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A PLANNING AND ANALYSIS UNIT
FOR THE JORDAN VALLEY AUTHORITY

By

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A report to the
U.S. Agency for International Development
Amman - Jordan

Contract No. AID/NE-C-1649
Project No. 278-0181-3-70073

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PREFACE

The implementation of a successful monitoring, evaluation, and planning activity for rural development efforts is a slow, tedious, and often frustrating experience. This report is intended to provide implementation guidelines for setting up a Planning and Analysis Unit at the Jordan Valley Authority (JVA). The contents of the report were developed through lengthy meetings with the staff of this new Unit, whose efforts will be largely responsible for its success. The work was completed during the period between 27 August and 14 September, 1979.

JVA's management has made the manpower and resources commitment to the establishment of the Unit. Management's continued support of the Unit will also be crucial to its success. In this regard, special acknowledgments are due to Dr. Munther Haddadin, Senior Vice President; and Dr. Mohammad Adwan, Vice President for Administration, for their help and support. Mr. Isam H. Ali the designated Director of the Unit has been extremely cooperative and helpful in developing the concepts and approaches described in this report, and in setting in motion the mechanisms of implementation. Other members of the Unit's staff are Ms. Maysoon Kahoosh, Ms. Muna Khoury, Ms. Maha Abdul Kader, and Mr. Nayef Muheisen. The author appreciates their cooperation and hopes that they can maintain the momentum generated and level of motivation exhibited by them during his visit. The careful and diligent secretarial assistance of Ms. Julia Hannoun and Ms. Duc Wong has made the completion of this report possible in the short time available.

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A PLANNING AND ANALYSIS UNIT
FOR THE JORDAN VALLEY AUTHORITY

1. INTRODUCTION

The Government of Jordan has placed a high priority on the development of the Jordan Valley: an effort which began in earnest in the late fifties. At that time the design, construction and operation of a major irrigation project in the Valley was initiated by the East Ghor Canal Authority. Since then this Authority has undergone a number of functional, jurisdictional, and institutional changes. The Jordan Valley Commission which was established in 1973, was entrusted with the total social and economic development of the Jordan Valley north of the Dead Sea. This geographic jurisdiction was further extended in 1977, with the establishment of the Jordan Valley Authority, to also include the Southern Ghors and the Wadi Araba, south of the Dead Sea. The present institution is now responsible for the total economic and social development of a narrow strip of land extending from the Yarmouk River in the north to the Red Sea in the south.

Five years after the extension of the functional jurisdiction of the agency to include total rural development, much has been accomplished, using both local funds and foreign loans and assistance. The staff of the Authority has grown, through both increased staffing, re-organization and mergers with other pertinent agencies, to a size in excess of 1800 employees. Many projects are concurrently in progress at a given point in time. These include the construction of irrigation facilities; land distribution; housing construction and allocation; the construction of schools, clinics, other health facilities, and government and community centers; water supply and distribution; power supply and distribution; marketing centers; agricultural extension, experimentation, and training; operation of irrigation facilities; village planning; and many more. The increase in staff, functions, and activities, coupled with the extension of the geographic jurisdiction has placed additional demands within the Authority for descriptive and evaluative information, as well as for policy analytic and planning studies. Such information and studies are continuously being sought by management for the purposes of decision making, and for satisfying the requirements and needs of a variety of foreign and international donor organizations. This has led the Authority to establish a Planning and Analysis Unit (PAU) for the purposes of assisting in the provision of the staff functions needed with respect to the data and analysis requirements of both management and external Jordanian, foreign and international organizations. This report addresses the organization, functions and role of this unit, the initial steps to be taken toward its establishment, and the long-range prospects for its continued existence, effectiveness, and vitality.

