none with any technical background in agriculture exerted uncoordinated influence on the project. The work would have benefited if Mission responsibilities had been centered in a professionally qualified project manager.

In fairness, it must be said that the presence of such a senior officer as a Mission Director was extremely helpful to the progress of the project at those times when it was necessary to communicate with the policy officers of the Ministry of Agriculture or with other elements of the government of Tunisia. Official recognition of the Tunisian economists' U.S. degrees required the intervention of the Mission Director and the U.S. Ambassador. Difficulties over the administration of the Trust Funds also required the intervention of the Mission Director and Comptroller.

It should be possible for a contracting university to successfully operate this kind of technical assistance project in a country where there is no AID mission. If there were an agreement between the governments as to the rights and privileges of the university team members and their families, and if the U.S. Embassy were prepared to provide basic logistic support services and to make those few high government contacts as might be required, the project could be operated by a free-standing university team. Such a team would need a full-time Party Chief and its own administrative support staff both at the home campus and in the country. The University believes that AID could maintain an effective overview of such a project through periodic inspections by a qualified technical officer based in Washington. Such an officer must have full authority and responsibility to make decisions required to assure success of the project.

IV TRAINING TUNISIAN AGRICULTURAL ECONOMISTS

Problems Encountered

A central project objective was to train agricultural economists as staff for the "Bureau of Economic Studies." When the project ended, 21 had been trained or were in training. This activity was the most effective part of the project. Still, there were numerous difficulties. The principal problems encountered in the training activity were:

1. There was an initial lack of understanding by senior officers of the Ministry of Agriculture of the role that might be played by well-trained Tunisian economists.

2. There was a scarcity of academically qualified candidates for such training.

3. There was a lack of official recognition of U.S. graduate degrees by the Tunisian Civil Service.

4. The USAID Mission had an inflexible policy on the level of English fluency required before U.S. study.

5. The GOT required that candidates for foreign study successfully pass a special examination.

6. Graduate admission officers in U.S. graduate schools and departments were unfamiliar with the Tunisian system of higher technical education, Tunisian credentials and curricula.

7. The students generally had inadequate undergraduate preparation in economics.

8. The needs for both course work and research experience could not be met in the limited time available for graduate study.

9. Placement problems occurred once the candidates were trained and had returned to Tunisia.

10. Ph.D. problems.

The Shortage of Trained People

Tunisia's agricultural development has been severely limited by the shortage of well-trained professionals to plan, organize and manage the many kinds of activities involved in developing a modern agriculture. From about 1889 until independence in 1956, the government of France operated one professional agricultural school for Tunisia. In its lifetime it produced more than 2000 graduates, but of these only

17 were Tunisian. All the others were French. The severity of the problem was masked for a time after independence by the abundance of foreign experts available to serve in Tunisia under bilateral and international aid programs. The GOT found it easier to accept foreign experts and put them to work than to expand its own training capacities and prepare Tunisians for such posts.

In the first years of independence this course of action was probably inevitable. Prior to independence there had been few primary or secondary public schools for Tunisians and thus there were very few students in the pipeline for the National Institute of Agronomy (INAT). Each year, the Institute (with a largely foreign faculty) produced 25 to 40 graduates and these were thrust immediately into key positions in the Ministry of Agriculture to manage essential activities. The instruction program was for a two-year period as a French colonial school. It was extended to three years, later to four and eventually to five years after independence. These curricula extensions produced better trained professionals but restricted the number of graduates during a time of severe professional manpower shortages.

As a consequence, when the Minnesota project began, there were no Tunisians to serve as counterparts for the visiting experts. In fact, only three Tunisians were identified as being agricultural economists. One was French-trained in economics and was serving abroad on an FAO assignment. Two were on the staff of the Ministry of Agriculture. One was a graduate of the two-year program at the French-operated Institute of Agronomy. One was a recently returned M.S. degree holder from a U.S. university.

There was and still is a general shortage of Tunisians with specialized professional training relating to agriculture. It is partly a result of the pervasive influence of French-oriented training. French training of agricultural professionals is unlike U.S. training. In France, the long-time traditional training of agricultural professionals has been oriented toward the production of generalists who could serve in any of a variety of positions in the public service. They usually manage some activity. Graduates of French professional schools are titled as "Ingenieurs." The schools for such training are at a university level, but are not part of French universities. The standard instruction program is usually long on technology and short on social sciences. There had been little effort until fairly recently to provide specialized training for French agricultural professionals. Traditionally the French "Ingenieur Agronome" and also those trained in other French-speaking countries are generalists.

Enrollment in French professional schools is strictly limited. Admission is by a stiff competitive examination, grading is rigorous and it is not uncommon for students to repeat a year of their studies because of unsatisfactory grades. The graduates of such schools are trained to meet French needs. France is a well-developed country with

needs each year for a limited number of thoroughly trained technical school graduates. The INAT followed the model of the French schools and produced well-trained generalist graduates but too few of them to meet Tunisia's needs. The single most common problem of all agricultural development projects in Tunisia has been and is the shortage of well-trained specialized professionals to plan, organize and carry out projects and programs.

