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INDUSTRIAL ADVISORY SERVICES AND TRAINING

DP/JOR/87/009

JORDAN

Technical report: Computerization in support of industrial planning*

Prepared for the Government of Jordan
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of Karen E. Wieckert, data base consultant

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CONTENTS

This report covers the activities undertaken by Ms. Karen E. Wieckert, Consultant on Data Base to the Ministry of Industry and Trade, Amman- Jordan from 3 August to 7 September 1989. The activities were carried out within the framework of Project JOR/87/009-- "Industrial Advisory and Training Services". This project aims at strengthening the capabilities of the Ministry to support industrial planning and development in the country. The Data Base consultant's goal is to establish a computerized integrated industrial information system which supports industrial planning, development and monitoring.

TERMS OF REFERENCES

The Terms of Reference regarding the first period of the mission of the Data Base consultant are:
1. Appraise the existing capacity and capability for data processing, including computer hardware, software, supporting services, and trained personnel;
2. Formulate a plan, strategy and target for developing and strengthening an industrial data base; and
3. Prepare specifications and recommend equipment to be purchased for the computerized data base.

Upon completion of this period of the mission the Data Base Consultant is expected in the second period to:
1. Set-up a computerized industrial data base and carry out group and on the job training of national officials in operating the data base system; and
2. Prepare a final report setting out the findings and recommendations to the Government on further action which might be taken.

DESCRIPTION OF THE MISSION

The Data Base consultant arrived late in Project JOR/87/009. During the time between the original project formulation and the arrival of the Data Base consultant many aspects of the Ministry changed. With regard to computerization, the Ministry created a Directorate of Information and Studies to begin computerizating the Ministry's basic information functions. This process is a

1

necessary prerequisite to the development of a computerized, integrated industrial information system to support industrial planning, development and monitoring. However, the process is not completed and requires an overall vision for implementation. In accord with Term of Reference No. 1, "appraise the existing capacity and capability for data processing, including hardware, software, supporting services and trained personnel," the Data Base consultant found it necessary to turn attention to needs and requirements for insuring implementation of the basic information functions. In accord with Term of Reference No. 3, "Prepare specification and recommend equipment to be purchased for the computerized data base", the Data Base Consultant has recommended hardware expansion strategies, personnel requirements, and managerial functions needed to implement the current software development effort. Thus, Term of Reference No. 2, "Formulate a plan, strategy, and target for developing and strengthening an industrial data base", and the specification of the data base, were only partially met.

These last Terms of Reference may be met during a second mission period. However, the existing information processing capabilities must be considerably enhanced, upgraded, and supported for such a mission to be successful. Further, given the extensive needs for information gathering, this mission period should be extended to a minimum of three months. It is unlikely that even in such an extended mission period the Data Base Consultant could specify and implement an information system to support industrial planning, as well as train national officials on its use. Serious consideration should be given to creating a long-term position on information processing support or making the Data Base Consultant a long-term position. In accord with these findings, the following discusses options for revising the Data Base Consultant's position.

REVISION OF DATA BASE CONSULTANT'S TERMS OF REFERENCE

The original terms of reference for the Data Base Consultant require either:

1. A previously installed base of computerization and trained personnel; or

2. A longer mission duration for analysis, specification, implementation, development, and training to allow for the creation of such bases.

Recommendations:

Given that Requirement One does not hold within the Ministry, the Terms of Reference and Requirements for the Data Base Consultant as originally formulated in JOR/87/009 should be revised in order to meet the dynamics of the Ministry's current situation. The revisions should reflect the following requirements, although the list is not exhaustive:

1. The Data Base Consultant should be reformulated to be a long-term advisory position for information processing (minimum 1 year) and recruitment and placement should take place as soon as possible; or

   The Data Base Consultant should return only after the successful implementation of the initial phase of software development, recommendations contained in Chapter Two, and expansion in the hardware base (See Section on Hardware Expansion). Even after these implementations have been successfully completed, the mission duration should be extended beyond the original one month period -- minimum 3 months; and

2. The consultant should be either fluent in Arabic or have access to translation services for documents and interviews. This requirement aids in analysis of the activities of data collection, monitoring and verification which provide timely, accurate and reliable information to the database. Many Ministry personnel in essential positions with regard to these data activities have limited English capabilities.

GENERAL FINDINGS AND RECOMMENDATIONS

In appraising the existing capabilities and capacities, very specific and essential activities should be undertaken to ensure successful implementation of the current software development and allow for its enhancement and expansion for industrial planning purposes. Chapter two of this report reflects some of these essential activities but under the constraints of a limited mission period, should not be considered complete. The recommendations in Personnel requirements include recruitment of a system manager to oversee the current development, support and maintain its operation upon completion, develop training personnel, and eventually enhance the initial system. This individual is vital to the Ministry, and efforts by UNIDO, UNDP,

and the Ministry should immediately focus on his/her recruitment. Consideration should be given to revising the Terms of Reference of the Data Base Consultant to a long-term consultant in information processing to meet this requirement.

Enhancing the personnel base through training and recruitment is recommended in other areas as well. Current management should be further trained in computer science and particularly management of information systems. Hardware support should be enhanced through further training of current personnel and recruitment of additional personnel during hardware expansion. Training should be undertaken for personnel in all Directorates, on the use of current software, personal computer applications, and communications facilities. Plans for developing in-house training capabilities should be undertaken. Finally, the Ministry should begin further analysis of operations and procedures which requires the systems analysts be recruited immediately. Plans for developing an in-house capability in analysis should be undertaken.

Chapter Two also includes recommendations for policy changes with respect to computerization which will help insure timely and reliable information, as well as increase the efficiency and effectiveness of operations. In particular, analysis of the operations and procedures in the Directorates should be done in order to: distribute data functions into the Directorates, allow access to information from all Directorates, and disperse computing capabilities. In the Section on the Preliminary Analysis of Operations and Procedures in the Directorate of Trade, a first assessment is offered for integrating computerization into the Directorate's functions. This analysis should lead to an expansion and upgrade to the current software under development. Finally, Chapter Two includes a recommended hardware expansion to aid in enhancing the Ministry's information processing capabilities internally and coordinating with outside entities.

The Data Base Consultant also reviewed the existing capabilities and projected plans for information processing within various entities in the Ministry's environment. The general findings and recommendations of these activities are reported in Chapter Three. Important information sources for industrial planning currently exist, and the Ministry should begin to interface and interact with these sources. Specifically, the Ministry should take a lead role in establishing standards for information classification and data collection through their envisaged role

in a national standards bureau and through membership on various inter-Ministry Committees. The Ministry should become directly involved in the Administration of the National Information System and should focus on developing a Branch Administrative officer across the Directorate of Information and Studies and other appropriate Directorates. The Ministry should immediately collaborate with the computerization efforts underway in the Chamber of Industry and the Jordan Commercial Centers Corporation. Finally, the Ministry should negotiate with various other entities collecting information on establishments, such as the Industrial Development Bank and the Department of Statistics, in order to obtain information on establishments which is useful for industrial planning purposes.

Finally, the Data Base Consultant's mission period overlapped with the Industrial Planner and Chapter Four contains suggestions concerning computerization support for the recommendations of the Industrial Planner. In general, these suggestions rest upon requirements of up-to-date, reliable, detailed information on establishments within the various industrial sub-sectors. Further information must be collected and collated across sources, which requires development of standards and mechanisms for smooth information flow. Again, for the Ministry, these requirements point back to insuring successful implementation of the basic software system currently under development and integrating their efforts with other entities.

Annex one is the Equipment Budget for recommended hardware expansion to support basic information activities in the Ministry, and Annex two includes various questionaires obtained from other groups.

STRENGTHENING THE CAPACITY AND CAPABILITY OF INFORMATION PROCESSING

CURRENT SITUATION

Computerization within the Ministry is in its initial phase, with hardware installation and software development beginning in March 1989. The current hardware configuration includes centralized computer installation -- a VAX 3000-- and IBM compatible personal computers. Two of these PCs are used for word-processing outside of the central computer installation. The rest are used for data entry purposes, and could be replaced by terminals and re-deployed outside of the central computer installation. There are no communication capabilities to the central computer installation from outside the Directorate of Information and Studies or from outside the Ministry.

The software under development is database capabilities for basic information functions within five Directorates. Registration, Trade, Standards and Specifications, and Companies. The software development began in March and the contract runs for another 1.5 years approximately. The data base being used in ORACLE with all programmes residing on the VAX 3000. The software is being developed separately for each Directorate and so far integration of requirements and data across Directorates has not been considered. Also, all data entry into the database is centralized and therefore no computerization to support the software development has yet been deployed outside of the Directorate of Information and Studies.

The current software development effort has been difficult to assess because it is still in its early stages and because no document tracking the specification and its changes have been maintained. The basic information to be computerized and maintained in the data base is available in Arabic, but does not reflect all of the current plans. However, these documents suggest the information which will be available upon completion of the initial phase of software development.

*NOTE: *This Chapter corresponds to Term Of Reference No. 1, "Appraise the Ministry's existing capacity ard capability for data processing, including hardware and software, supporting services and trained manpower.*

This phase has been developed, installed and supported through contracts with outside consultants, and the plan for the initial phase represents a good foundation of hardware and software. A good foundation requires solid implementation, and current plans urgently require focus on overall coherence and effective strategies for implementation, maintenance, support, integration, coordination and future expansion. If attention is not given to these aspects, operations on the software foundation are seriously jeopardized. These observations do not substantially reflect on the capabilities or decisions of the consulting entities used to date by the Ministry, and the recommendations in this report should allow for their efforts to be effectively completed, supported and enhanced. The observations reflect partly upon collective managerial, budgetary, and operational decisions made within the Ministry and other supporting entities. More resources in both personnel and computer hardware and software, as well as changes in managerial and operational decisions could substantially enhance and upgrade the information processing capacities and capabilities within the Ministry, and allow for the development of effective industrial planning.