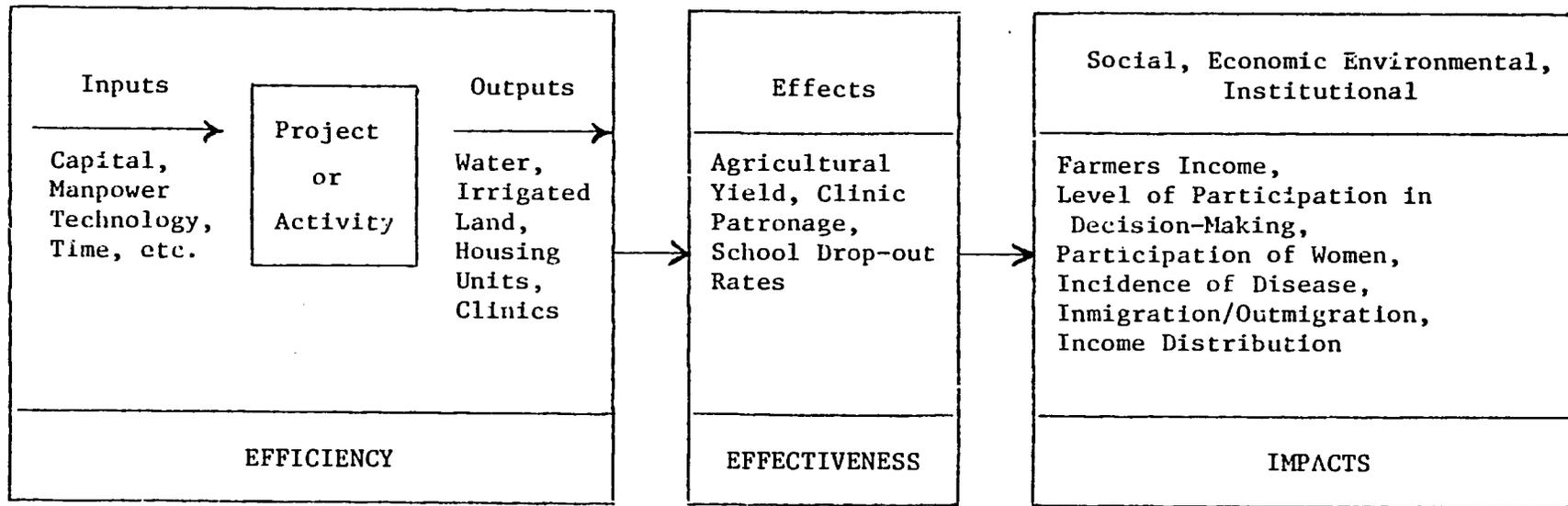
2. A CONCEPTUAL FRAMEWORK

The objectives of the proposed unit are to provide the necessary data and analytical capabilities to (1) allow JVA management to monitor, assess, and improve the efficiency and effectiveness of the organization, (2) provide JVA management and consultants with feedback on the effects and impacts of their projects for the purposes of improving future planning and decision-making, and (3) provide JVA management with the information which is usually required by other governmental agencies and by foreign and international donors. The conduct of these functions requires the building of a statistical infrastructure which is accessible in a timely manner, and an analytical and data collection superstructure which is capable of supplementing the basic data set, and of extracting useful management, planning and policy insights and guidelines from these data.

It is useful at this point to conceptualize the process of monitoring and evaluating rural development projects, to define the terminology involved, and to identify the different types of questions to be asked and for which answers will be sought. Figure 1 presents such a conceptual framework in which a hierarchy of three levels in the analysis of organizational performance is identified. These three levels are:

(1) Efficiency: This level is directed toward the assessment of efficiency in the use of organizational resources. It deals with the monitoring of the relationship between project outputs and inputs. In this context, the emphasis is on the direct input of resources such as manpower, capital, land, technology, and time; and on the direct outputs resulting from the expenditure of these resources. These outputs include such measures as cubic meters of irrigation water, hectares of irrigated land, number of housing units constructed, number of classrooms built, or number of households connected to a water supply system. Efficiency measures are obtained through project monitoring, which is a process in which information concerning a particular project is regularly obtained, and comparisons are made between actual and planned inputs and outputs, as well as between the project under consideration and similar projects completed by the organization. The completion of this task requires a management reporting system, in which a continuous flow of information occurs on the physical, financial and temporal progress of each project. This information should flow from the project manager in the field to the Planning and Analysis Unit (PAU), which in turn makes summaries available to management.

(2) Effectiveness: The efficient production of a good or service does not automatically guarantee that the activity is an effective one: namely that it contributes toward the achievement of its intended goals and objectives. Effectiveness is thus defined as the extent to which an activity contributes to the achievement of organizational and project goals. The availability of irrigation water, for example, does not necessarily result in the achievement of increased agricultural yield. The construction of a clinic or school does not necessarily yield higher clinic patronage or lower school drop-out rates. While project outputs are often



Are resources efficiently utilized?

Are Projects achieving objectives for which they are intended?

What is happening to the total quality of life?

Figure 1: A Framework for Monitoring and Evaluating Rural Development Projects (Adapted from Dajzani, 1978, Ref. 3)

necessary conditions for the achievement of goals, they are frequently not sufficient. A variety of catalytic and contextual factors may also have a significant role to play. While data for the analysis of the efficiency level described above are generated from within the organization, data for the analysis of a project's effects must usually be collected in the field. Special studies are frequently needed to ascertain why the desired effects have or have not been achieved, in order to both provide feedback for future planning and/or to design and implement any necessary corrective measures.

(3) Impacts: Project impacts consist of changes in the general quality of life of the target population and of the characteristics of the region. They include social, economic, environmental, and institutional impacts; and consider such factors as increased income, increased participation in decision-making, changes in income distribution, reduction in the incidence of water-borne diseases, or changes in the rates of in or out-migration. The assessment of these impacts is dependent on the availability of a good longitudinal socio-economic data base, and often requires the conduct of special single or multi-purpose data collection activities, as well as particular issue-oriental studies.

3. SYSTEM IMPLEMENTATION

There is no cut-and-dry approach to the implementation of systems for the monitoring and evaluation of rural development efforts. There are probably as many possible strategies for the implementation of the activities described in the previous section, as there are experiences around the world. Donor agencies have been instrumental in setting up such activities in different countries around the world during the last decade, with mixed results. Variations in implementation strategies hinge around such issues as the institutional setting for the proposed unit, its chain of command and definition of responsibilities, its priorities with respect to the allocation of scarce staff time, the financial commitment of the relevant local and donor organizations, the information needs and absorptive capacity of management, the trade-offs between the quantity and quality of data, the extent to which electronic data processing is utilized, and the extent to which outside contractors are used. Experiences in other parts of the world indicate that irrespective of the strategies used, the task is generally not an easy one. Constraints and bottlenecks abound. These include:

(1) Psychological Barriers: Government officials and decision-makers often do not perceive the need for monitoring, evaluation and analysis. They may even perceive it as a threat and thus be unwilling to give adequate support to a unit performing these functions. There is, in fact, no substitute for wholehearted management support, if such a unit is to succeed. This support must stem from an appreciation of the benefits which management can expect to derive from the information collected and the analyses performed by this unit.