Training Strategies

The senior officers of the Tunisian Ministry of Agriculture had not had opportunities to observe the work of highly specialized U.S.-trained agricultural professionals. They scarcely knew what an agricultural economist was. They waited until they had a chance to see some of the work of U.S. agricultural economists before they would commit a significant number of the small pool of young Tunisian agriculturists available for specialized agricultural economics training abroad.

Knowing this, the Minnesota team, instead of waiting for Tunisian counterparts, set about producing a series of research reports, each directed to the illumination of the policy problems in a principal sub-sector of the Tunisian rural economy. Each study was intended, in part, to demonstrate how a well-trained economist could contribute to the understanding and solving of policy problems. The initial success of this strategy is to be found in the decision of the Director of the Planning Bureau to make available his only graduate of the national school of agriculture, first to serve as an assistant to the Minnesota team and then for graduate level training in agricultural economics. The Director later initiated a proposal for training of 25 Tunisian agricultural economists to staff his Bureau. Still later, with the support of his superiors in the Ministry, this request was expanded to 40.

As Table 2 indicates, the first project trainee was designated in 1969, two years after the project started. The number of trainees selected each year thereafter was small but fairly uniform. The GOT generally proposed qualified candidates although few of the top scholars at the INAT applied for support for U.S. study. Most of them went to France and in fields other than agricultural economics.

The first research activities of the Minnesota team effectively demonstrated the role that might be played by well-trained Tunisian agricultural economists. However, the shortage of candidates for such training remained a major problem throughout the life of the project. Each project party chief found it necessary to spend a considerable amount of time identifying potential candidates for U.S. training. When the project began, the small D/PAEEP staff included almost no one qualified for U.S. graduate level training. The best sources of supply

Table 2. Training Schedule

Year	Trainees Appointed	Trained Economists Returned to Tunisia
1967	--	--
1968	--	--
1969	1	--
1970	3	--
1971	4	1
1972	4	2
1973	4	5
1974	5	3
1975	--	4
1976	--	5
Total	21	20*

*One in training as of September 1, 1976

proved to be the graduating classes of the National Institute of Agronomy and the Department of Economics of the University of Tunis. A few candidates were drawn from agencies of the Ministry of Agriculture.

Developing Economics Training at INAT

Early in the project, Minnesota tried to develop a working relationship with the INAT for the purpose of strengthening its capacity to train agricultural economists for service in the Ministry. These efforts were not successful. In the first years of the project the AID Mission took no interest in expanding the involvement of Minnesota to include the INAT. Moreover, the largely French faculty in agricultural economics tended not to encourage cooperation by the Institute with the Americans. In 1971, Minnesota recruited a very talented young French economist with U.S. training. With AID and GOT concurrence, he was sent to Tunis to teach agricultural economics at INAT. The then Director of the school would not accept him. A young Tunisian studying for the M.S. at another U.S. university was brought to Minnesota and trained to the Ph.D. with the expectation that he would return to Tunis as a member of the faculty at INAT. He was not offered a faculty position.

On balance, however, the main problem involved in expanding Tunisia's capacity to train its own agricultural economists was not the attitude of the Tunisian officials. The staff of AID, both in Washington and in Tunis failed to recognize the shortage of trained Tunisian professionals as a problem deserving priority attention by the U.S. government. The INAT should have been an early target for major technical assistance by AID. The shortage of potential trainees for the Minnesota project and similar problems with other AID projects could have been minimized if Minnesota or some other U.S. university had been authorized to cooperate with the INAT in the development of a Tunisian faculty and in expanding the capacities of the Institute to offer specialized training in agricultural economics and other key fields.

The Degree Equivalency Problem

When the first Tunisian arrived for U.S. graduate training in agricultural economics, there were already a dozen or 15 Tunisians with U.S. M.S. degrees in agricultural education and related fields. They had been trained under various AID projects. The Tunisian Civil Service, however, had not recognized their U.S. degrees and all were working at salaries which equated their educations as being roughly the equivalent of four-year graduates of the INAT. Being unfamiliar with U.S. education, officials of the Tunisian Civil Service had equated the American "Bachelor's degree" with the French "baccalaureate" awarded at the end of secondary school training. It seemed logical to them that the next step, the "Master's" must be about the equal of the basic program of the INAT.

The holders of M.S. degrees were thus decreed qualified to serve only as "Ingenieurs Traveaux." At the same time, graduates of INAT who had spent an additional year studying in a specialized field in France were qualified to serve as "Ingenieurs Principal" at a substantially higher salary.

The Minnesota team and the officials of the AID Mission recognized that a change was needed in GOT policy regarding recognition of U.S. degrees. Tunisians, after U.S. post-graduate training otherwise would return to the level of positions and pay they would have had if they had not gone.

Almost three years were devoted to the solution of the problem. In the end, the U.S. Ambassador found it necessary to suggest to the Prime Minister that unless there was some action on the promised recognition of U.S. degrees, all U.S. technical assistance would be phased out.

Six months after the first Tunisian agricultural economist returned with his M.S. degree, U.S. M.S. degrees were recognized. He was appointed Ingenieur Principal and paid at that rate from the date of award of his U.S. degree. The GOT developed a list of U.S. universities from which they would accept M.S. degrees in agriculture. It was a list of the U.S. universities from which Tunisians had returned and had subsequently been successful in their employment in the Ministry of Agriculture.