PERSONNEL REQUIREMENTS

The Ministry views computing as essential for the support and enhancement of their activities and services and ambitious plans for the computerization of the Ministry's basic operations are warranted. However, current plans and strategies for computerization do not include the development of a trained base of personnel who can manage, support, maintain and in the future upgrade the initial phase of hardware and software. Without such a base of personnel, the Ministry may not expect to maintain the initial phase of computerization, and ambitions towards developing effective computerization for support of industrial planning are not supportable.

Management of Computing

The Ministry has been constrained in its efforts at computerization by managerial, budgetary, and operational decisions. These decisions may adversely effect implementation, support and maintenance of the initial phase of software. In particular, the Ministry requires a base of trained personnel

within the Directorate of Information and Studies. This base needs development in addition to the current consultant relationships, not as a replacement to these relationships.

In particular the Ministry, requires enhancement of its basic managerial experience with computing. This enhancement would help develop a fundamental understanding of the possibilities, limitations, and special management needs of computerization in the Ministry.

Recommendations:

1. Current managerial personnel within the Directorate of Information and Studies should obtain training in general computer science and management of information systems. Consideration should be given to Executive Training programs which emphasize training managers in the details of computing management and oversight; and

2. In the future, it is advised that every Director within the Ministry receive such Executive Training in management of information systems.

System Manager

Upon completion of the current phase of software development, a system manager able to support, maintain, train and upgrade the system will not be resident in the Directorate of Information and Studies. An individual with computing experience should be recruited to "mature" with the system. By observing the development, partaking in the responsibility of implementation, and knowing the history of organizational justifications and decisions regarding the on-going computerization process, this individual apprentices to the expertise of the consultants and can mature into a system manager after the consultants have finished. The individual should train end-users directly on the use of the system and develop system trainers within a Training Division in the Directorate of Information and Studies. These trainers can eventually train end-users in other Directorates (see Subsection on Training Personnel). Also the System Manager can be considered as a technical liaison for aiding the Ministry in another project -- DR/RAB/86/001, "Regional Arab Program for the Development of Subcontracting."

Recommendations:

1. **Immediately**, the Ministry should hire (or contract with on a full-time, extended basis) an individual with undergraduate training in computer science or related disciplines (e.g.. mathematics, operations research, or informatics);

2. The individual should apprentice to the current outside consultants to enhance his/her own expertise and become familiar with the particulars regarding the current software development;

3. The individual should become the System Manager of the current software development upon the completion of the initial phase of software development; and

4. After additional training in databases, specifically in ORACLE and d base products, the individual should be responsible for upgrades to the current system and act as the technical liaison to contract DP/RAB/86/001 -- "Regional Arab Program for the Development of Subcontracting."

Hardware Operations

The current hardware support is focused only on the central computer installation. The growing needs and demands of end-users within the Directorates for services on the current hardware installation and software development will soon exceed the abilities and capacities of the current operator. Current personnel should be upgraded through training in basic computer operations and hardware. Additional personnel should be recruited to help support the growing diversity of personal computers and networking. These personnel can aid in effectively implementing hardware support and maintenance agreements with outside entities, and should not replace these agreements.

Recommendations:

1. Current hardware support operations personnel require enhancement though additional training in basic computer operations and hardware;

2. An individual with skills in the support of a diversity of personal computers should be recruited;

9

3. In conjunction with the network installation, an individual
    with undergraduate training in computer science emphasizing
    hardware and preferably networking should be recruited (see
    Section on Hardware Expansion). Like the System Manager
    recommended for software development, this individual should
    apprentice during the network installation and be trained on
    the specifics of the network installed; and

4. These personnel should aid in implementing support and
    maintenance contracts with vendors and should not be viewed
    as replacements to these relationships.

Training Personnel

The Ministry should focus on the development of in-house training
capabilities to train end-users on: the software system under
development; personal computers and their applications; and use
of networking and communications capabilities. In particular, as
computing distributes outside the Directorate of Information and
Studies, increasing use of word-processing, spread-sheets,
scheduling and small database programs will follow. The two
personal computers currently used for word-processing required
the training of secretaries/typists on the particular program,
WORDSTAR. Directorate personnel will wish to use other programs
available for personal computers and access basic information
sources inside and outside the Ministry. (See Chapter on
Information Sources Outside the Ministry). Analysts inside the
Directorates who wish to use the information available in the
developing software system will need to be trained on methods for
querying data bases, creating reports, etc. Also if data entry
moves from its centralized point and into the Directorates,
personnel will need to be trained on data entry and verification
operations for the current software development (See Section on
Data Entry). The Directorate of Information and Studies should
relieve the stress and bottleneck of centralized data entry and
facilitate the distribution of skills into other Directorates and
to the directly responsible and interested end-users. Also, in
anticipation of growing computer use, an in-house training
capability will be less expensive and more effective than relying
on outside training facilities. Training personnel during their
day-to-day routine is more effective because the connections to
their work are more direct. However, until such a Division is
available, extensive in-house training by outside entities should
be undertaken to upgrade the skills of all Directorate personnel.
This outside training should accompany the introduction of

personal computers during the next phase of hardware upgrade (See Section on Hardware Expansion), and should focus on the use of the software system currently under development.

Recommendations:

1. **Immediately**, the Ministry should contract for in-house training services. Personnel in the Directorates, including Directors, supervisors, analysts, secretaries and typists should be trained on the use of the software system currently under development. This training should include methods for data verification and monitoring procedures for query and analysis upon the installed data base, and procedures for entering, correcting and up-dating information; and

2. The Ministry, in anticipation of growing personal computer use, should contract for in-house training programmes on personal computer applications, including basic computer operations, and word-processing, spread-sheet, and simple data base use. Training by outside entities should be undertaken to upgrade the skills of all Directorate personnel. This outside training should accompany the introduction of personal computers during the next phase of hardware upgrade (see Section on Hardware Expansion).

3. In the future, the Directorate of Information and Studies should create a Division responsible for in-house training. Recruitment of personnel for this Division should consider the various hardware and software services which the Ministry is developing, including personal computers and their applications, analysis on the software under development, and communications;

4. Personnel should be available in the Training Division to train end-users in the Directorates on data operations to the basic software programs currently under development. Current data entry personnel may be able to fill these positions with further training. (See Subsection on System Manager);

5. Personnel should be available for training end-users, including general Directorate personnel, secretaries and typists, on personal computer applications, including word-processing, spread-sheets, and databases; and

6.   In the case of word-processing, consideration should be given to upgrading current personnel's capabilities in English through English language courses.

Systems Analysts

Efforts should be undertaken in the Ministry to effectively integrate computerization into the operations and procedures of the Directorates. This integration is essential for effective and efficient utilization of computerization.   To insure reliability of information, analysis from the point of data collection (i.e., a field representative monitoring an establishment's production capacity) to the point of data entry must be conducted.   (See Section on Rationalization of Procedures to be Supported by Computerization).

The Directorate. of Information and Studies should have the capability to conduct such analyses for other Directorates, and integrate these analyses with the computerization being developed and implemented.   Further, these analysts can assist the personnel recommended for support and development of strategies for industrial planning.   (See Chapter on Integration of Computerization with Industrial Planning).

Recommendations:

1.   As soon as possible, The Ministry should contract with or hire analysts to begin rationalization of the procedures and operations within the five Directorates currently in the initial phase of software development.   (See section on Preliminary Analysis of Operations and Procedures in the Directorate of Trade).

2.   The Directorate of Information and Studies should recruit systems analysts to perform on-going analyses of organizational operations and procedures to be supported by computerization in all Directorates; and

3.   These analysts should become technical liasons to the Inter-Directorate Committee on computerization (See Section on Information Integration and Coordination);

RATIONALIZATION OF PROCEDURES TO BE SUPPORTED BY COMPUTERIZATION

Computerization can not be viewed as simply a support function. To take advantage of its capabilities for enhancing the effectiveness and efficiency of services, procedures and operations which will be supported by the computerization must be analyzed and re-organized.

Analysis should be conducted _with_: the individuals directly involved, (i.e., personnel handling and processing company registration, import/export licenses, etc.); Directors/ supervisors of the particular units in which the procedure is located; and others with interests in the information being computerized (i.e, individuals from other Directorates who require the information, members of outside entities interested in the information, etc.). This analysis should also be conducted _between_ Directorates. An Inter-Directorate Committee to coordinate information flow, standardize classification schemes, raise problems of data reliability, and suggest additional information needs should be formed. This Committee should be used by analysts connected with the Directorate of Information and Studies to identify information requirements and set specifications for computer applications within and across Directorates (See Section on Personnel Requirements -- Systems Analysts). Even beyond the internal workings of the Ministry, coordination between the Ministry and groups which require and supply information is also necessary. (See Chapter on Information Sources Outside the Ministry).

Analysis may or may not lead to change in the procedures and operations within Directorates. Each analysis should be accompanied by a specification document to which all above mentioned parties can refer during the computerization process. This document should be prepared before programming is started and updated frequently to reflect on-going changes, difficulties, and up-grades in data collection and entry, output requirements, and Directorate procedures and operations. The document must be understandable to non-computer literate individuals so they understand the information they must produce and the information they will receive. Without such communication devices (documents, committees, etc.) users and programmers will frequently miscommunicate and computerization will not be effectively integrated into on-going operations.