(2) Economic Barriers: It is difficult to quantify the value of information. On face value, management may feel that information is only necessary because the donor organizations ask for it. The perception of the value of information is often underestimated because the information is frequently used in an indirect manner in decision-making and thus it becomes difficult to visualize the outcome of the decision-making process, had the information not been available. The benefits to be derived from a better understanding of the rural development process are hard to quantify, as are the improved insights and judgments of the decision-maker, which results from this understanding. It is generally agreed, however, that an adequate monitoring, evaluation and analysis component can result in significant management, planning and operational improvements. One major international lending organization has recently analyzed the cost of this function in 22 agricultural and rural development projects around the world, and found that these costs ranged between 0.3 and 4.7 percent of the total cost of the project. The average cost was found to be 1.7 percent. The study also found that as a rule of thumb, about half of the resources expended on this activity should go to data collection, while the other half should be spent on data processing and analysis.

(3) Technical Barriers: Technical barriers to the establishment of a successful monitoring, evaluation and analysis capability have generally been found to include (i) the lack of qualified and adequately trained staff, (ii) the lack of data processing and analytical capability, (iii) the inability to provide results in such a timely manner as to be of use to management, (iv) the improper distribution of effort and responsibility within the PAU, (v) the inadequate attention to the determination of data collection and analysis priorities, and (vi) the inability of management to react to the generated information and analyses in a timely manner. Since most of these problems relate to people, both managers and analysts, they perhaps create the most difficult and time-consuming barriers to overcome. They point to the need for careful staff-selection, or for an on- and off-the-job training program, if a pool of qualified personnel is not available. They also call for an allowance for a period of tooling-up and of manager/analyst interaction, which can lead to their mutual understanding of each other's needs and capabilities. The problems associated with electronic data processing have been frequently found to be among the most trying experiences encountered in setting up such units in developing countries. It seems that the best strategy is to postpone the use or acquisition of such equipment until such time when a qualified, competent and experienced staff has been put together, and a set of good quality data has been manually acquired.

The Jordan Valley Authority has decided in the spring of 1979 to set up a Planning and Analysis Unit. The unit is headed by a competent and experienced agricultural economist and staffed by three recently graduated social scientists. As such, a commitment has been made to expend a certain amount of resources on the monitoring, evaluation, planning and analysis functions, and thus many of the barriers discussed above have already been overcome. The challenges which remain, however, include the design of the Unit's responsibilities, the analysis of data needs, the identification of outputs and users, the training of the staff, the determination of priorities in the use of time, the determination of the extent and availability of contractual services, and the development of the necessary analytical skills within the unit. In view of the fact that this is a new effort, and that most of the staff lack the required experience necessary for the immediate launching of a new effort, it is to proceed slowly, in order to maximize the potential for long-run success. The following sections will discuss the priorities of this new unit, the availability of and need for data, and the types of analytic studies which could be undertaken by the unit.

4. DATA NEEDS AND AVAILABILITY

A recent report by Ennis and Hazleton (7) has listed and discussed data requirements in the Jordan Valley Authority. In general, four categories of information needs exist. These are (i) information on land, water, and agriculture, (ii) information on the socio-economic characteristics of the population, (iii) information on the delivery and beneficiaries of social services, and (iv) information on people's beliefs and attitudes. While many of the needed information is in existence in Jordan, there are obvious gaps and problems associated with these data. These include (i) the diversity of sources and the resulting lack of uniformity, (ii) the multiplicity of geographic levels of data aggregation, (iii) the frequent absence of an on-going updating mechanism, with the resulting difficulty in obtaining longitudinal (serial) data, (iv) the poor quality of some of the data, and (v) the complete absence of attitudinal information. It is thus necessary that the proposed PAU attempt to direct its initial efforts toward the alleviation of these five shortcomings, to the extent possible. This suggests that the top priority of the unit is to become a centralized depository of retrievable information on the geographic areas lying within the jurisdiction of the Jordan Valley Authority.

Data on the Valley exists in a variety of formats and are compiled by a number of governmental agencies. These sources, together with the data which they collect and maintain have been described at length in the Ennis and Hazleton report, and they need not be re-described in this report. Suffice it to say that the main source of both socio-economic and agricultural information is the Jordanian Department of Statistics. This Department has not conducted a nationwide population census since 1961, although one is planned for the fall of 1979. A population census was conducted in the Valley in 1973 and in 1978. The results of the former are available (5), while the data processing and tabulation of the results of the latter are presently in process. A general nationwide agricultural census was also conducted by the Department in 1975, and the results were published in 1977 (6). Updated agricultural information is collected by the Department of Statistics through periodic sample surveys, and by the Ministry of Agriculture, through reports from their field personnel. No updating mechanism exists for the socio-economic information. Information on education and health are available from the two responsible ministries, although the latter leaves much to be desired, since the information must be obtained from each of the four governorate seats to which different parts of the Valley are administratively attached. Information on land holdings is available from the JVA's land department, while that on water availability, allocation, and use can be obtained through the JVA's irrigation sector staff in the field. Data on the availability and use of social services must be compiled on a village by village basis by the staff of the PAU, through both site visits and contacts with different JVA departments and such other agencies as the Water Supply Corporation and the Jordan Electricity Corporation. A potentially potent source of information is the Jordan Valley Farmer's Association (JVFA), which can be expected to become one of the major sources of information on farm management, land holding patterns and farmers' income.