English Language Training

The members of the Minnesota team believed that one reason for the small number of candidates for U.S. study, and a principal reason why most of the best academically qualified INAT graduates went to France, was the arbitrary and rigid English language requirement imposed by the AID Mission. The Mission required that all Tunisians going to the U.S. achieve a good working level of English before they left their home country. The policy was based on the fact that it was considerably cheaper to teach English to a Tunisian trainee in Tunis than in the United States. What was overlooked in the case of the trainees in agricultural economics was the fact that June graduates saw their classmates go off to France in September and return a year later qualified to serve as Ingenieurs Principal while they stayed behind for as long as a year, studying English on a part-time basis. They could look forward to a two-year academic program that would, at best, give them the same position and pay they could obtain by going to France for a year without requiring the effort to learn another foreign language. The costs to the project of this Mission policy were considerable. It effectively screened out many of the brightest candidates and it restricted the numbers available each year.

Minnesota pressed each year for a policy under which Tunisian candidates would study English in Tunis only as long as was required to demonstrate that they had an aptitude and the required initiative to learn English. They would be then sent to an immersion English program in the U.S. and then to their graduate study programs. A three-month immersion program would, in most all cases, have been a good substitute for all the English studied by these students in their own country. We could have improved the quality and accelerated the development of the staff of the D/PAEEP by many months if the recommended policy had been accepted by the AID Mission.

The Special Qualifying Examinations

At one stage, the GOT, in order to assure that only the best qualified candidates were selected for study abroad, instituted a special qualifying examination. The special examination was vigorously opposed by the graduating students. The students said that their records of academic performance were a better indication of their pr fessional abilities than any special examination. The Director, on the other hand, believed that at the end of a four-year study period he needed a single comprehensive examination to even out grading inequities by faculty members and to assess the capabilities of a now more mature and fully trained group of students. The fundamental problem with the examination was that it was not specific to the special subject matter interests of the students. It was simply a review of the full spectrum of subject matter they had studied for four years at INAT. In the 1974 examination, the few students who had indicated an interest in agricultural economics were eliminated.

A special examination was arranged in 1973 for previous INAT graduates now employed in the Ministry of Agriculture. Three well-qualified candidates were identified as a result. No effort was made in other years to identify potential candidates from among the staff members of the Ministry. However, when the project was ending, the senior officers of the Ministry demonstrated an interest in extending the training activity to provide M.S. level training for up to 40 members of the Ministry's technical staff in all fields, not only agricultural economics.

Admission to U.S. Universities

Inasmuch as the project trainees were among the first Tunisians to study in U.S. universities, there were some understandable uncertainties in U.S. graduate schools as to how to appraise their academic potentials. They had studied in a school system not at all similar to a U.S. college of agriculture. Their study programs, while uniform, were quite different from the programs of U.S. undergraduates in agriculture. The documents relating to their academic qualifications were in French. Few departments of agricultural economics or graduate school admission officers had ever seen Tunisian transcripts before.

The language problem made it difficult to know what these students had studied. The most serious problem was the grading system. As in France, the students had been graded in each "course" on a scale of 0 to 20. It was difficult for U.S. evaluators to accept the fact that a Tunisian student almost never achieves a grade higher than 17. Grades of 12 or 14, representing very respectable performance, were seen by some inexperienced evaluators as less than desirable.

A further problem stemmed from the fact that the Tunisian students were ranked in order of performance each year and at graduation. Departmental and graduate school evaluators attempted to find some rank level that would approximate the relative standing standards applied to U.S. students. Students falling below the midpoint of their class were suspected of not being qualified for U.S. graduate study.

It proved difficult to explain to U.S. admitting officers that these rank standings were not at all comparable to U.S. rankings primarily because of the process by which INAT students were selected in the first place. In the French system followed in Tunisia, a competitive examination is held for admission to the school of agriculture. Competition tends to be keen for the limited number of places in the first year class. First year students tend to be better qualified academically than the average student admitted to U.S. colleges of agriculture. There is normally a rigorous screening of the first year students and as many as half may be eliminated at the end of the first year. Thus, the rank standing of a student in a group of 40 students selected by such a process may not mean very much. The numerical grade difference between the top and bottom of a class is usually fairly small.

A preliminary screening of candidates in Tunisia was found desirable as well as an evaluation of each candidate by the resident team members to his potential as a graduate student in a U.S. university. All candidates were interviewed in depth. Those few candidates which the resident staff found unqualified were not considered for admission to a U.S. university. Their rejection sometimes strained relationships between the University and the D/PAEEP. It was difficult for Tunisian administrators to understand the complexities of the graduate admissions processes of U.S. universities.

Marginal candidates were first admitted at Minnesota as special students in the College of Agriculture to receive any necessary remedial instruction in English, economics and statistics. When judged capable of successfully carrying on a graduate program in agricultural economics, they were admitted to the Minnesota Graduate School or sent to another university.

This period of preliminary preparation was extremely useful. It was a major contributor to the generally high level of achievement of most of the Tunisian trainees in U.S. graduate schools. Only one of

22 students selected and sent to the U.S. for graduate study in agricultural economics failed to complete the requirements for his degree.

