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**ESTABLISH A STANDARD INFORMATION AND DOCUMENTATION SYSTEM AT THE
INSTITUTE OF STANDARDS AND INDUSTRIAL RESEARCH OF IRAN**

DP/IRA/87/013

ISLAMIC REPUBLIC OF IRAN

Technical report: Computerized information services at the
Institute of Standards and Industrial Research of Iran*

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

Based on the work of Josef Rimanek, computer expert

Backstopping officer: Juraj Pavlik,
Institutional Infrastructure Branch

United Nations Industrial Development Organization
Vienna

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EXPLANATORY NOTES

Currency

The Rial has the official value of 74 Rials to the US dollar.

Technical Terms

Bibliographic databank: a databank containing bibliographic information (such as the author, title, keywords, ...) on books, standards and other documents but not the complete texts or extensive abstracts (a working concept for the purpose of this report).

CD: A compact disc containing information in computer readable form. A single, 12 cm diameter CD can contain as much information as nearly 300 000 printed pages.

CD-ROM: Compact disc, read only memory.

CDS/ISIS: A widely used database management software system developed by UNESCO specifically for bibliographic information and supplied for mainframes, minicomputers as well as microcomputers (three versions).

COM device: the technical device able to convert the computer readable information stored on magnetic tapes to microfiche (Computer Output on Microfiche).

Factographic databank: a databank containing complete texts or extensive abstracts of books, periodicals, papers, standards, etc. (a working concept for the purpose of this report).

PERINORM: a CD-ROM bibliographic database on standards and technical regulations from BSI, DIN and AFNOR as well as all European and International standards, incl. ISO and IEC.. Available at: BSI Database, Linford Wood, Milton Keynes, MK14 6LE, GB.

ABSTRACT

ESTABLISH A STANDARD INFORMATION AND DOCUMENTATION SYSTEM
AT THE INSTITUTE OF STANDARDS AND INDUSTRIAL RESEARCH OF IRAN
DP/IRA/87/013/

This report describes the first part of the three months split mission. The main purpose of this first part (13 days in the field) was to get acquainted with the present stage of the project implementation and to suggest further steps to be taken.

The procedure considered to be the best way to achieve the objectives of the project can be summarized as follows:

- to develop a databank of bibliographic information based on a powerful PS/2 Model 80 computer system and ISIS software package,
- to install the COM device,
- to supply factographic information from the international information sources (ISONET, INTIB, ...) stored on magnetic tapes,
- to install the microfiche reader/printer,
- to establish the on-line access to ISONET.

The suggested solution is flexible; it can be completed by further measures suggested in this report and developed later according to the future needs and possibilities of ISIRI.

INTRODUCTION

This report describes the first part of a split mission supporting UNIDO project DP/IRA/87/013 at the Institute of Standards and Industrial Research of Iran, Karaj, the Islamic Republic of Iran. The expert has been in the field from Oct. 22, to Nov. 4, 1989, i.e. for 13 days.

The objective of the project is to establish a computerized information and documentation system for standardization and quality control and to increase the capacity of ISIRI to collect, assimilate and disseminate information of internationally used industrial standards.

The immediate objectives of the first part of the expert mission were:

- to get acquainted in the field with the present stage of the project implementation, and to recommend ways and means best for its future progress,
- to suggest steps to be taken,
- to finalize, jointly with the National Project Coordinator (NPC) the study tour and fellowship nomination forms,
- to specify the equipment to be purchased,
- to prepare an updated work plan for the second part of the split mission.

All objectives were reached.