Recommendations:

1. Each Directorate should undertake a thorough analysis of their operations and procedures to be supported by computerization. This analysis should be conducted by representatives within each Directorate in conjunction with analysts connected to the Directorate of Information and Studies, i.e., employees, consultants or outside experts. (See Section on Personnel Requirements -- Systems Analysts);

2. The analysis in 1. should produce a specification document which reflects the rationalization and computerization of the Directorate's operations and procedures. It should track initial specifications, on-going and rejected changes, extent of system completion, extent of data entry, etc. This document should not consist of a list of computer inputs and outputs only. It should include specifications for methods of data collection, entry and verification by Directorate personnel, requirements for integration with procedures and operations performed by individuals within the same Division and Directorate, and with those outside the immediate Directorate, etc. (For an example, see Section on Preliminary Analysis of Operations and Procedures in the Directorate of Trade.);

3. Current software development should be expanded and enhanced to take advantage of these analyses and to integrate computerization into the Directorates. (See Equipment Budget for Estimated Cost);

4. The Inter-Directorate Committee on computerization must track each Directorate's specifications as well as specifications for coordination and information flow between Directorates (See Section on Information Coordination and Integration.); and

5. The Ministry should enhance their involvement in Committees concerned with information flow beyond their boundaries (See Section on Information Coordination and Integration, and Chapter on Information Sources Outside of the Ministry).

DATA ENTRY

Currently the Ministry's policy decisions regarding data entry centralizes all of this activity in the Directorate of Information and Studies. This strategy reduces the efficiency and effectiveness of computerization not only within each Directorate but also within the central computer installation. Information is transcribed from paper form to computerized form and repeatedly entered. Repeated transcription and entering of information wastes time, but more importantly, greatly reduces information reliability. The loss of reliability jeopardizes the foundation of information the Ministry requires to effectively pursue industrial planning and serve Jordan's private sector. The seriousness of this point cannot be minimized. The Ministry should consider changing its policy for data entry and take actions to distribute these functions into the Directorates.

A simple example will help illustrate the point. When an owner arrives at the Directorate of Registration to register a new establishment, information is collected on a written registration form. - An individual in the Directorate of Registration collects these registrations, transports them to the Directorate of Information and Studies, and the forms queue into the centralized data entry function. The original written form can reflect errors introduced by the owner or the Directorate of Registration's employee who transcribed the information onto the written form. Transporting the forms from the point of their creation, (the Directorate of Registration), to the point of their entry (the Directorate of Information and Studies), is time-consuming. Also, they can be mis-routed or lost. Once in the Directorate of Information and Studies registration forms queue with all other data entry tasks in the central computer installation, which causes further delays. Most important, the data entry personnel in the Directorate of Information and Studies do not know the function of the information they are entering and cannot spot obvious errors. They cannot verify the reliability of the information by checking the registration information with the owner. They can make simple transcription errors. Also, data entry is tedious work, and personnel are prone to high turnover rates and physical ailments.

A more efficient, effective and reliable solution is to enter data at the point of its creation. The data is transcribed only once. There is no delay for it to be entered into the computer. The bottleneck of centralized data entry is by-passed. In the previous example, the owner is there to verify that the

registration form is correct. Copies can be printed immediately, given to the owner, and routed to other appropriate entities. Collection of all new registrations into one list is done automatically and immediately. Notification of new registrants and their files can be routed automatically to other Directorates with computer access.

Other added benefits of distributing data entry to the directly responsible parties are:

1. It forces analysis of procedures and operations at the local Directorate level. This can lead to refining these procedures and operations, and increases their efficiency and effectiveness;

2. It forces the Directorates to consider appropriate procedures to support computerization, and subsequently information flow, reliability and utilization;

3. It distributes appreciation for the benefits and limitations of computing to all Directorates; and

4. It allows solutions to information problems to arise from the Directorates themselves, relieving stress on the central computer installation and creating better operations based on local needs and constraints.

Current personnel within the Directorates can receive in-house training on methods of data entry, verification, correction procedures and other functions useful in their work. (See Section on Personnel Requirements- Training Personnel). They do not need to be programmers; only trained users. They also do not need to be specific data entry personnel. Current personnel responsible for writing registrations, checking licenses, monitoring the progress of establishments, etc. should be responsible for data entry, verification, and correction whenever possible.

Recommendations:

1. Data entry, wherever possible, should be distributed to the entities and individuals closest to the data creation in the Directorates;

2.   Methods of data collection, entry, monitoring, verification
     and correction should be established for each data entry
     point in the Directorates.   These methods should be
     established, standardized, and monitored by individuals from
     the Directorate of Information and Studies in collaboration
     with personnel in the Directorates;

3.   Personnel in the Directorates responsible for the procedures
     on the software system must be trained in-house on the
     specific systems they will use.   They do not need to be
     programmers;

4.   The Directorate of Information and Studies should develop
     training facilities for the programs they are developing.
     (See Section on Personnel Requirements   --   Training
     Personnel); and

5.   The Ministry must purchase a hardware base which allows for
     distribution of procedures on the software system into the
     Directorates (See Section on Hardware Expansion).

INFORMATION COORDINATION AND INTEGRATION

The current development within the Ministry has not focused on
standardizing the classification schemes for   various   data
collected. For example, no unique identification number is given
to an establishment to track it through the Ministry.
Considerable efforts at the top-level should be devoted to
reviewing,   supervising,   standardizing,   and   coordinating
classification schemes for integration across Directorates within
the Ministry, and between the Ministry and other entities.

The Directorate of Information and Studies should be   the
coordinating body within the Ministry. However, in order for the
Directorate to meet computerization requirements in the Ministry
there   should   be   an   Inter-Directorate   Committee   with
representation from all Directorates in which standards can be
set.   All Directorates must agree that keeping information
up-to-date and correct is essential.

A simple example of the need for standards will help illustrate
the point.   Every establishment must register within the
Directorate of Registration.   That Directorate assigns a
registration number and keeps a file on the establishment.   This
file contains information such as the establishment's name,

17

address, telephone number, and contact person, as well as general information about finance, etc. This registration number uniquely identifies the establishment and could be used to follow it through other Directorates. For example, when an establishment registers as an importer, they are assigned an importer registration number. If the unique registration number is also included in the importer file, information from the registration file can be used to automatically fill-in the shared data, such as name, address, etc. This saves time and reduces errors, because the information doesn't need to be input again from the importer registration form. More important, if any information has changed, the registration file can be updated and all other files pertaining to that establishment can then access this up-to-date information.

If an individual from the Directorate of Industry must contact the establishment for monitoring purposes, up-to-date information is available in the establishment's registration file. This then saves time and effort for this individual who would not have otherwise had access to the new information. This is only one example. In general, the Ministry, all Directorates and all employees require reliable and up-to-date information, and thus the Ministry must focus on procedures which insure this reliability. This reliability and timeliness is an essential base for effective industrial planning. Computerization can support this reliability only if organizational procedures and standards for entering, updating, classifying and monitoring data are in place.

Standard industrial classifications are used throughout Jordan, although unfortunately not a single one. The Ministry should focus on standardizing their classification schemes in order to meet internal needs and also to integrate and coordinate with the various schemes used by other entities in Jordan. For example, presently the Customs Department uses a different classification scheme for import/export commodities than the c'assification scheme used by the Statistics Department in the Annual Industrial Survey. The Ministry should take advantage of the policy guide lines laid out in the Five Year Plan for Economic and Social Development 1986-1990, and use their position within a national standards bureau to standardize and enforce classification schemes (See Chapter on Information Sources Outside the Ministry), as well as their representation on other inter-Governmental and private sector Committees. In the Annual Industrial Survey and the Five Year Census, the Statistics Department uses the International Standard Industrial

Classification (ISIC) system, although to a level of detail which is too general for the needs of the Ministry. However, within certain Directorates, such as the Directorates of Companies and Industry, ISIC should be used for classifying industrial sectors/sub-sectors and input/output commodities. Within the Ministry, these commodities should be classified in greater detail than within the Statistics Department. This requires good techniques for collecting, as well as entering, up-dating and monitoring information (See Section Personnel Requirements— Systems Analysts).

The Directorate of Trade currently uses the Customs Department's classification scheme, which seems a necessary policy. However, the Ministry should consider ways to translate between these two different classification schemes in order to integrate information across Directorates. This translation should be accomplished automatically within the central computer installation. Further, the central computer installation should make a computerized form of all classification schemes available for access during data entry. Standard classification schemes are also available for countries, tariffs, etc. Again, the Ministry should decide on standard classification schemes for all information to be used across all Directorates.

Recommendations:

1. Establish an Inter-Directorate Committee concerned with computerization in the Ministry. Creating a working sub-committee of the Planning Committee to oversee computerization could possibly accomplish this need;

2. The Committee should consist of at least one representative from each Directorate and the Administrative Offices of the Minister and Secretary General;

3. The Committee should be chaired by the Director of the Directorate of Information and Studies. Systems Analysts within this Directorate should be technical liaisons to the Committee (See Section Personnel Requirements— Systems Analysts);

4. The Committee should meet regularly to monitor current and on-going computerization efforts, and to develop plans for future computerization expansion and upgrade;

5. _Immediately_, the Committee must set standards for methods of information classification, monitoring, collection and entry. Specifically, the Committee should set standards which facilitate information coordination and integration across Directorates, such as unique numbers to track establishments; and

6. The Committee should address issues relating to integration and coordination of information across the boundaries of the Ministry.