Except for a few candidates drawn from the School of Economics and Law in the University of Tunis, all the project trainees had had very little prior preparation in economics or statistics. As is typical of students in French schools of agriculture, their background in mathematics was significantly stronger than the typical graduate of a U.S. college of agriculture. It was usually necessary to devote much of a first academic quarter to remedial courses at an undergraduate level in economic theory and basic statistics. In the early years of the project nearly all the candidates were sent to the University of Colorado for the intensive summer program in economics and related subjects. This was an expensive but very worthwhile training program. In the later years of the project, and primarily as a consequence of the effects of the Mission policy on English instruction in Tunis, the project trainees arrived in the U.S. most often at times when it was more convenient to put them into courses at Minnesota rather than to further delay their study programs by waiting for the next summer program at Colorado. The University of Minnesota's offerings in basic economics and in remedial English were more than adequate to meet the needs of the Tunisian students.

Early Selection - A Recommendation

The academic deficiencies common to students from Tunisia, coupled with their need for study of English, would suggest that training progress could have been accelerated considerably if it had been possible to make an advanced selection of trainees sometime during their final year at the INAT. It would have thus been possible for the students to finish their INAT programs in June, spend July and August studying English in Tunis, and then go to a U.S. university for the fall term in September, spending three to six months studying English and basic economics. Those best qualified would probably find it possible to begin their regular academic programs after one quarter of such preparatory study. Such a course of action would have considerably accelerated the training of the Tunisian economists and their return to Tunis. This in turn would have shortened the time for which a team of U.S. economists was needed in Tunisia, thus significantly reducing the costs of the project.

The Participant Counselor

An early concern of the project staff was whether the trainees would find U.S. university advisors with understanding of their backgrounds and special career needs. There were few faculty members at Minnesota or any other university with professional knowledge of the country when the project began.

One of the faculty members who had served in Tunisia was soon designated "student counselor." He was responsible for maintaining a close working relationship with all of the Tunisian students in the Department of Agricultural and Applied Economics at Minnesota and those studying at other universities. He organized special seminars, organized and taught a special course in research methods and monitored their academic progress. He consulted frequently with their regular academic advisors, some of whom had not been to Tunisia, to make sure that the advisors understood the nature of the employment for which the Tunisians were being trained.

This kind of counseling was especially effective in the first years of the project. In later years, the return of more faculty members after service in Tunisia provided a broader base of advising capacity.

Course Work Vs Research Experience

An unsolved problem was the need of the Tunisian trainees for both course work and experience in carrying on research. The need for economists in Tunisia was so great that there was, in every case, a dilemma as to whether the student should have a little more training, or go home where he was needed. For every student, the result was a compromise.

The program of studies for each student tended to be built around training in the fundamentals of economics and in the fundamental methods of economic analysis.

All 21 trainees took courses in intermediate or advanced economic theory. All had courses in both microeconomics and macroeconomics. Seventeen took courses in production economics and 10 took courses in advanced production economics. Twenty of the Tunisian students had an intermediate level course in statistics and 17 had an additional course in regression analysis. A few took courses in sampling and in experimental design. Three of the Tunisian students had courses in econometrics. Twelve had one or more courses in price analysis.

The Tunisian students studied broadly in the area of applied economics. More than half of them had marketing courses. Smaller numbers took courses in resource economics, consumption economics, agricultural planning, development economics, foreign trade and cost-benefit analysis.

Because of the uncertainty of the ultimate subject matter assignment of each trainee, emphasis was placed on basics rather than on highly specialized preparation. Still, each trainee was encouraged to identify an area of specialization. This usually was marketing, production economics or resource economics. He took some of his course work in that area and wrote one or more of his three required papers in the area. Preference was given to "Plan B" programs in order to

give the Tunisian students more opportunity for course work. These required 45 credits in courses plus three major papers, rather than the 30 credits plus a thesis required in the "Plan A" program.

Most trainees indicated on their return home that the most noticeable deficiency in their training was lack of sufficient experience in planning and carrying on research. If they had participated in such research experience at the expense of course work, they would have found that an equally unfortunate result.

Many of these trainees will never return to a U.S. university. It was believed that their preparation with major emphasis on economic principles and the fundamentals of economic analysis would serve them well throughout their careers, regardless of the specialized areas in which they may find themselves. If they had been highly trained in narrow specializations, they might not have been able to make use of their specialized knowledge. They would have found their specialized training to be of accelerating obsolescence. They might have been without adequate basic training that would have permitted them to retrain themselves as their career needs change.

Training To The Ph.D.

The time restraint made it impossible to satisfy all the potential training needs of the Tunisian trainees. For this reason, the project plan included both development of a strong faculty in agricultural economics at INAT, where these M.S. degree holders might find further training if needed, and also the training of five of the 25 M.S. holders to the Ph.D. level in a second round of U.S. training. The project was terminated before any Ph.D. training had been provided.

The need for further training was perceived by most of the Tunisian trainees. About half of them made inquiries about Ph.D. level training while studying in the U.S. Several made strenuous efforts to have their stays extended to permit completion of the Ph.D. requirements before returning home. One of the trainees took a large overload of course work and attempted to pass the preliminary Ph.D. examinations in economics before completing his M.S. program. Several of the trainees, after working in Tunisia for a year or more, have expressed interest in returning to the U.S. for Ph.D. level training.