RECOMMENDATIONS

1. To drop the assumption, that the project be based on the mainframe installed at ISIRI Headquarters, Karaj, provided that the necessary mainframe capacity will be available at the Ministry of Industries and/or the Ministry of Higher Education.
To: Government, UNDP Tehran, UNIDO Vienna

2. To purchase and deliver the equipment specified in Annex 1 prior to the second part of the Computer Expert (CE) mission.
To: UNIDO Vienna

3. To contact the UNESCO Headquarters, Paris and INORGA, Prague, to acquire the software system CDS/ISIS, CMS version (see p.2 and Remark on p.12).
To: CE

4. To order the PERINORM database (see p.2).
To: UNIDO Vienna

5. To split the mission of the Computer Network Specialist (Post 11-03) into two parts and to commence the first part (3 weeks) in Jan., 1990, while the second part should coincide with the second part of the CE mission.
To: UNIDO Vienna

6. To reconsider the Industrial Information Adviser (Post 11-01) mission. Should it not be possible to commence his mission before or during the second part of the CE mission, the contribution of this mission for the project is doubtful.
To: UNIDO Vienna

7. To install the COM device, incl. the magnetic tape unit at ISIRI, Karaj.
To: Government

8. To increase the capacity of the Technical Documentation Centre (Library) of ISIRI by providing additional at least 1500 m² (in addition to its present 150 m²) area and by increasing the staff of this centre to at least 10 persons (5 at present). To concentrate the Library, Computer Centre and International Relations Dpt. into one building.

To: Government

9. To explore the access to the international computerized factographic (see p.2.) services (ISONET, INTIB, ...), incl. hardware and software requirements (for the case the Industrial Information Adviser is not available in the field soon enough - i.e. prior and/or during the second part of the CE mission). To utilize for this purpose inter alia the study tours of the National Project Coordinator and the Director of Planning, Programming and Process Control of ISIRI.

To: UNIDO Vienna, CE

10. To take steps necessary for the supply and regular up-dating of the factographic information stored on magnetic tapes from the international information sources (ISONET, INTIB, ...).

To: Government

11. To take steps necessary for the on-line access to ISONET (access code, user identification, passwords, user manual, ...).

To: Government

12. To explore the availability of the IBM 4341 mainframe operating at the Ministry of Higher Education and/or at the Ministry of Industries for the installation of the CMS version of CDS/ISIS and for the utilization of this installation within the framework of the project.

To: Government

13. To prepare "Public Domain" software for personal computers suitable for implementation at ISIRI before the second part of the CE mission.

To: CE, UNIDO Vienna

14. To provide, in addition to equipment provided by the UNDP inputs, further technical means to increase the efficiency of ISIRI (Headquarters and branch offices). For some suggestions see Annex 2.

To: Government

I. ACTIVITIES AND OUTPUT

The principal activities carried out were aimed at mapping the situation, the present stage of the project implementation, the needs for computerized data processing and computerized documentation services at ISIRI.

A number of discussions has been held at:

- ISIRI, predominantly its Technical Documentation Centre, International Relations Dpt. and Computer Centre,
- UNDP Tehran,
- Ministry of Industries,
- Computer Centre of the Ministry of Industries,
- Ministry of Higher Education,
- Iranian Research Organization for Science and Technology, Tehran.

Most of these discussions were held jointly with Mr. Alast, the National Project Coordinator (NPC).

The project documentation was based on the report of Mr. Ram D. Taneja, Industrial Information Adviser, UNIDO, prepared as the result of his mission in Tehran, Project SI/IRA/85/802, as well as on the assumption, that a mainframe computer (IBM 4341) will be at disposal at ISIRI in Karaj, nearby Tehran..

Since the project document has been signed (July 1988), the NPC as well as the management of ISIRI and of the Ministry of Industries (part of which ISIRI is) changed.

With regard to the project implementation, two concepts of data banks of industrial standards can be considered: the bibliographic and the factographic one, as specified on p.2 (working concepts). The report of Mr. Taneja does not suggest the establishment of a computerized factographic data bank. The Project Document (PD) does not specifically mention this goal either. Because of the rapid development in the field of industrial information since the year 1985 (Mr. Taneja's report) and of the expanding quantity of internationally recognized

standards it is felt, however, that this kind of services should be provided, in addition to the computerized data bank of bibliographic information, to meet the present and future needs of ISIRI. According to the PD, these questions should have been cleared before or during the CE mission by and in cooperation with the IIA.