The Ministry should make available and utilize information from entities outside of the Ministry. In the Chapter on Information Sources Outside the Ministry, a number of entities with information available for use by the Ministry and with needs for information from the Ministry are identified. Issues regarding standardization, supervision, monitoring, coordination, and integration pertain as well to these entities and their information sources.

Recommendation:

1. The Ministry should strengthen its representation in inter-governmental committees and committees with governmental and private sector representation;

2. The Ministry should focus on and stress issues of standardization of information classification schemes, collection and monitoring techniques, etc. across the various governmental and private sector entities;

3. The Ministry should increase its role in the National Information System (NIS) and set-up a Branch administrative entity for the NIS across the Directorate of Information and Studies and other appropriate Directorates; and

4. Specifically, the Ministry through the national bureau standards envisaged in the Five Year Plan should take action on standardizing, monitoring and enforcing classification schemes.

PRELIMINARY ANALYSIS OF OPERATIONS AND PROCEDURES IN THE DIRECTORATE OF TRADE

The Directorate of Trade is one of the five Directorates involved in the initial phase of software development. Data base files and programmes are being developed to: record importer/ exporter registration information and import/export licensing. To date, the computerization effort has not considered the operations and procedures conducted internally within the Directorate. Instead, registrations and licenses are generated in essentially the same manner as before and a copy is routed to the central computer installation to be entered by data entry personnel.

Entrying this data in the central computer installation creates inefficiencies, reduces the reliability of information, and fails to take effective advantage of computerization. To this end, it is recommended that a thorough analysis of the Directorate's operations, procedures and personnel be conducted with the objective of integrating computerization directly into the Directorate's activities. The analysis should create specifications for computer programmes but most importantly specifications for personnel activities to interface with these programmes. The analysis should also consider training requirements for the personnel interfacing with the programmes.

Further, because the Directorate functions depend upon activities in other Directorates such as Registration and Industry, the analysis should consider methods for integrating the Directorate of Trade activities with other Directorates. In the future, this analysis can also aid in developing an information system for industrial planning by connecting information regarding sub-sector and establishment import and export capabilities, machinery and raw material requirements, employee training needs, etc. This connection must integrate information from the Directorate of Trade with information on sub-sectors and establishments created in other Directorates e.g., (Directorates of Companies and Industry) and entities (e.g., Industrial Development Bank, Department of Statistics), and information on markets also created in other Directorates and entities (e.g., Directorate of Economic Operations and the Jordan Commercial Centers Corporation). The planned integration however requires analysis of data operations in the Directorate of Trade, data requirements for these operations, location of data for these operations, methods for integrating the required data, etc.

The following preliminary analysis attempts to set the framework for a more complete and thorough analysis.

Current Operations

To register as an importer, an individual must visit a room within the Directorate is responsible for creating and checking the import registration of a company. The same operations are conducted for exporters, although fewer personnel are currently required for the export process, including registration and licensing. This room currently has two individuals responsible for registrating and checking importers. To register, an importer fills out a registration card, the responsible Directorate employee assigns a number and enters the importer in to a book and issues an importer identification card. All of this is done by hand and no information regarding the establishment's files in the Directorate of Registration, Industry, Companies, etc. are consulted or updated. Even within the Directorate of Trade, if the establishment had previously registered as an exporter, this file is neither consulted nor updated. The written registration form is collected and sent for data entry to the central computer installation.

To import, an establishment must first be registered. The importer fills out an Import Request Application Form and brings that to the individual responsible for checking registered importers. The individual checks the book of registered importers to insure that the importer is registered and checks whether the importer has registered in his/her local municipality. The municipality check is done either through a list or an identification card presented by the importer. If the importer failed to register, a penalty fee is added again, the checkers do not check whether any importer information has changed, such as telephone number, address, etc..

After the registration check, the importer proceeds to a room where individuals check:

1. Whether the goods are prohibited for import.
2. whether the value of the goods and freight costs are written properly.
3. The origin of goods-- country.
4. The shipping origin-- country.
5. The quantity/ weight of goods.
6. The place of clearance.

22

These individuals sign the request and pass it on to one of three final authorities.

The final authorities assign the appropriate fees to the import request. Sometimes, the fees are assigned only after clearance from the Directorate of Industry. The fee structure includes, exempt goods, 1% of total request or 5% of total request, and 2% penalty if the importer is not registered in his /her municipality. The importer then takes the request to the cashier for payment. Once the cashier's receipt is obtained the importer must have authorization from individuals who double-check the fee and insure the cashier's receipt is correct.

At this point, the request form is hand-written on to a license form. This function is currently done by sic clerks who handle approximately 400 licenses on a heavy day for a total of 250. Each license is

numbered sequentially from the beginning of the year, and includes 4 carbon copies. Each clerk keeps a separate hand-written list of the license numbers, importer name, amount and value of gcods, and other miscellaneous information. Clerks write out five licenses at a time to be sent to individuals who check their transcription. After this check, the final authorities check the license and sign the license for the importer.

At this point, the importer has an official license and receives that copy. The original request form goes to the Directorate's Information Center, where the request is saved for 2 years under the importer's registration number. Currently there are approximately 5900 importers. The importer has one year to receive the goods and can also return to apply for two, four month extensions.

The remaining four copies of the license go to an individual who routes three copies to the appropriate entities, including the Industrial Development Bank. The other copy is sent to a coder in the Directorate of Trade who checks the product, the countries of origin and shipping, the tariffs, etc.. and codes them according to the appropriate schemes, e.g., Brussels commodity code, Department of Statistics country code, etc. These codes are written onto the license copy and this final form is routed to the Directorate of Information and Studies for entry into the central computer installation. Similar procedures requiring fewer individuals are followed for exporters and export licenses.

Recommendations

The current operations and procedures within the Directorate of
Trade have developed over many years, through many different
Directors and employees. It represents historical organizational
decisions which in retrospect are not always immediately
understandable to outside analysts. However, many obvious points
of data entry and verification could be enhanced through the
introduction of computerization.

1.   Registration and checking of importers could be more
       effectively accomplished by individuals at computer
       stations. For example, an importer could approach with only
       his/her importer or unique establishment registration number
       (See Section On Information Coordination and Integration).
       The checker could call up the appropriate file, and request
       an import form could be printed out with the importer's
       information filled in, i.e., telephone number, address,
       etc.. Much of this information would be available from the
       registration file filled out when the establishment
       originally registered. Thus, on the spot the importer can
       correct and update important information about his/her
       establishment. These changes can either be made directly by
       the registration checker or a change form can be routed to
       the Directorate of Registration or other responsible entity.
       This change form can even be routed automatically in the
       computer if the registration checker inputs the information.

       Registration in municipalities probably will not be
       available on the computer. However, an importer's file can
       reflect whether the importer has been cleared for the
       current year, insuring that the check does not have to be
       done each time an importer requests a license during one
       year. Other efficiencies, verification procedures, and
       changes may be forthcoming. The point is that this
       operation can not only be more effectively and efficiently
       handled, but it can also serve as a point of information
       verification and up-date which insures timely and reliable
       information for personnel in other Directorates. It also
       facilitates the application procedure for the importer.
       Similar operations and benefits apply to export registration
       and checking.

2. The clerks who transcribe the request form information onto
    the license could input this information directly into a
    license file.   The savings in time for these clerks alone
    would be substantial.
    a. The license form could be printed after these clerks
        finished the input procedures and would still be
        available for checking and verification in the present
        manner;
    b. The original request could be considered the form which
        follows the importer through the process and these
        clerks would be the final station before the importer
        received his/her authorized license; or
    c. If the process in further streamlined, all checking
        could be accomplished through the computer.
    When a license is input, it can be routed to the
    appropriate checker, authorizer, or cashier, business
    conducted or changes made, and then routed onto the next
    function.

    The actual decisions regarding the appropriate role of
    verification, authorization, checking, etc, must be done
    after further analysis under close supervision by systems
    analysts, current software developers, and personnel
    effected, and the Director of the Directorate of Trade.
    However, this preliminary discussion should suggest that
    substantial savings are possible and numerous points for
    insuring data reliability are available.

3. Coders could take the licenses in the computers and match
    them with computerized lists of the various data fields.
    Each coder could quickly convert the written description
    into the appropriate code. This coding could also be
    accomplished by the clerks entering the request information.
    This would be particularly useful for collecting detailed
    information on exports and imports. The detailed information
    could be obtained by asking the importer/exporter for more
    detailed descriptions of the goods. If the clerk entering
    the items could work through an already available list of
    goods with the importer/exporter, the information coded
    would be more detailed and specific.   Coupled with
    industrial sub-sector classifications of the establishment,
    quantities of imports/exports, etc., this detailed
    information would form a solid base for industrial planning
    purposes.

These three suggestions are not complete nor are they exhaustive of all possibilities in the Directorate of Trade. The analysis must also consider what training would be required for the individuals using the software. It is preferable that the training be conducted by the software developers and analysts in direct contact with the individuals involved during their daily routine. This makes the learning more immediate and connected. This analysis also assumes hardware capabilities which distribute computing outside of the Directorates of Information and Studies. The next section considers the expansion necessary for this distribution.

HARDWARE EXPANSION

General

The current hardware installation within the Ministry forms a solid foundation for expansion. The next phase of hardware upgrade should:

1.   Build upon the strategy employed for choosing the current hardware configuration;

2.   Allow for future expansion to support other basic information needs within the Ministry, such as finance and personal computing,

3.   Strengthen and expand current capabilities and capacities for processing reliable and timely information; and

4.   Support the integration and coordination required to perform industrial planning.

Requirement Four forms the foundation on which the recommendations of the Industrial Planner and the Data Base Consultant can be implemented. However, Requirement Three is an essential, and as of today unmet, prerequisite for support of Requirement Four.