A major problem with existing data is that they are reported by different agencies which use different levels of geographic disaggregation. The census provides the information on the basis of 48 villages, with about 22 small settlements being incorporated with their larger neighbors. JVFA data will be available on the basis of 33 "development areas" to which the valley has been administratively divided by the Association. The service ministries provide the information on the basis of the four governorates (Irbid, Balqa, Karak and Ma'an) which have jurisdiction over the Valley. The regional plans which are prepared by the JVA are based on the ultimate development of 34 settlements in the Valley. One of the first responsibilities of the unit must thus be to define the areal subdivisions on the basis of which data will be collected, and to prepare "correspondence tables" between the different subdivision units which are used by the different agencies. A good common denominator for this purpose is probably the 33 "development areas", which could provide a meaningful and useful subdivision of the Valley for purposes of data collection.

Appendix A is adapted from the Ennis and Hazleton report, and is reproduced here to provide a list of the types of data which are available for immediate collection, compilation, tabulation and cataloguing. Included in that Appendix are also the recommended periods of collection and the sources of information. To the extent possible these data should be collected by "development area", using pre-prepared "correspondence tables" for converting non-conforming data, whenever feasible.

5. PRIORITIES

Considering the limitations in manpower and resources, it is necessary that priorities be set with respect to the activities of the new Planning and Analysis Unit. These priorities will have to reflect the needs of the Authority, the needs of external organizations, and the actual capabilities of the unit. Suggestions for implementation strategies and priorities have been outlined in the recent report by Ennis and Hazleton (7). Discussions with the staff of the PAU have led to the development of revised priorities which were felt to be realistic at this time. It was felt that unless a realistic and implementable first step is defined, it would not be possible to achieve the total plan in the long-run. The emphasis was thus placed on the first phase of the plan described below, with the implementation of this phase being periodically reviewed, in order to determine each of the following steps. It should be noted, however, that the Unit is also responsible for the preparation of ad-hoc studies which may be required by JVA management from time to time, as well as the preparation of quarterly and annual reports which are submitted by JVA to the National Planning Council. The Unit has also initiated a management reporting system, which allows it to receive periodic information on the progress of on-going field projects. The time commitment of the staff to the implementation of the proposed scheme is thus not total, a situation which should be appreciated and allowed for in planning the Unit's total work effort.

During the first phase of its operation, the proposed Unit should work on developing a comprehensive and retrievable set of baseline data. This should consist of the manual compilation, tabulation and cataloging of information which has been collected by all relevant agencies in the country. Data items to be collected are listed in Appendix A. Each member of the staff should be assigned a subset of these data, and should be in charge of obtaining the information, determining the periods and mechanisms of updating it, and preparing readily retrievable summaries and tabulations. It is imperative, however, that the unit of areal analysis be determined, that adequate mapping be undertaken, and that standard "correspondence tables" be prepared to allow the aggregation of data which is available on the basis of different geographic areas. It is proposed that the "development area" be used as the standard for data collection, whenever possible. The staff should also continue to compile the "village index", which provides village by village information on socio-economic and service-delivery characteristics. As soon as the results of the 1978 Census are available to the unit, an analysis of changes in key agricultural and socio-economic characteristics of the Jordan Valley between 1973 and 1978 should be undertaken, and a report on changes in these key indicators should be prepared. The Unit should also conduct a study of the changes which have occurred in land holdings, ownership and tenure since the beginning of the land redistribution effort. Data for such a study are available at the Authority's Land Department, to which the PAU staff have been given ready access. The Unit should also pursue its recent attempts at the development of a project management reporting system. It is estimated that with the present staff, the activities described above as a first priority, may take between 10 and 12 months, considering the other operating responsibilities of the Unit.

The second phase in the operation of the Unit, should emphasize the development of a mechanism for filling data gaps and for updating the socio-economic and agricultural information. Experiences in this area indicate that the periodic conduct of a multipurpose household survey is less expensive than the conduct of two or more single-purpose surveys. This is attributed to shared overhead, staff continuity and improved efficiency through experience. Funding should be made available for conducting such a survey on a semi-annual basis. The Department of Statistics which has experience in the conduct of nationwide multipurpose household surveys should probably be the executing agency, which would work closely with PAU staff. The present workload of the Department, particularly with respect to the 1979 Census, may preclude their immediate involvement in this activity, but this situation may change in mid 1980, when the subject should be explored with them.

The possibility of introducing an electronic data processing capability may be considered during this phase. The assessment of this possibility should depend on the extent of success in manual data collection, and on the availability of manpower and other resources. If time permits, and as the demand for special studies develops, some such studies might be initiated, using both Unit staff and outside contractors. These contractors might include the University of Jordan, Yarmouk University, the Royal Scientific Society, and other local or foreign contractors. It is necessary that whenever such studies are commissioned, provision be made for the active participation of Unit staff. This will help provide them with on-the-job training through their association with qualified professionals. A listing of possible topics which may be pursued as special studies is given in Appendix B.

The third phase of the operation of the Unit represents the steady-state situation in which the data are being updated, and selected special studies are undertaken. These studies will be selected by JVA management in response to their own information and policy analysis needs or to the needs of other Jordanian, bilateral, or multilateral donor organizations. A list of possible studies is given in Appendix B. This list should only be treated as an example of the types of issues which seem to emerge with some frequency.