Initial Assignments

All the trainees found jobs waiting for them when they returned home. A few of them had difficulties initially in getting assignments in the specialized areas in which they had developed interests in the course of their graduate studies. At first, the Director was uncertain as to how he should use the U.S.-trained economists. The first and second trainees to return both found themselves involved largely

in administrative assignments, much to the anguish of the U.S. advisors who had been looking forward to having Tunisian economists to work with on analytical assignments. However, these first trainees were effective in assisting the Director to develop the first workable model for the internal organization of the Bureau. They were particularly helpful in clarifying the need for permanent subject matter assignments for the other trainees as they arrived.

The project staff encouraged the trainees nearing the end of their training in the U.S. to begin correspondence with the Director to indicate to him the areas of specialized interests they had developed and to request assignments in those areas. This was effective in some cases, in others it was not.

A Bureau staffing plan should have been developed at an early stage of the project but this was not possible. Thus the assignment of every returned trainee was handled as an individual event. The assignments of the trainees, to a considerable extent, were the result of the pressures felt by the Director at the moment of their arrival. In most cases the needs of the Bureau meshed well with the professional interests of the returning trainees.

V UNFINISHED BUSINESS

When the project was terminated, much had been accomplished, but some critically important things were unfinished. Among these are the following:

1. Completion of the development of the internal organization of the D/PAEEP, and its program of economic analysis of policy and planning issues.

2. Continued training of economists for the Ministry of Agriculture.

3. Accelerated noneconomic agricultural research, essential for planning and policy making purposes.

Developing the D/PAEEP

As a result of the Minnesota project, Tunisia has a group of U.S.-trained agricultural economists capable of providing the Ministry of Agriculture with economic analyses essential to effective development planning and policy making. Their organization into an effective unit of the Ministry is not complete, however. When the project began, the D/PAEEP consisted of units for collecting agricultural statistics, for project evaluation and for project monitoring and control. The D/PAEEP also prepared the periodic development plans for the agricultural sector and an "economic budget" which was, in effect, an annual development plan. There were collateral responsibilities for coordinating international financing of agricultural development. During the life of the project the unit went through several reorganizations. In the first of these, responsibility for the collection of agricultural statistics was removed. A subsequent reorganization removed much of the responsibility for project evaluations. Late in the life of the project, responsibility for the collection of agricultural statistics was returned to the D/PAEEP. At this same time, largely as a result of the efforts of the U.S.-trained Tunisian economists, a working structure for the organization was developed. It provided for four groups: Statistics, Economic Analysis, Planning and Project Evaluation.

When the D/PAEEP staff had been smaller, it had been possible for the Director to maintain direct lines of communication with each of his staff members, with each of them working almost on daily assignments from the Director. This was no longer possible when the staff was augmented with the U.S.-trained economists. Systems of decentralized administration were required, as was some system of continuing, professional responsibilities for individual staff members.

The D/PAEEP staff was divided into four groups. A U.S.-trained Tunisian economist was placed in charge of the economic analysis group and experienced Tunisians were appointed to head the other groups.

The section for economic analysis was structured very much in accordance with recommendations that had been made by the Minnesota team. Individual economists were appointed as specialists with continuing analytical responsibilities for each of the main sub-sectors of the Tunisian rural economy - Cereals, Livestock, Fruits, Vegetables and institutional factors such as credit and irrigation. Some of the U.S.-trained staff were also assigned to work in the other two sections, as specialists in statistical data collection, in annual planning, in regional planning and in the development of a quantitative sector analysis system. Other project trainees, upon their return from the U.S., have been fitted into the organization in specialized assignments, or have been appointed to work as economists in other units of the Ministry.

Governmental organization is never an easy matter and the structure of the D/PAEEP is only a part of the problem of an effective organization for the Ministry. The combination of recommendations by the Minnesota advisors and the organized insistence by the U.S.-trained economists that some rational structure be provided for them, eventually moved the Ministry to adopt this organization plan.

The four-unit "Direction" in the Tunisian Ministry of Agriculture appears to meet the nation's needs. Fitting statistics collection, economic analysis and overall responsibility for planning together in one organization gives Tunisia an integration of these functions that is essential to effective planning and policy making.

A facility for data collection is an essential part of a unit with responsibilities for economic analysis. At one time, Tunisia tried to consolidate all statistical work in a single national "Institute." The advantages of a central national statistical unit are limited. There may be efficiency in having a national capacity for sample design and other technical activities. There also may be efficiency in maintaining a central data processing facility. However, data collection activities must be geared closely to the analysis planned for the data. This is not easy to achieve where data collection activities are centralized. The collection of agricultural statistics for Tunisia should remain where it is now placed.

The unit for economic analysis activities probably should be structured more to encourage continuing specialized analysis of each of the principal sub-sectors of the rural economy. In Tunisia there is clearly need for sustained analytical work in relation to each of the principal sub-sectors of the agricultural economy. It soon may be advantageous to subdivide the livestock work to have a specialist assigned to the dairy area and another to meat and meat products. The olive oil sub-sector is sufficiently important to justify having one

or more economists devoting full time to it. There is clearly a need for a group of economists to work on institutional factors affecting agricultural development. High priority should be given to irrigation, agricultural credit and to systems of farm organization and land tenure. One analyst should be working on periodic estimates of consumer demands for food. Another should be continuously studying the input situation particularly the demand for fertilizers and imported farm machinery.