To these ends, the next phase of hardware upgrade and expansion should encompass two objectives:

1.   Develop communication capabilities to entities outside the Ministry; and

2. Distribute computing capabilities into the Directorates through networking and establishment of local computing arrangements.

The current strategy for meeting information needs within the Directorates is to collect and enter all data created locally in the Directorates, at one central point in the central computer installation, (See Section on Data Entry). This strategy also covers connections with outside information sources. All access to computerized information available outside the Ministry will come to the central computer installation. In order to expand and strengthen the information processing capacity and capabilities within the Ministry, the central computer installation must be placed in the appropriate position vis-a-vis the needs of each Directorate. The current centralized plan will soon swamp the capacity of the central computer installation. Indeed there are signs that this is already happening. Objective Two of hardware expansion will help alleviate the growing strains and constraints on the central computer installation and deliver needed computing capabilities to Directorates within the Ministry.

Communications Outside the Ministry

The Ministry requires communication facilities in order to connect with other installations located outside of the Ministry, e.g., the Jordan Commercial Centers Corporation, the Information Centers within the Ministry of Planning, and the Royal Scientific Society. (See Chapter on Information Sources Outside the Ministry).

This capability would facilitate the flow of information between the Ministry and other entities and connect the Ministry to on-going and developing information sources. This can contribute valuable data for current and projected planning functions within the Ministry. These connections also increase the visibility and voice that the Ministry has in policies outside the Ministry.

To meet these needs, the following hardware equipment is required (See Section on Equipment Budget for costs):

27

a.   Modem (at least 2400 Baud)
     Note: A 4800 baud modem would be preferable, although
                the cost is considerably greater.   9600 baud is
                not recommended unless it is attached to a clean
                dedicated telephone line.   Amman's telephone
                system currently supports at most 4800 baud.

b.   Telephone Line.
     Note: The line should be direct to the Ministry and not
                connected through the internal telephone exchange.
                The present internal exchange is incapable of
                supporting clean data transmission.

c.   Cabling

This hardware equipment is required for each communication
connection.   At minimum, the Ministry should immediately connect
the central computer installation with one line and preferably
three.   Many Directorates could profit from these capabilities
being available locally, e.g., Directorates of Investment
Services and Economic Operations.   It is highly recommended that
consideration be given to distributing these capabilities to some
Directorates, either through direct connections or through
connections to the central computer installation through network
access.   Those Directorates not involved in the first phase of
computer development should receive added consideration for these
capabilities.

Communications Inside the Ministry

The Ministry requires communication capabilities between the
Directorates and the Directorate of Information and Studies.   The
central computer installation is concentrating its efforts too
heavily upon data entry and must turn its efforts and attention
to information services and support.

To this end, it is highly recommended that the Ministry install a
network to connect the Directorates with the central computer
installation. This is a considerable undertaking and the Data
Base consultant cannot alone breakdown its various components and
costs.   This must be done in direct consultation with the current
computer consultants.   However, it is vital that computing
capabilities be distributed out of the central computer
installation and into the Directorates.

The network chosen must be as general as possible, even if this means extra initial cost. The Ministry should be able to expand its computing capabilities along multiple hardware lines, including IBM, Apple, Digital Equipment Corporation, etc. In order to support such a mixed environment, the Ministry must closely analyze, supervise and monitor their choice of network capabilities. Every Directorate within the Ministry should be provided with network capability, particularly those not within the first phase of computerization. This requires that each Directorate have local computing capabilities (See Sub section on Personal Computer Expansion), ethernet connections, and network hardware/software for at least one local computer in each Directorate.

The hardware/software requirements include (See Section on Equipment Budget for costs):

a. Ethernet board for the VAX;
b. Ethernet boards for each computer connected to the network;
c. Network software for the VAX and computers connected to the network;
d. Ethernet cable throughout the Ministry's building. (Note: Consideration must be given to a possible move to a new building); and
e. Bridges along the ethernet where necessary to boost data transmission.

Personal Computer Expansion

At minimum, each Directorate must have local computing capabilities. Additional personal computers and printers should be purchased immediately (see Annex on Equipment Budget for costs). These personal computers should be deployed in each Directorate to support secretarial/typing services and the basic information functions of each Directorate, including data entry into and analysis upon the current software system under development.

The Ministry currently is standardized to IBM. Each Directorate will need different computing capabilities and an assessment of the computer configuration for each Directorate should be conducted. The Data Base Consultant, in consultation with the Ministry's Computer Consultant, has estimated the local computing needs for each Directorate. These numbers are minimum numbers, and upon further analysis should be upgraded. Also, these

numbers do not include local computing needs required for meeting
the recommendations of the Industrial Planner, which include the
creation of new Directorates and functions. The computing needs
to meet these recommendations are included in the Chapter on
Computerization Support for Industrial Planning.

The hardware expansion has been broken into two phases. In the
first phase every Directorate should have at least one personal
computer with network access capabilities. This requires
additional hardware and software for these computers. Each
personal computer should be equipped with at minimum 2MB of
internal memory, 20MB of disk storage and a floppy disk reader.
Each computer station requires its own printer although for the
second phase, each computer needs printing capabilities not
necessarily a separate printer. The arrangements depend upon
the particular functions of the local computing arrangements.
Word-processing, spread-sheet, database, etc. applications should
be deployed to each of these personal computers, in-house
training should be undertaken to assist end-users on these
packages (See section on Personnel Requirements -- Training
Personnel), and documentation and manuals should be locally
available for end-users.

CHAPTER THREE *

INFORMATION SOURCES OUTSIDE OF THE MINISTRY

GENERAL

Policy recommendations within the Five Year Plan for Social and Economic Development: 1986-1990 "envisage the adoption of a new follow-up System based on the establishment of a computerized integrated information network that would link the monitoring department in the Ministry of Planning with the planning departments in the various Ministries, institutions and Governorates." (p.115) The Ministry of Industry and Trade should plan to coordinate and integrate its computerization efforts with this overall effort. The Ministry is in a key position with regard to standardization of classification schemes for information and follow-up on establishments. Efforts should be focused on establishing standards internal to the Ministry and integrating and coordinating these standards with other entities involved.

As mentioned in the previous Chapter-- Section on Information Coordination and Integration, the first essential step the Ministry should take to aid in coordinating and integrating information flow is to enforce a unique identification number for establishments, specifically the establishment's registration number. As discussed previously, this enforcement would increase the efficiency and effectiveness of operations internal to the Ministry, as well as increasing the reliability of information collected on establishments. However, even more essential, this unique number would allow information to be easily collated from various other sources collecting information on establishments. This collation is essential for studying the contribution of individual establishments in sub-sector performance. It also makes the most effective use of data collection activities across the various Governmental, semi-Governmental, and private sector entities by distributing efforts on data collection and allowing the Ministry to effectively use personnel resources of other entities.

* NOTE: *This Chapter represents partial fulfillment of Terms of Reference, No.2, "Formulate a plan, strategy and target for developing and strengthening and industrial data base".*

31

It also benefits establishments since fewer entities will request information on their operations, which often leads to repeating the collection activities.

The remainder of this Chapter presents current computerization efforts in various entities within the Ministry's environment and recommends actions the Ministry should take to effectively coordinate with these entities for information flow.

AMMAN CHAMBER OF INDUSTRY

Currently, the chamber is in the midst of its own computerization efforts. Under a grant from US AID, the Chamber is under-going a program of modernization and restructuring which includes the procurement of a management information system. This system includes a database for information on the members of the Chamber. (See Annex II for their Current questionnaire). Further, the Chamber is planning on expanding its operation from Amman to cover all industrial establishments in Jordan. These plans require the Chamber to undertake considerable data collection activities on their current and prospective members in the near future.

The Ministry should begin negotiation and collaboration with the Chamber to: standardize the classification schemes used by the Chamber; oversee their data collection methods and techniques; and share Ministry expertise in data collection. These efforts should aid the Ministry in using the information available from the Chamber, sharing Ministry information required by the Chamber, and ensuring adherence to requirements for export functions carried out by the Chamber. In particular, the Chamber issues Certificates of Origin and must insure that establishments requesting such Certificates are registered as exporters. Methods for allowing the Chamber to easily check the status of the prospective exporter should be developed. In particular, the Chamber should collect the registration number which uniquely identifies the company (See Chapter Two-- Section on Information, Coordination and Integration), and code sub-sectors and commodities along the ISIC scheme. The Chamber also requires up-to-date information regarding customs, tariffs, trade agreements, banned imports/ exports, etc. from the Ministry. The Ministry should enhance its capabilities at tracking, collecting and disseminating this information.

JORDAN COMMERCIAL CENTERS CORPORATIONS (JCCC)

The JCCC is also currently developing in-house computerization capabilities that concern the Ministry. The JCCC is developing communication capabilities with international database and information systems regarding importers. They are also undertaking data collection on Jordanian exporters their products, capacities and capabilities (See Annex II for their questionnaire) and developing an in-house database to match importer requirements with Jordanian export capabilities. Further, through contacts in the countries with Commercial Centers, JCCC is developing specific, detailed information about import requirements in those countries. They expect to extend these efforts to all Jordanian Embassies in the future.