The objectives and steps outlined above stem from a logical progression of activities leading to a steady-state situation. The achievement of these objectives is in no way a trivial matter. The major threshold is the completion of the activities described in Phase I. Without their successful completion, no further progress can take place. Success is dependent on management support and on the competence and motivation of the staff. The lack of experience of most of the newly hired staff may prove to be a real constraint. Their work should be carefully guided by the Unit's director, and opportunities for further training should be explored. This is particularly necessary for those of them who show a real motivation and interest during the initial few months. The addition of one experienced social scientist to the staff may also prove helpful in improving the on-the-job training opportunities of the new staff. It would also be extremely helpful if a few (4-6) lower level field enumerators can be employed, in order to relieve the professional staff from time-consuming data collection work. Needless to say, close supervision and training by the professional staff must be maintained. The possibilities of having the members of the professional staff spend some time with established similar units in developing countries should also be explored.

Table 1

PRIORITIES OF THE PLANNING AND ANALYSIS UNIT

Phase I: Top Priority

Mapping
Correspondence Tables
Baseline Data (see Appendix A)
Village Index
1973-78 Socio-Economic Profiles
Land Tenure Study
Management Reporting System

Phase II: Second Priority

Update Data and Identify Gaps
Design and Implement Semi-Annual
Multi-Purpose Household Survey
Evaluate the Feasibility of Introducing
Electronic Data Processing
Initiate special studies, as needed
(see Appendix B)
Management Reporting System

Phase III: Steady-State Situation

Continue Data Update
Special Studies (see Appendix B)
Management Reporting System

6. CONCLUSIONS AND RECOMMENDATIONS

(1) The monitoring, evaluation and analyses function is an indispensable part of any agricultural and rural development effort. It serves the purposes of both management and donors, and provides the necessary feedback for the improvement of future planning.

(2) The Jordan Valley Authority has taken the major step of deciding to set-up a Planning and Analysis Unit. The Unit is headed by a competent and experienced director, and has a staff of three promising recently graduated social scientists. The addition of one experienced social scientist and a few (4-6) field enumerators will improve the effectiveness of the Unit.

(3) In a report prepared by Ennis and Hazleton (7), an information system for the JVA was laid out. Their report, now 22 months old, still provides good guidelines for the operations of this Unit. This report strongly endorses their recommendations, and suggests that their report be read in conjunction with this one, by all persons involved in the operation of this new Unit.

(4) An ambitious plan has been set up for this Unit. There is no substitute, however, for taking the first step: the collection of baseline data. A phased implementation of priorities is suggested in this report. The staff have started to collect the baseline data: responsibilities for different data items have been assigned, and contacts with other agencies have been initiated. Work has also started on the development of a "Village Index". It is of utmost importance that the momentum which has been generated be maintained. Perhaps the best way to maintain it is to provide continued management support in order to maintain a high level of motivation and morale. Management support must include assistance in obtaining information from other JVA sectors, as well as such support services as transportation, drafting, and staffing.

(5) The process of getting this unit to the point where it serves the purposes for which it was established, is not an easy one. The first year represents the most critical period. The Unit will need all the patience, support, and guidance it can get during this period of time.

(6) The possibilities of contract research must be explored and local expertise identified and tapped for the performance of the required special studies. This activity should be conceived as serving the dual purpose of conducting the needed studies and providing the new staff with on-the-job training.

(7) The major problems with available data include the absence of a unified areal disaggregation system, the existence of some gaps in the data and the absence of a continuing updating mechanism. The first problem must be immediately attacked by the selection of a base for such a system, and the conversion of data to that base, whenever possible. The second and third problems could be alleviated by designing and conducting a semi-annual multipurpose household survey. This should be done in cooperation with the Department of Statistics, during the second phase of the Unit's operation.

(8) The appraisal of the need for, and possibility of, the use of electronic data processing should be deferred until the second year of operation. The decision will then hinge on the extent of success in the achievement of the goals set for the first year, and on the availability of trained personnel and resources.

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Appendix A*

DATA ITEMS AVAILABLE FOR IMMEDIATE COMPILATION

Including suggested period of collection
and potential sources of data

Abbreviations:

- ACC - Agricultural Credit Corporation
- HB - Housing Bank
- JCO - Jordan Cooperative Organization
- JVA - Jordan Valley Authority
- JVFA - Jordan Valley Farmers' Association
- M² - Square meters
- MOA - Ministry of Agriculture
- MOE - Ministry of Education
- MOH - Ministry of Health
- PADCO - Planning and Development Collaborative International
- SES - Designates the use of the baseline social and economic survey as provided by the Department of Statistics
- SHS - Designates the use of a semi-annual household survey or similar on-going data collection
- SS - Designates the use of a special study to obtain the data item
- UNRWA - United Nations Relief and Works Agency
- WSC - Water Supply Corporation

* This Appendix is adapted from Ennis, Janis, and J. E. Hazleton, An Information System for the Jordan Valley Authority (JVA). Report to the Agency for International Development. Washington, D.C., January 1978. Most of the adaptations resulted from detailed discussion between the author and the staff of the Planning and Analysis Unit.