In every case a sub-sector analyst should have responsibility for maintaining a program of review and analysis so that he can be the Ministry's best informed person on the changing economic situation in his sub-sector. He should be responsible for periodic "situation" reporting to the senior officers of the Ministry and he should carry on special analyses relating to policy problems on request of the Ministry officials. He also should play an important role in preparing the annual and quadrennial plans for his sub-sector and he should both provide input and make use of the new quantitative system for analysis of the agricultural sector. He should work closely with the statistical group in planning for data collection activities relating to his area of analysis.

The sector analysis system developed by Minnesota and FAO for Tunisia also should be elaborated further to increase its capacity for economic analysis for policy making and planning purposes.

The unit to provide leadership for planning activities should include a small full-time staff devoted to making development planning a continuous process.

Tunisia has had a series of multi-year development plans since independence. The government maintains a Ministry for Planning. Also the Ministry of Agriculture maintains the D/PAEEP as its planning unit. Over the life of the nation, however, agricultural development planning has been an intermittent activity. Whenever the national plan is due to expire, the Ministry of Agriculture turns its attention to the preparation of a new one. When it is officially adopted, the planning organization is dismantled. The result has been that the various plans have all been less than adequate, being based on highly imperfect data and reflecting the fact that too little time was available for thoughtful analysis of problems and issues. The plan documents quickly become obsolete. The plan tends to lose much of its value as a guide to governmental action long before the end of the plan period.

It would seem to be advantageous in Tunisia to consider quadrennial planning and annual planning together, as parts of the same process. The quadrennial plan should set the goals for the four-year period. The annual plan should up-date them each year.

When the Minnesota project ended there seemed to be some growing recognition in the Ministry of Agriculture of the need to consider both development planning and Ministerial policy-making as parts of the same process. This was not the case earlier and is not the case in many developing countries. In the past, Tunisian development plans seemed to be mostly a collection of project plans and did not significantly address the on-going operations of the rural economy. A Ministry of Agriculture's plan for agricultural development should include more than an enumeration of the irrigation projects to be built, the tons of fertilizers to be provided and the quantities of wheat to be produced. It should also indicate the government's policies as to prices and price supports, marketing quotas or incentives, taxation rates, subsidies and other governmental actions that will influence economic activity in the agricultural sector. Such policy directives for the rural economy can be developed effectively only if there is a solid base of economic analysis such as can now be provided by the team of Tunisian economists, organized as the staff of the economic analysis section of the D/PAEEP.

Economic Issues for Future Analysis

The strengthening of the D/PAEEP by this project should facilitate efforts by the GOT to move forward with the development of Tunisia's agriculture. Planning and policy making for future development will require continuing and skillful economic analysis. Analytical needs include consideration of problems at many levels. There are broad national policy issues, commodity problems, regional problems and problems at the level of the individual farm. The studies undertaken by the members of the Minnesota team (Appendix A) illustrate the scope and complexity of studies needed in the future.

At the national level there are four related problems of concern to the government that will need continuing study. These are problems for which the government must arrive at some balance between competing objectives. For each of them, the balance will shift over time as there are shifts in Tunisian agriculture, in the Tunisian economy and in the world economy. These four problems are:

1. To what extent should Tunisia try to be self-sufficient in food production and to what extent should its agricultural resources be used to produce exports?

Dealing with this problem will require continuous monitoring of domestic and international prices and price expectations for Tunisia's main food products and its potential agricultural exports. Also needed are studies of the changing production economics of the nation's agricultural products, domestic food demand studies, studies of key input factor markets and prices, and studies of wage rates and employment opportunities in agriculture and other sectors of the national economy.

2. What balance should be sought between creating more employment in agriculture and fostering economic efficiency in production by means of large-scale organization and mechanization?

This likely will be a continuing dilemma for the government of Tunisia. In the cereals sector where the prospects for effective mechanization and large-scale organization of production may be the best it would be useful to have studies of alternative production systems based on various degrees of mechanization and studies of the economies of scale for a range of sizes of enterprises. The development of an efficient irrigated agriculture may offer important employment possibilities both in terms of export crop production and in terms of production of meat and animal products for domestic markets. Studies of export market potentials will be important as will studies of farm production systems to identify economically promising export products and to estimate the related labor and other production requirements.

3. To what extent would it be in Tunisia's interests to move toward a high-technology market oriented agriculture and away from traditional small scale, subsistence oriented systems of farm production?

The "modernization" of Tunisian agriculture, involving increased use of purchased production factors, heavier capital requirements, more demanding management systems, heavier dependence upon foreign markets, more advanced processing technologies and similar innovations, involves both risks and new kinds of costs to the society and to the farmer. The potentials, both as to costs and returns of various kinds of modernization, need careful and continuing study.

4. At what level of prices will the government minimize food costs to consumers while providing an adequate price-income incentive to food producers?

Of special importance in this area are problems of wheat and olive oil prices. In addition there are needs for the evaluation of the economic potentials of alternative sources of vegetable oils and studies of the economics of forage and meat production.