The Ministry's Directorate of Economic Operations should have a particularly close link with the computer operation within the JCCC. The information sources that the JCCC will connect to as well as its internal data base system will be of considerable help in-planning trade agreements and promoting exports. The Ministry should collaborate in data collection activities and suggest standard classification schemes (i.e., ISIC) for each establishment and their input and output requirements. Also, enforcing the unique identification of an establishment and insuring that the JCCC collects this information on the establishments they contact will facilitate the flow of information between the two entities.

INDUSTRIAL DEVELOPMENT BANK

The Industrial Development Bank (IDB) currently has data collection efforts which may prove useful to the Ministry. Every newly registered establishment is contacted by analysts inside the IDB. This effort is made to assess the seriousness of the establishment and to market the services of the IDB. Although some information gathered by the IDB is confidential the Ministry could possibly make use of some of the data gathered. The information would not be comprehensive either, although for sub-sector planning, could prove useful. The Ministry should collaborate with the IDB in data gathering efforts and communicate standard classification schemes that should be employed by the IDB.

33

The IDB also requires information from the Ministry. Currently, they need a list of all newly registered companies. However, in the future, the IDB could be further utilized as a source of aid to industrial establishment and sub-sectors. For example, analysts within the Ministry using information that allows for detailed industrial planning may identify difficulties encountered by certain establishments or sub-sectors. These "sicknesses" may require notification of various sources of "medication," such as loans from the IDB (See Chapter Three of the Report of the Industrial Planner). This level of detailed planning requires increased collaboration and information flow between the Ministry and other entities such as the IDB.

The Ministry should also consider collaboration for detailed studies of particular sub-sectors. By leveraging basic information collected by a number of entities effective studies of capacity and capabilities of sub-sectors can be periodically accomplished.

MINISTRY OF PLANNING

The Ministry of Planning (MOP) currently supports an extensive socio-economic Information Center, which includes a computer installation and economic research unit. This information center is beginning to collate, collect, connect and disseminate important information on the Jordanian economy and industries. In the near future, this center will become a semi-independent entity-- the National Information System (NIS) and will act as a clearing house for information.

National Information System

The plans for NIS include connecting the Royal Scientific Society's (RSS) Technical and Scientific Information Center and MOP's Information Center under the NIS administrative umbrella. NIS would collect information from various Governmental sources, such as the Department of Statistics and other Directorates within the Ministry of Planning, the Ministry of Industry and Trade and other Ministries, and semi-Governmental and private sector entities. The objective is to allow entities to access this collected information and information available from analysis on the collection. The NIS is not envisaged as a site that directly collects data, but instead a site that collects secondary data. As an example, the Information Center in MOP is

currently developing an analysis program which uses the information available over the past ten years from the Department of Statistics Annual Survey. The analysis allows a user to query this information along various lines, such as trends in particular sub-sector production, percentage changes of sub-sector production in total production, etc.. This analysis capability is provided as an addition to the survey statistics.

The NIS is expected to make increasingly more information available from its various sources. The Central Administration of NIS does not include a representative from the Ministry of Industry and Trade among its five permanent members, although five floating members exist. As soon as possible, the Ministry should attempt to appoint a representative to this body.

A number of important justifications support an increased role for the Ministry of Industry and Trade within the NIS.

1. The NIS envisages Branch Administrative entities located at computer and information centers within Governmental Ministries and departments, universities and research units of the public and private sectors. An obvious place for a branch within the Ministry of Industry and Trade is the Directorate of Information and Studies. (See Chapter Two, Section on Information Coordination and Integration).

2. The Five Year Plan includes the establishment of "a national data bank containing detailed information on the macro and micro aspects of various sectors of the economy." (Pg. 131) Although it is unclear where this data bank will reside, it will need to be connected to the NIS. Detailed information on industries at the micro-level will emanate partially from the Ministry of Industry and Trade and its neighboring entities such as the Jordan Commercial Centers Corporations. The Ministry should become increasingly involved in the establishment of this data bank and its connection to the NIS.

3. The Five Year Plan includes the establishment of "A national standards bureau, enjoying financial and administrative autonomy. The bureau will have a Board of Directorates chaired by the Minister of Industry and Trade and composed of representatives of the Government, Scientific Institutions, the production sector and the commercial sector." Although the tasks of this bureau presently center on commodity standardization, the Ministry

should include classification standards as part of its concerns. Thus, through this bureau as well as through the Ministry's other entities, the NIS can be influenced to adopt classifications schemes to facilitate information flow. Impressing standards on this body will ultimately prove useful.

4. The Ministry collects and requires detailed information about individual establishments. Many of the other entities involved in sharing information with the NIS also collect detailed information at the establishment level. Increasing its presence in the NIS may also increase the ability of the Ministry to collate information via establishment. This level of information is essential for industrial planning. The national data bank also requires information at this level. Again, the Ministry should impress upon all entities gathering establishment level data to include the unique identification number given to each establishment when they originally registered in the Ministry.

5. The NIS will collect the experience, computer capability, and trained personnel of a number of separate computer and information centers within Jordan's Governmental and private sectors. This experience can aid the Ministry in its own computerization efforts.

CHAPTER FOUR

INTEGRATION OF COMPUTERIZATION
WITH INDUSTRIAL PLANNING

GENERAL

The findings and recommendations of the Industrial Planner have
yet to be finalized. In this Chapter, preliminary
recommendations for integrating computerization with the general
recommendations of the Industrial Planner are presented. The
most essential requirements for supporting the recommendations of
the Industrial Planner involve insuring reliable, up-to-date and
detailed information on industrial activities. To this end the
recommendations in Chapter Two and Three apply directly to the
support of Industrial Planning. Employing methods of data
collection which produce reliable and detailed information at the
establishment level are essential for supporting planning and
analysis at the sub-sectoral level. Computerization efforts must
integrate closely with collection methods to capture this
detailed information. To insure that the information is
reliable, verification methods facilitated through
computerization should also be developed. Only through concerted
efforts and focus on these methods and their integration and
support through computerization can the required information be
available for industrial planning purposes.

SUB-SECTOR LEVEL

Chapter Three of the Industrial Planner's report, describes the
needs and objectives for a program of sub-sector reviews and
planning coupled with follow-up and monitoring. The need for
development of the industrial sector in Jordan is pressing but
also ripe with possibilities. The complex web of
inter-relationships between industrial units and sub-sectors
means that industrial planning must integrate and collate
information from many sources. All recommendations and
suggestions regarding data collection, verification and
classification pertain to sub-sectoral planning.

The Industrial Planner specifically recommends conducting studies
of various industrial sub-sectors in Jordan in order to assess
their current capacities and capabilities, their requirements
for production, and their possible expansion, enhancement, and

diversification. The methodology laid out for conducting these sub-sector studies includes close coordination between the various entities involved. This coordination effort could be envisaged under the umbrella of the National Information System (NIS) with each entity involved coordinating through an NIS Branch Administrative Unit. (See Chapter on Information Sources Outside the Ministry). Regardless of whether the Ministry choses to become involved in the NIS or the national data bank, coordination for sub-sector planning requires inter-Ministry and inter-governmental/private sector linkages, at organizational and policy levels (e.g., committees, delegations) and at technical levels (e.g., standard classification schemes, data transmission). The Ministry should concentrate on efforts to bring this coordination about.

The methodology further suggests that a "nucleus cell" of analysts be assigned to each sub-sector under study. This nucleus should include systems analysts who can analyze methods of data collection and procedures to incorporate the data into a computerized information system. Chapter Two, Section on Personnel Requirements -- Systems Analysis, describes a division of analysts within the Directorate of Information and Studies who could aid in the sub-sector studies.

One final point regarding these sub-sector studies. The Industrial Planner has recommended that an historical time-series component be included to assess trends in growth, employment, capacities, machinery, etc. This aspect of the study requires close coordination and collaboration with the Department of Statistics in the Ministry of Planning. Although the Information Center in the Ministry or Planning has made available data from the last ten years of the Industrial Census, consideration should be given to analyzing and using "raw" data collected in the Department of Statistics. This data is directly connected to establishments, which allows for assessing regional trends and establishment differences for example. This re-analysis would add a large computer effort to the sub-sector studies, and actions toward implementing these studies should take this component into account.

The Industrial Planner's recommendations also include methods to follow-up and monitor industrial sub-sectors. These aspects are essential for planning and developing industrial production. Computerization developed and utilized for the sub-sector studies

should also be used for follow-up and monitoring. Computerization specifications must therefore take into account continuing operations after the initial sub-sector studies.

REGIONAL OFFICES

Currently, three regional offices for industrial matters are maintained in Karak, Irbid and Zarqa. In the future, the remaining regions may also maintain such offices. As the capabilities and capacities of these offices are increased, needs for effective measures to insure information flow will also increase. For example, to provide the Ministry and other entities with detailed information on establishments in the region requires monitoring cabilities, including personnel and technology. As services to the private sector in the region are disseminated, these same personnel will need information on marketing, regulations, technology, etc. Computerization effort should also plan for future expansion into regional offices in a phased manner. These plans should not only consider hardware, but also collection techniques, methods for integrating the regional data into the central operations in the Ministry, programmes for training regional personnel, software development for use in regional offices, etc. Such a complex expansion involves considerable efforts, and future projects should consider moving computerization to support such strategies for industrial planning.

EQUIPMENT BUDGET

The following budget represents two phases of expansion in hardware for the Ministry. The first phase falls within a budget of approximately $ 50,000, which is the current remaining equipment budget in JOR/87/009. However, the actual requirements in the Ministry are greater than the current budget allocation.

It is assumed that in the future, the Ministry will follow the standard ASMO-449 Arabization scheme, adopted by the Arab League in 1984.