Appendix A

DATA ITEMS AVAILABLE FOR IMMEDIATE COMPILATION

1. Information Pertaining to Agriculture

<u>Data Items</u>	<u>Period of Collection</u>	<u>Data Source</u>
<u>Land Holdings</u> *		
1. Number of agricultural holdings, by area.	Baseline, yearly update	Census, land ownership records
2. Size of agricultural area holdings, by broken down by size class (range in dunums).	Baseline, yearly update	Census, land ownership records
3. Number of dunums, by area owned by single persons, and number owned jointly, broken down by number of owners.	Baseline, yearly update	Census, land ownership records
4. Number of land holdings, by area broken down per ownership.	Baseline, yearly update	Census, land ownership records
<u>Tenancy Status</u> *		
1. Number of agricultural holdings, by area, by type of tenancy (i.e. owner-operated, share-cropped, leased for cash).	Baseline, yearly update	Census, land ownership records
2. Size of agricultural holdings, by area, by size class and tenancy status.	Baseline, yearly update	Census, land ownership records

* JVFA will be the main information source in the future.

<u>Data Items</u>	<u>Period of Collection</u>	<u>Data Source</u>
<u>Cropping Pattern</u>		
1. Number of dunums, by area devoted to various types of crops (e.g. cereals, vegetables, fruits) by specific crops, by growing season.	Baseline, yearly update	Census, JVA (irrigation)
<u>Inputs</u>		
1. Water allocations, consumption, sources by area by month.	Baseline, yearly update	JVA (irrigation)
2. Number of dunums under irrigation, by area.	Baseline, yearly update	JVA (irrigation)
3. Agricultural extension by area including activities services, demonstrations, training for sprinkler and drop irrigation.	Annually	MOA/JVA (irrigation)
<u>Outputs</u>		
1. Annual crop production, by area by crop, and type of irrigation.	Baseline, yearly update	MOA and JVA (irrigation)
2. Annual animal husbandry activities by area and type.	Baseline, yearly update	MOA
<u>Credit Information</u>		
1. Loan applications received.	Monthly	JVFA - Credit Department, ACC, JCO
2. Loans extended, by amount, purpose, Development District, and month.	Monthly	JVFA - Credit Department, ACC, JCO
3. Loan repayments, defaults, by Development District, by size of land holding.	Monthly	JVFA - Credit Department, ACC, JCO
4. Loan processing time, by Development District, by month.	Monthly	JVFA - Credit Department, ACC, JCO

<u>Data Items</u>	<u>Period of Collection</u>	<u>Data Source</u>
<u>Marketing Information</u>		
1. Amounts of crops reaching the wholesale market, by type of crop, and month.	Monthly	MOA
2. Prices received at the wholesale level, by type of crop and by month.	Monthly	MOA
<u>Irrigation and Farming Methods Irrigation</u>		
1. Type of irrigation (drip, sprinkler, surface) and farming methods (plasticulture by type, uncovered) by area.	Baseline, yearly update	MOA, JVA (irrigation)
2. Delivery of Social Services		
<u>Housing</u>		
1. Number of units planned, by type, by village.	Quarterly	JVA
2. Number of units completed, by type, by village.	Quarterly	JVA
3. Number of new units occupied and vacant, by type, by village.	Quarterly	JVA/ Housing Bank
4. Characteristics of new housing occupants, by type of housing and village.	Quarterly	JVA/ Housing Bank records
a. Size of family and composition (age, sex, marital status, and relationship to head of house).		
b. Previous residence (location of village or town, type of house).		
c. Occupation and employment of members.		

<u>Data Items</u>	<u>Period of Collection</u>	<u>Data Source</u>
d. Income		
e. Terms of sale (1) amount of loan, if any (2) other conditions		
5. Length of residence in new housing unit.	Annual	JVA/ Housing Bank
6. Number of month completed housing vacant by village.	Quarterly	JVA/ Housing Bank
7. Number of new housing units started within the designated areas in village by type and village. (Information on type of housing should include material of construction, number of rooms, bathroom and kitchen facilities, connection to water, electricity and roads).	Quarterly	JVA records
8. Number of new housing units completed within designated areas in village by type and village.	Quarterly	JVA records
9. Number of housing units started and completed outside designated village areas by location (plot No.) and planned use of land, i.e., agriculture, service, badland, other, and type.	Quarterly	JVA records/ observation

Schools

1. Students		
a. Number of students enrolled by sex and level within school (kindergarden - secondary).	September and November	MOE

<u>Data Items</u>	<u>Period of Collection</u>	<u>Data Source</u>
b. Number of students completing year by sex and level within school.	May	MOE
c. Number of students taking exam by sex and level. (1) passing (2) not passing	May	
d. Number of children of school age by age and village.	Annual	SES - 1978 and supplement
e. Number of children of school age attending school by level and age.	Annual	SES
2. Teachers		
a. Number of teachers by sex and school.	September and May	MOE
b. Training of teachers by sex, and level teaching and school.	September	MOE
c. Years of teaching experience in sex, level teaching and school.	September	MOE
d. Current residence of teachers by sex, level teaching and school. (1) location (2) plans for future	September	MOE/JVA
3. Facilities (all schools in the valley should be included and the administrative association of each noted (MOE, UNWRA, private)).		
a. Total number of classrooms (new and old)planned by school and level of school (cycle)	Annual	JVA(Planning)

<u>Data Items</u>	<u>Period of Collection</u>	<u>Data Source</u>
b. Total number of classrooms under construction by school and level of school (cycle).	Quarterly (May, June, Dec.)	JVA (Construction Management)
c. Total number of classrooms completed (new and old) by school level of school (cycle) (or completion).	Quarterly	JVA (Construction)
d. Existence of support facilities by school and level of school (cycle). (1) libraries (2) recreation (3) offices	Quarterly	JVA (Planning/ Construction)
e. Completed building area by level and school.	Annually (Sept.)	JVA (Construction)
f. Distance to each level school from village center.	Once	JVA