Sub-sector Analysis

Each of the sub-sectors of the Tunisian rural economy requires continuing economic study. In the cereals sector some priority should be given soon to studies of the organization of cereals producing units, searching for organization and scale alternatives that will minimize costs. Production strategies including rotations, enterprise combinations, degrees of mechanization plus irrigation and tillage alternatives should be studied. The domestic demand for durum and bread wheats should be under continuous study. Technological innovations, such as

varietal improvements in the production of durum, bread wheats or barley, should be followed by economic studies of their implications for farmers and the public.

Olives and olive oil merit considerable economic analysis. Exports of olive oil are an important source of investment capital for Tunisia. A study of capital formation in the olive oil sector would be useful for several purposes. It would indicate the extent to which this capital source might be further exploited in the public interest. It would suggest the extent to which a shift in income distribution between olive growers and the processing industry might result in an expanded output or more efficient olive oil production.

The fruits and vegetables sub-sector has its special problems. Studies of efficiency of production are needed including the evaluation of alternative production strategies and of systems of organization of production and distribution. There is a special need for study of alternative systems for the export marketing of fruits and vegetables so as to maximize the income potentials for Tunisian producers.

The livestock sub-sector and its feed resource base require considerable economic analysis. Meat consumption levels in Tunisia are very low. At the same time the source of much of the animal feed, the grazing lands, are seriously depleted as consequence of many years of uncontrolled grazing. Improvements in Tunisian income levels likely will lead to increased demand for meat and other animal products. The extent to which an expanded demand could be met from domestic sources is unknown. There are unmet needs for economic studies of alternative systems of production of meat animals and animal products. There are special needs for the study of dairy enterprises. These include alternative feeding systems, economies of scale in production, and of combinations of dairying with other enterprises in terms of feed costs and labor utilization.

There also is a need for multi-disciplinary studies of the livestock grazing system in central and southern Tunisia. These studies should be designed to specify the necessary conditions for the restoration and maintenance of the grazing lands as a continuously productive resource. Economic considerations should be emphasized in these studies.

Capital and Credit

Capital formation and credit for agricultural production should be under study by the D/PAEEP. Past studies indicated that some sectors of Tunisian agriculture may be suffering from lack of access to production credit. This deficiency can be expected to become increasingly severe if Tunisia moves toward a high-technology, capital-intensive agriculture. Further studies of capital use in agriculture and evaluation of alternative systems to providing credit, particularly to small scale producers are needed. Savings and systems for encouraging savings and their channeling into agricultural activities should also be studied in Tunisia.

Factor Markets

The supply of purchased production factors, particularly imported factors, will become more important as Tunisia's agriculture is modernized. These factors, particularly fertilizers, other chemicals and farm machinery, should be subjects for economic study by the D/PAEEP. Such studies might include consideration of the efficiency of alternative marketing systems for purchased production factors and the alternative costs of local manufacture vs importation of these production inputs. It would be especially helpful to policy makers if studies of subsidy pricing and taxation of inputs were undertaken as a means to guide agricultural production in accord with national economic goals.

Irrigated Agriculture

Tunisia's irrigated agriculture needs several types of economic studies. Analysis of the economics of production on irrigated lands is needed, including the evaluation of crop alternatives and the evaluation of alternative systems and strategies for production. The estimation of the potential labor requirements of irrigated agriculture should merit special study. Water pricing for competing water uses should be studied for long-range planning purposes.

The Technological Infrastructure

It would be logical also for the D/PAEEP to undertake studies of the technological infrastructure of Tunisian agriculture to provide an improved basis for planning of activities in the public sector. Some priority should probably be given to manpower planning studies to identify the emerging needs for professionally trained technicians to provide essential services to Tunisian agriculture. Estimates of technical manpower needs are essential in planning for the development and maintenance of technical training schools and facilities so that the flow of graduates will meet national needs.

The D/PAEEP should also provide essential leadership for studies of the research needs associated with Tunisian agricultural development. Studies of the development problems in all sectors of Tunisian agriculture, such as are being carried on by the D/PAEEP, should provide valuable leads in the search for lines of technical research that would produce results important in accelerating agricultural development.

Sector Analysis System

There is need for analysis of the workings of the whole agricultural economy, particularly studies of the interactions among its components and of the interactions between agriculture and the rest of the economy.

Such analysis is made possible by the application of modern methods of quantitative economic analysis, the electronic computer, and a mathematical model of the rural economy. The model is a set of mathematical expressions that describe the nature and quantitative aspects of the relationships between the elements of the rural economy. It can describe, for example, the technical relationships between inputs and outputs in the production of each of the agricultural products. When product and production factor prices are introduced, the model can thus indicate the most economic combinations of products and the inputs required. Similarly, the model can suggest how the rural economy would function under some specified conditions such as a rise in wheat prices, or a shortage of fertilizers, or the introduction of a new credit system for small farmers.

The Minnesota team, in cooperation with the FAO, developed a sector model and the required analytical system for Tunisia and trained Tunisian economists to use it. The model is a simple one designed for use in small countries without abundant data resources. It needs a minimal computer capacity and few appropriately trained economists. The model should be applicable in 50 countries or more in various parts of the world. In Tunisia it is being used in connection with the preparation of the forthcoming quadrennial plan to assist in annual production planning and in the study of various policy problems.