The most important component of the first phase is the network installation. To allow for use of the developing software system in the Directorates, communication capabilities with the central computer installation must be set-up. The network installation allows for this capability plus it supports the expansion of computerization in the Ministry along flexible lines. For example, Directorates have very specific computing needs but most essential is their ability to access the software under development. A general network supports flexibility to include these specific needs in the future. The requirements of flexibility and expandability are most essential, and therefore the network installation should be undertaken under close, direct supervision with current consultants. Requirements for computerization outside of the Data Base Consultants realm (i.e., trademark registration, etc.) should also be considered when installing the network. Further a possible move to a new building should also be considered before network cable is installed.

The following cost for network installation is a rough estimate. The major components have been identified, but issues concerning compatibility with existing and planned hardware components should be studied in-depth. Insuring compatibility may require the purchasing of additional software and hardware, including a separate computer to add as a file server for the distributed personal computers. The following recommendations include a more capable computer to be installed in the Directorate of Information and Studies for converting between file formats and other centralized operations. Possibly this machine should be considered a file server in order to allow for a solid and flexible network installation.

* NOTE: *This Annex corresponds to Term of Reference No.3, "Prepare specifications and recommend equipment to be purchased for the computerized data base".*

Network

	Amount	Price	TOTAL
Ethernet Card for VAX	1	$ 2,500.00	$ 2,500.00
Network Software for VAX	1	$ 8,000.00	$ 8,000.00
Network wirings	300 meters	$ 3.50/m	$ 1,050.00
Bridges Where Necessary			
Consultant Services	3 mnth	$ 1,500.00	$ 4,500.00
3 months labor			

Estimated Cost			$ 16,050.00

Telecommunications

	Amount	Price	TOTAL
Modems-2400 Baud Capability	3	$ 250.00	$ 750.00
Phone lines- Direct	3	$ 350.00	$ 1,050.00

Estimated Cost			$ 1,800.00

Personal Computer Workstations

Option 1

IBM PC or compatible (80286 Microprocessor) $ 2,200.00
- 80286 Microprocessor running at not less than 12 MHZ Clock speed.
- 2 M. Bytes RAM Expandable to 4 M. Bytes
- Real time clock
- Serial and parallel ports
- One floppy 3.5" drive (1.44 M. Bytes)
- One hard disk drive with the capacity of 20 M. Bytes
- Arabic/Latin enhanced keyboard
- VGA video interface
- 14" color high resolution screen
- Should support Arabic ASMO-449.

Option 2

IBM PC or Compatible (80386 Microprocessor) $ 3,200.00
- 80386 microprocessor running at not less than 20 MHZ clock speed
- 2 M. Bytes RAM expandable to 16 M. Bytes
- Real time clock
- Serial and parallel ports

41

- One floppy 3.5" drive (1.44 M. Bytes)
- One hard disk drive with the capacity of 20
  M. Bytes
- Arabic/Latin enhanced keyboard
- VGA video interface
- 14" color high resolution screen
- Should support Arabic ASMO-449

<u>Network Interface Card</u> $ 250.00
Ethernet technical cards with the capacity of
10 M. Bytes that has a 'T' connection

<u>Printers</u> $ 1,000.00
- Bi-Directional with logic seeking in text
  and bit image graphics mode
- 24-Pin, impact dot matrix
- A printing speed of not less than 240 CPS
- Wide carriage (132 Columns)
- Letter quality and draft modes
- Centronics-compatible 8-Bit parallel
  standard
- Serial RS-232c standard at 300,1200,4800
  and 9600 bps serial baud rate
- Automatic single sheet load; push feed tractor.
  Micro adjustment for top of form
- Ability to interface to IBM PCs and the VAX
  3000 series
- Capability to mix print (Arabic/Latin)
  on the same line

<u>UPS - Uninterrupted Power Supply</u>
    - 250 Watts $ 370.00
    - 500 Watts $ 650.00

- Should have the proper protection for the PC from
  blackouts, brownouts, overvoltage, spikes and
  surges
- Transfer time line to battery should not exceed
  (4 ms)
- Transfer time battery to line should not exceed
  (4 ms).
- Input Voltage   220 ± 10%
- Input Frequency   50 ± 2 HZ
- Output Voltage   220 ± 5%
- Output Frequency   50 ± 1 HZ

<u>Furniture</u>
- Table $ 120.00
- Chair $ 100.00
- Data Entry Stands $ 40.00

<u>Estimated Total For</u>:
5   -   80286 workstations $ 20,400.00
5   -   80386 workstations $ 25,400.00

<u>IBM PC or compatable (Tower 80386 Microprocessor)</u>

- 80386 Microprocessor running at not less than
  25 MHZ clock speed
- 2 M. Bytes RAM expandable to 16 M. Bytes
- Real time clock
- Serial and parallel ports
- One floppy 3.5" drive (1.44 M. Bytes).
- One floppy 5.25" drive (1.2 M. Bytes)
- One hard disk drive with the capacity of at
  least 80 M. Bytes
- Arabic/Latin enhanced keyboard
- VGA video interface
- 14" color high resolution screen
- Should support Arabic ASMO-449

Estimated Cost $ 4,700.00

<u>Software Upgrade</u>   3 $ 1,500/mth $ 4,500.00

<u>*Estimated*</u>
3 person month analysis/programming for Directorates involved in
First Phase of Software Development.

Estimated Software Upgrade $ 4,500.00

Total Estimated Cost for First Phase of
Hardware/Software Upgrade

1. With 80286 Personal Computers $ 47,450.00
2. With 80386 Personal Computers $ 52,450.00

Estimation for PC's and Printers required per Directorate

Directorate	PC's	Printers
Trade	6	3
Industry	6	2
Companies	3	2
Specifications & Standards	2	1
Investment	3	2
Export Promotion	3	1
One-Stop Window	1	1
Administration	1	1
Insurance	1	1
Registration	1	1

Second Phase of Hardware Expansion:

1.	80286 personal computers	27	$ 3080.00	$ 83,160.00
	Printers	15	$ 1000.00	$ 15,000.00

Estimated Cost: $ 98,160.00

2.	80386 personal computers	27	$ 4080.00	$110,160.00
	Printers	15	$ 1000.00	$ 15,000.00

Estimated Total: $125,160.00

Software Upgrade for remaining Directorates
    2 Years

Analysis and Development	24 mnth	$ 1500.00	$ 36,000.00

Estimated Totals for Second Phase:

1. With 80286 personal computers $134,160.00
2. With 80386 personal computers $161,160.00

Estimated Totals for Complete Hardware/Software Expansion

1. With 80286 personal computers $181,610.00
2. With 80386 personal computers $213,610.00
3. With 50% 80286, 50% 80386 $197,610.00

It would be expected that if the upgrade was done in bulk, considerable savings could be obtained. The network installation must be conducted under the supervision of outside contractors. The actual costs, hardware, and software must be obtained through close consultation with an outside consultant.

Training Budget

As mentioned in Chapter Two, Section on Personnel Requirements, Training and upgrade of personnel is required by the Ministry. The System Manager should be recruited, but additional training in particular data base such as ORACLE and data base products should be considered. Training programmes outside of the Ministry are available, and initially the individual should be sent to such courses. However, additional in-house training for this individual and others should be conducted. This two stage approach should allow the System Manager to be a trainer, and to develop an initial cadre of individuals able to use the software currently under development.

This training represents immediate needs. If the second phase of hardware expansion takes place, training needs will increase.

	Amt.	Cost	TOTAL
Initial Training Courses		$ 500.00	$ 500.00
– dBase Products			
– ORACLE			
Follow-Up In-House Training	100/hrs	$ 20/hour	$ 2,000.00
– Data Base Support, Maintenance, use			
– System Manager & Initial Uses			

Current utilization of personal computers inside the Ministry is minimal. However, with recommended upgrades and distribution, increasing numbers of pesronnel-- supervision, analysts, Clerks, secretaries, typists-- will require training in applications and use of computers. Again, it is preferable to bring this training in-house to small groups of two-three people. Estimation of hours are beyond the scope of the data base consultant, but it is highly recommended that training begin at the same time as the introduction of greater number of personal computers.

	Amt.	Cost	TOTAL
Basic Computer Use			
- 2-3 People/group	10 hrs/group	$ 20/hr.	$ 2000.00
- 10 Groups			
Word-Processing			
- 5 Groups	10 hrs./group	$ 20/hr.	$ 1,000.00
Spread Sheet			
- 10 Groups	10 hrs./group	$ 20/hr.	$ 2,000.00
Introduction to dBase Products			
- 10 Groups	20 hrs./group	$ 20/hr.	$ 4,000.00
Estimation of Total Training Costs			$ 13,000.00

The following major training needs have been separated from the basic training described above.   There is urgent need to upgrade the current management capabilities within the Directorate of Information and Studies, as well as in the Ministry.   Also, hardware operations will become increasingly complicated and support for such operations requires more skilled personnel.   The following training suggestions should be considered,   even though they are beyond the scope of the budget allocation in JOR/87/009.

Management of information systems .is also a requirement for operating effective computer operations in organizations. Executive training programmes are available both outside and inside Jordan.   The expensive differs considerably depending upon where such programmes are delivered.   Consideration should be given to some additional training both outside and inside Jordan.

		Cost
MIS Training		
- U.S.	1 month	$ 10,000 plus travel/ living expenses
- Jordan	1 month	$ 1,500

Hardware operations also need further enhancement.   It is recommended that current personnel receive additional university training in computer science and engineering.   The estimates for additional university, education depend upon where the

individuals receive the advance training. Estimate for additional training in the U.S. is minimum 30,000 Dollars/year for tuition and living expenses. Efforts should be considered to allow personnel to receive additional training in computer science and engineering.