Health

1. Facilities

a. Number of planned health facilities by type and location.		JVA/MOH
b. Number of existing facilities by type and location.		MOH
c. Number of facilities under construction by type and location, and percent completed.	Quarterly	JVA
d. Number of facilities completed construction by type and location. (1) equipped (2) equipped and staffed (3) neither equipped nor staffed	Quarterly	JVA/MOH

<u>Data Items</u>	<u>Period of Collection</u>	<u>Data Source</u>
2. Staff		
a. Number of staff by position, sex, residence (in or near facility, another place in valley, outside valley) by facility and location of facility.	Annually	MOH by Governorate
b. Training of staff by sex, age and position by facility and location.		
3. Services		
a. Number of duty hours weekly of various operations within clinic/doctors, nurses, etc.	Annually	MOH by Governorate
b. Number of hours weekly (by position).		
(1) in houses within region	Annually	MOH by Governorate
(2) working at another facility of travelling		
c. Public health educational program conducted.	Annually	MOH by Governorate
(1) hours by type within the facility		
(2) hours by type outside the facility		
d. Number of	Annually	MOH by Governorate
(1) vaccinations by type		
(2) referrals to hospital		
4. Access		
a. Record distance from each village center to clinic of each type (and hospital).	Once/as each facility completed	JVA
5. Health Conditions		
a. Reports on mortality by cause	Annually	NOH by Governorate

<u>Data Items</u>	<u>Period of Collection</u>	<u>Data Source</u>
b. Reports on mortality by area, cause, age.	Annually	MOH by Governorate

Public Utilities

1. Water Service

a. Number of planned HH water service and connection, by type, by village (and area outside village).	Annually	JVA records
b. Number of new connections HH, by type, and by village.	Annually	WSC records
c. Existing household water service by type, by village, and area outside villages.	1973 (PADCO) Baseline (1978) Annually (est.)	PADCO SES SHS
d. Normal hours of service (weekly) by village.	Annually	WSC records
e. Number of hours of disrupted service past month.	Annually	WSC records

2. Electrical Service

a. Number of planned public HH Connections by village (and area outside village).	Annually	JEA/JVA plans
b. Number of new public HH connections by village and area outside village.	Annually	JEA/JVA records
c. Existing household electrical service by public or private service, by village and area outside village.	Baseline 1978 Annually	SES 1978 SHS
d. Normal hours of services weekly by village.	Annually	JEA records
e. Number of hours disrupted service in past month.	Annually	JEA records

<u>Data Items</u>	<u>Period of Collection</u>	<u>Data Source</u>
3. Communications		
a. Number of planned telephone connections by village and area outside village.	Annually	JVA records, Telecommunications
b. Number of existing telephone	Baseline 1978	JVA records

Public Facilities

1. Roads, Streets, Parking		
a. Percent of completion of roads and streets within planned village area and existing houses.	Quarterly	JVA records
b. Quality of access within village to	Annually	SS
(1) schools (by level)		
(2) community and government buildings		
(3) commercial centers		
(4) health facilities		
c. Quality of access to other communities, by village.	Annually	SS
d. Quality of access to farm lands/market, by village and development area.	Annually	
e. User, non-user complains and suggestions.		
2. Local Government Offices, Community Centers and Business Center		
a. Planned construction of facility by village, (M ²), and type.	Annually	JVA
b. Completion of construction of planned facilities by (M ²), type and village.	Annually	JVA

<u>Data Items</u>	<u>Period of Collection</u>	<u>Data Source</u>
c. Existing (including newly constructed) facilities, by M ² type and village and use (in past month) <ul style="list-style-type: none"> (1) offices - (organization), number of employers (2) meeting halls (3) hours of use in past month <ul style="list-style-type: none"> (a) social (b) religious (c) educational (d) sports - recreation (e) health 	Annually	JVA/ Municipal records or SS
3. Business by type and number of employees cooperative store. <ul style="list-style-type: none"> a. Complaints and suggestions of residents concerning services. 		Municipal records/SS
3. Socio-Economic Characteristics* <ul style="list-style-type: none"> <u>Household Characteristics</u> (for each member) <ul style="list-style-type: none"> a. Household membership b. Relation to head of household c. Sex d. Date of birth e. Place of birth f. Marital status g. (1) When did you move to this house? (all members) (month/year) 		

(2) Where did you move from?

in East Jordan Valley
(village)

in East Jordan not
the Valley (village)

outside East Jordan
(village)

h. Residential history of head of household

(1) 1973 in the Jordan Valley
(village)

(2) 1967 in Jordan (East Bank),
not the Valley (village)

(3) 1948 outside Jordan (country)

i. Deaths of the household members in the past year?

(1) ages at death

(2) cause

(3) sex

j. Educational attainment

(1) can read?

(2) can write?

(3) school attendance now?

(a) which school?

(b) level ___?

k. Fertility

(1) How many live births in the past year?

(2) Of those born alive, how many are still alive today?

l. Health

(1) Immunizations for children by type, in the past year?

(2) In past three months how many times has household member been to or visited by medical person?

- home visit

- hospital

- clinic.

Type A, B, C

(3) What health problems causes the most concern?

m. Economic and activity

(1) Working, seeking work, student, keeping house, unable to work.