For the immediate future, the system should be used in Tunisia for basic planning purposes and to give the D/PAEEP experience that will suggest the areas of the system most in need of improvement. It can be expected that needs will be found for more and better statistical data on some aspects of the Tunisian agricultural economy. Experience will indicate whether some of the technical coefficients making up the model can be reconstructed with greater precision. It can be expected that experience with the use of this relatively simple system will lead policy makers to recognize the advantages of access to a more advanced and more productive sector analysis system.

Training Economists for the Ministry of Agriculture

Three aspects of training were incomplete when the Minnesota project ended. Some additional Tunisian economists should be given U.S. training to the M.S. degree. A few of the presently trained economists should be encouraged to continue their professional training through the attainment of the Ph.D. degree in a U.S. university. Finally, the capacity of the National Agronomy Institute's (INAT) Department of Agricultural Economics should be strengthened so that it can produce the agricultural economists that will be needed to staff the D/PAEEP for the future.

Under the Minnesota project, a total of 21 Tunisians were trained in agricultural economics in U.S. universities and returned to service with the Ministry of Agriculture. It would be appropriate now to

carefully examine the staffing needs of the D/PAEEP and to select candidates for U.S. training for the relatively small number of positions now needed but unfilled.

When the Minnesota project was ending, the Ministry of Agriculture discussed with the University the possibility of continuing U.S. training of economists to provide staff for other Ministry bureaus. The Ministry also expressed interest in the development of U.S. training opportunities for other kinds of agricultural specialists as well. This would seem to call for a new project, possibly as a Title XII activity. A special effort should be made to determine the immediate unmet staffing needs of the D/PAEEP, select qualified candidates and send them as soon as possible to the U.S. for training.

It can be expected that the D/PAEEP will find that its senior analysts need training in addition to that received in their M.S. degree programs. It would seem appropriate to consider carefully the present and future work of the D/PAEEP and to determine the number of staff positions that should be filled by highly trained specialists. It is likely that the section leaders and possibly some of the senior analysts should be trained to the Ph.D.

However, before any Tunisians are sent to the U.S. for Ph.D. level training, the government of Tunisia must take steps to provide a level of compensation appropriate for such highly skilled technicians. At the present time the salary structure of the Tunisian Civil Service makes no provision for compensation for such civil servants. Without arrangements for appropriate compensation as Tunisian Civil Servants, Ph.D. level training would serve only to facilitate the "brain drain" from the country.

These arrangements should be a pre-condition to U.S. financing of any Ph.D. level training for staff members of the agencies of the Ministry of Agriculture. In every case, the trainees should take the required course work in a U.S. university and should return to Tunisia to undertake the Doctoral thesis research required.

Steps should have been taken long before now to develop a program of training at the INAT equivalent to the M.S. in agricultural economics. This might best take the form of a "third cycle" program of two years' duration including course work, independent study and the preparation of a thesis based on original research. With some staff development, the Department of Agricultural Economics at the INAT could offer such training.

Some augmentation of the faculty would be appropriate. This should take the form of U.S. training of three or four more additional faculty members in agricultural economics. For an interim period, while the faculty members are being trained, third cycle candidates might best be sent to the U.S. for their course work. They should

return and do their memoirs (theses) at home. It would be useful to explore the possibility of third cycle candidates in agricultural economics taking some course work, particularly in economic theory and econometrics from the faculty of Economics at the University of Tunis.

The INAT should have capacity to produce five to ten economists each year with training equivalent to that of a U.S. M.S. degree holder. Normal attrition in the staff of the BPDA and of other agencies of the Ministry, plus openings in the private sector, should provide that many jobs each year for young economists.

Training Scientists for Agricultural Research

The Ministry of Agriculture is now fairly well supplied with economists to staff its agency for planning and economic analysis. The next most serious staffing weakness probably will be found in the National Agricultural Research Institute (INRAT). Effective planning for agricultural development and effective policy making requires not only good economics but also reliable technical information such as can be derived only from locally conducted research. Improving the productivity of Tunisian agriculture requires, among other things, added attention to research on some of the common productivity problems including soil fertility, plant breeding, plant disease control and animal nutrition. In addition to the traditional forms of agricultural research, there is a great need for study of production systems with research carried on to make the results readily transferable to real-life farming conditions. AID should move aggressively to provide Title XII assistance to Tunisia in the further development of its research facilities for agriculture. Until the practical possibilities for improving productivity have been determined by Tunisian research, the Ministry will be seriously handicapped in developing policies effective in promoting such improvements.

APPENDIX A

RESEARCH REPORTS AND PAPERS

During the life of the project, the Minnesota team produced more than 60 reports and papers for the Ministry of Agriculture of Tunisia. These covered a broad spectrum of subject matter as is indicated by the summary below:

Subject Matter of Papers and Reports of the Minnesota Team in Tunisia

Subject	Number of Reports
Cereals	11
Credit	10
Sector Analysis	8
Olives and Olive Oil	7
Planning	5
Agricultural Development	4
Irrigation	4
Livestock	4
Fruits and Vegetables	2
Project Evaluation	2
Teaching Agricultural Economics	2
Food Demand	1
Food Prices	1
Fertilizers	1
Wages	1
Total	63

These reports and papers are listed on the following pages. Most of them were produced for the use of the Ministry and were not distributed generally. Some were published by the D/PAEEP, or by the University of Minnesota. A few are journal articles.

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