<div align="center"><u>*TOTAL*</u></div>

<u>Advanced Training in Computer</u>
<u>Science and Engineering</u>

- 2 Year Master's Programme $ 60,000

<u>MEETINGS AND CONSULTATIONS</u>

<u>5 AUGUST, 1989</u>
. Dr. A.M. Khan, Consultant on Industrial Planning, UNDP/UNIDO Project
. Mr. Mohammad Qashou, Director, Directorate of Information and Studies, Ministry of Industry and Trade (MINTR)
. Contacted Mr. Rajai Nasr. Computer Consultant, Consulting Corporation for Information (CCI)

<u>6 AUGUST, 1989</u>
. Mr. Mazen Al-Shaker, Head. Research and Project Identification Division, Industrial Development Bank
. Consultation with Rajai Nasr. Computer Consultant, CCI
    - Awni A. Jamjoum, Executive Director, Computer Engineering Bureau,
    - Ghassan Al-Kassim. Hardware Consultant, National Computer Systems,

<u>7 AUGUST, 1989</u>
. Mr. Ali T. Dajani, Advisor, Amman Chamber of Industry
. Mr. Suhayl Abu-Taha, Consultant, Amman Chamber of Industry

<u>8 AUGUST, 1989</u>
. Eng. Mustafa Zahran, Director Productive Projects Dept., Ministry of Planning
. Dr. Marwan Muasher, Director, Information Centre, Ministry of Planning
. Dr. Yousef A. Nusseir, Director, Computer and Information Systems Dept., Royal Scientific Society (RSS)

<u>9 AUGUST, 1989</u>
. Dr. Alawin, Director General, Dept. of Statistics

<u>10 AUGUST, 1989</u>
. Mr. Alex Koupparis, Senior Trade Promotion Advisor, Export Development Project, Jordan Commercial Centre Corporation (JCCC)
. Mr. Hani Shanak, Programmer, JCCC
. Mr. Rafik Salhab, Hardware Consultant, JCCC

13 AUGUST, 1989
- Mr. Qasim, Industries Directorate, Dept. of Statistics
- Dr. Abdallah Zu'bi, Population Studies Division, Chair of Committee on Data Bank, Dept. of Statistics

14 AUGUST, 1939
- Mr. Ghaith Bakri, Market Research Officer, Export Development Project, JCCC
- Dr. Izzat Azizi, Director, Directorate of Investment Services, MINTR
- Mr. Sami Sa'eed Head of Section, Food Technology, MINTR.

15 AUGUST, 1989
- Mr. Suhayl Abu-Taha, Consultant, Amman Chamber of Industry
- Dr. Bani-Hani, Director, Directorate of Industry, MINTR.
- Presentation, Computer and Information Systems Dept., RSS.
- Mr. Zyad Innab, Minister, MINTR.

16 AUGUST, 1989
- Mr. Qashou and CEB Consultants
- Consultation with Mr. Shawqi Haddadin, Director, Directorate of Trade, MINTR.

17 AUGUST, 1989
- Mr. Shawqi Haddadin, Director, Directorate of Trade, MINTR.

19 AUGUST, 1989
- Mr. Mohammed Saqaaf, General Secretary, MINTR
- Mr. Hanna Zaghloul, Representative, Ideal Systems

20 August, 1989
- Mr. Aseem Hindawi, Director, Directorate of Economic Operations, MINTR.

21 August, 1989
- Meetings with Computer, Software and Hardware Consultants.

22 August, 1989
- Mr. Khalaf Al-Rushaidat, Economist, Directorate of Economic Operations, MINTR.

23 August, 1989
- Mr. Vatche Dakessian and Mr. Suhayl Abu_Taha, Chamber of Industry.

29 August, 1989

.   Mr. Adnan Naghaway, Program Officer, UNDP.

6 September, 1989

.   Representatives of Ideal Systems.

1. DATA COLLECTION FORM FROM JCCC

2. DATA COLLECTION FORM FROM CHAMBER OF INDUSTRY

السيد مدير عام الشركة المحترم

ستقوم المؤسسة باصدار دليل وطني تجاري شامل يحتوي على اسماء وعناوين المؤسسات والمصدرين الاردنيين ومنتجاتهم وباللغتين العربية والانجليزية وسيتم توزيعه على الهيئات المعنية والمؤسسات والشركات المستوردة في الدول العربية والاجنبية لتعريفهم بالمصدرين الاردنيين والسلع التي ينتجونها والنشاطات التي يمارسونها بهدف ترويج هذه المنتجات وتسهيل عملية الاتصال وايصال المعلومات. وليكون هذا الدليل مرجعا وطنيا للمعلومات عن صادرات الاردن واسماء المصدرين الاردنيين.

وتوخيا لدقة المعلومات فقد ارفقنا بطيه استبيانين واحد باللغة العربية وآخر باللغة الانجليزية. حتى نستطيع ان نحصل على ادق المعلومات باللغتين. وبالنسبة للصفحة الثانية من الاستبيان فستقوم المؤسسة بتخزين هذه المعلومات الموجودة في مركز المعلومات التجاري «المبرمج» ولاستعمالات المؤسسة فقط دون نشرها بالدليل التجاري.

آملين اعادة الاستبيانين معباين خلال اسبوعين من تاريخ استلامهم حتى نتمكن من انجاز هذا الدليل على اكمل وجه.

شاكرين لكم حسن تعاونكم.

والقبلوا فائق الاحترام

المدير العام

غازي ديــاب

FORM FOR THE JORDAN
EXPORT DIRECTORY

Please complete and return this form to the Jordan Commercial Centres Corporation P.O. Box 7704 Amman, within two weeks to ensure your inclusion in THE JORDAN TRADE DIRECTORY.

A. Name of contact: _____   _____
   Position _____
   Company name: _____ Reg. No. _____
   Address (Number and Street) _____
   (P.O. Box) _____
   City _____ Telex _____
   Office Phone _____
   Cable _____ Fax _____

B. Products already exported   Main markets
   1. _____   _____
   2. _____   _____
   3. _____   _____
   4. _____   _____
   5. _____   _____

C. Type of Company

   Manufacturer [   ] Export Agent [   ] Number of employees _____

D. Bankers

   _____
   _____

E. Membership in trade associations

   _____
   _____

F. Year Established 19_____

G. Sales (In JDs)

	1986	1987	1988
Export			
Domestic sales			
Total sales			

H. Planned expansion (in JDs.)

	1989	1990	1991
Planned domestic sales			
Planned export			
Total			

I. Interested in market information for (other than existing markets)

Country 1 —————————————————   Country 3 —————————————————

Country 2 —————————————————   Country 4 —————————————————

J. Any other information relating to exports:

_____

_____

_____

Date ———————————————————————————————————————

Signature: ————————————————————

Please attach your business card here

55

استبيان الدليل الوطني التجاري

يرجى تعبئة هذا الاستبيان من قبلكم في فترة اقصاها اسبوعين لنتمكن من ادراج اسمكم في الدليل الوطني التجاري، ويرجى ارساله الى مؤسسة المراكز التجارية الاردنية ص ب ٧٧٠٤ عمان.

١ ـ الموظف المسؤول: _____ _____

الوظيفة: _____

اسم الشركة التجاري: _____

العنوان (اسم الشارع): _____ المدينة: _____

ص ب: _____ تلكس: _____

تلفون المكتب (١): _____

برقيا: _____ فاكس: _____

٢ ـ البضائع المصدرة حاليا   الاسواق المصدر اليها

١ ـ _____   _____

٢ ـ _____   _____

٣ ـ _____   _____

٤ ـ _____   _____

٣ ـ نوع الشركة:

مصنعة ☐   وكيل مصدر ☐   عدد الموظفين بها _____

٤ ـ البنوك المتعامل معها: _____
_____

٥ ـ عضوية الاتحادات التجارية: _____

٦ ـ سنة التأسيس: _____١٩

المعلومات الواردة في هذه الاسئلة سوف تكون فقط لاستعمال المؤسسة ولتخزينها في مركز المعلومات التجاري «المبرمج» ولن تدخل في دليل الاردن التجاري.

	١٩٨٨	١٩٨٧	١٩٨٦
٧ ـ المبيعات: (القيمة بالدينار)			
داخل الاردن:	___	___	___
من التصدير:	___	___	___
مجموع المبيعات:	___	___	___

56

۱۹۸۸	۱۹۷۸	۱۹۸٦	٨ ـ التوسعات المقترحة للشركة: (القيمة بالدينار)
ــــــــــ	ــــــــــ	ــــــــــ	للمبيعات الداخلية:
ــــــــــ	ــــــــــ	ــــــــــ	لمبيعات التصدير:
ــــــــــ	ــــــــــ	ــــــــــ	مجموع التوسعات المقترحة:

٩ ـ الاهتمامات بالاسواق غير الاسواق المصدر اليها حاليا:

بلد ١: ــــــــــــــــــــــــــــــــــــ بلد ٢: ــــــــــــــــــــــــــــــــ

بلد ٣: ــــــــــــــــــــــــــــــــــــ بلد ٤: ــــــــــــــــــــــــــــــــ

١٠ـ اية معلومات اخرى تخص التصدير:

ـــ

ـــ

ـــ

تاريخ اليوم: ــــــــــــــــــــــــــــــــــــ

التوقيـع: ــــــــــــــــــــــــــــــــــــ

رجاء إلصاق بطاقة او كرت العمل هنا وشكرا.

57