(2) Occupation.

(3) Employment status
(employee, government or private, self-employed, unpaid family worker, other.

(4) Location of employment

(a) outside the Valley
(city name)

i. How do you get there?

(b) in the Valley

i. Village name _____

ii. Distance? _____ m.

n. Household income (non-agricultural workers)

(1) This should include not only wages, salaries, profits, etc., but also remittances from relatives, pensions, rental income, etc. for the entire household. This topic is a very complex and difficult one, especially for workers in the agricultural sector. At this point I will not attempt to cover the issues involved.

(2) Contact with agriculture extension agent.

Period of
Collection

Housing Characteristics

1. Structure Baseline,
yearly
update
 - a. Materials of construction
(walls, roof)
 - b. Age
 - c. JVA built.
2. Size
 - a. Number of rooms
 - b. Number of rooms used for
sleeping
3. Tenancy
 - a. Owned or being bought
 - b. Rented for -
amount of rent
 - c. Rent free
 - d. Other
4. Location (see household code)
 - a. Within designated village
area (JVA)
 - b. Outside designated village
area
 - (1) agricultural land
 - (2) Badlands
 - (3) Other
5. Is there electricity available
in house?
6. Source of light (electric, gas,
kerosene, other)
7. What electrical appliances do
you have?
 - a. Water pump
 - b. Refrigerator
 - c. Radio
 - d. Television
 - e. Water heater

- f. Stove
 - g. Heater (for house)
 - h. Fan
 - i. Air conditioner
8. Separate kitchen
9. Type of sanitary facility
- a. Inside or outside
 - b. Flush, pit privy, water seal, other
10. Domestic water supply (no irrigation or gardening)
- a. Piped
 - (1) inside, outside
 - (2) number of outlets
 - b. Note pipe
 - (1) stream, river, pool spring
 - (2) water truck
 - (3) canal
 - (4) well
 - c. Who fetches water
 - d. How much time is spent each day?
11. If water is piped which of the following facilities do you have?
- a. Bath tub (installed) ___ No.
 - b. Shower ___ No.
 - c. Sink ___ No.
 - d. Clothes washing machine ___ No.
 - e. Water heater ___ No.
12. Do you have a telephone?
- a. for yourself
 - b. share with a neighbor
 - c. none

Transportation

Household ownership of:

1. Cars
2. Trucks (not tractors)
3. Motorcycle
4. Bicycle

Appendix B

EXAMPLES OF TOPICS FOR SPECIAL STUDIES

I. Land, Water and Agriculture

1. Study of changes in land tenure, holdings and ownership 1960-1980.
2. Study of the rate of, and conditions leading to the adoption of new irrigation technologies.
3. Objective evaluation of the aptitudes, attitudes, needs, incentives and effectiveness of agricultural extension workers.
4. Variations in conditions of tenancy and their impact on production (i.e. production incentives), income of farmer and owners.
5. Comparison of the increased yields in the North Ghor area (from previous irrigation projects), with those in the South Ghor area (newly irrigated).
6. Characteristics of farm laborers (hired, not family workers or tenants) -- income, migration patterns (internal and external), living conditions, use of services, alternative employment; intention to remain in Valley.
7. The change in the role of the commission agents and other informal institutions in the Valley.
8. Changes in agricultural practices (1978-1982) and before and after studies of selected JVA projects.

II. Social Structure and Service Delivery

1. The role of women in the labor force, and the impact of expected changes in that role on family, marriage, education, services, etc. The aptitude and interest of women in different new types of agricultural and non-agricultural employment.
2. Study of the impact of electrification of the villages on living conditions and the willingness of people to remain in the Valley, night time use of educational facilities, providing more diversified entertainment (radio, TV, films).
3. Changes in the educational system and in attitudes towards the system. Problems of co-education, drop-out rates, accessibility, industrial and agricultural curricula.
4. Survey of non-Valley residents concerning their knowledge of the Valley development program and their interest in settling there.
5. Characteristics of new housing unit occupants by type of unit (private, public, inside or outside designated village population areas). Income, occupation, family size, residential history, education.
6. Complaints and suggestions concerning accessibility and quality of services provided (water, electricity, community facilities, roads, education, health services).
7. Comparison of the demographic, social and economic characteristics of the Valley residents with the same characteristics of the Jordan (based on Census data).
8. Social and economic characteristics of land owners. Longitudinal changes in these characteristics.
9. The role and importance of community participation. Attitudes towards different levels of government.
10. Socio-economic conditions of foreign labor in the Valley, and the impact of labor and service delivery policies on the future of foreign labor and land reform.

III. Economic Studies

1. Study of government employees working in the Valley (JVFA, JVA, MOE, MOH, MOA, etc.) with respect to their residence, commuting time, desire for housing in the Valley, opinion of the attractiveness of the Valley for other professionals, salary levels,
2. Migration patterns of the economically active population in the Valley -- how many members of the household are working outside the Valley, outside Jordan; how many have ever lived abroad.
3. Seasonal variations in labor force availability and participation.
4. Household expenditure study (this will be useful in determining equitable rate structures for utilities and services as well as markets for private sector projects.)
5. Changes in income and income distribution in the Jordan Valley. Comparisons with other areas of the country.

Compiled from a variety of sources including Hazleton and Ennis (7), Silver and Ennis (10) and a memorandum by M. Fikry to AID/Amman, dated 11 March 1979.