At this stage of the project implementation it is necessary to take decisions of what type of services would be provided without delay, as to be able to specify the required equipment and software as well as the best ways of utilization of the equipment purchased. These decisions must be based on the present situation, possibilities, capacities and needs of ISIRI.

The in-the-field activities resulted in findings which can be summarized as follows:

- IBM 4341 mainframe stored at ISIRI, not installed so far,
- Space for the mainframe not ready yet,
- Air condition and uninterruptable power unit necessary for the mainframe installation not purchased so far,
- Installation of the IBM 4341 mainframe at the Ministry of Industries to be expected within 2 or 3 months,
- IBM 4341 mainframe configuration suitable for the purpose of the project operating at the Ministry of Higher Education,
- The installation and operation of the IBM 4341 exclusively for the purpose of the project would be inadequate to the capacity of this computer. The mainframe, if installed and run exclusively for the project, would not be fully utilized,
- The COM device delivered and at the customs,
- The computer centre of ISIRI equipped with 5 personal computers (4x XT, 1x AT compatible),
- Staff members of ISIRI, the CE came in contact with, predominantly motivated and active.

On the background of these findings the following procedure is considered to be the executable alternative to achieve the project's objectives, as formulated on p.2 of the PD and to obtain

the outputs as formulated on p.6 of the PD.

1. To establish a bibliographic database of standards, books, periodicals and other printed material held at the ISIRI's library and based on a very powerful configuration of the PS/2 personal computer system. For this purpose:
 - to install the IBM PS/2 Model 80 system with external devices as specified in Annex 1,
 - to install the micro CDS/ISIS software system, version 3.2,
 - to design the structure of necessary databases,
 - to train the personnel of ISIRI's library in utilization of the databases designed,
 - to enter data.
2. To install the PERINORM database and to train the library's personnel in its utilization.
3. To install the microfiche reader/printer and the copying/enlarger machine.
4. To install the COM device.
5. To acquire the factographic data of internationally recognized standards stored on magnetic tapes from international databanks (ISONET, INTIB, ...).
6. To install the CDS/ISIS under CMS monitor at the Ministry of Higher Education and/or at the Ministry of Industries. This can be done only if agreement with UNESCO Paris and with INORGA Prague is reached prior to the second part of the CE mission (see Recommendation 3, and Remark on p.12).
7. In case of need, to design the structure of necessary databases under the above installation of CMS/ISIS.
8. To define the computer network to be established among ISIRI's Headquarters (Karaj), Tehran (the Ministry of Industries and/or the Ministry of Higher Education) and ISIRI's branch offices.
9. To link the PS/2 system to ISONET.
10. To link the PS/2 system to the IBM 4341 mainframe at the Ministry of Higher Education and/or at the Ministry of Industries.

11. To install additional software systems at the ISIRI's Headquarters in Karaj to be used for text processing, desk top editing, spreadsheet calculations etc.

To meet the immediate objectives of the project, as stated in the PD, steps 1 - 5 and 9 are essential. The remaining steps are suggested to enhance the flexibility of the established system, to enhance its capacity and to provide the basis for its future development according to needs encountered and sources available in the future.

Steps needed at this stage to implement the suggested procedure are summarized on pp.5 - 7 (Recommendations).

The established computerized information and documentation service will operate in the following way:

- the ISIRI's customers and/or specialists formulate their requirements (post, telex, phone or directly in the ISIRI's library),
- the appropriate bibliographic database installed on the PS/2 system is searched,
- the customer is provided with the search results (display, printed list), he can modify his requirements, specify them in greater detail etc. (applicable only at ISIRI's Headquarters or in on-line regime),
- the customer selects documents he needs,
- there will be three ways of storing documents at ISIRI:
 - printed form: the documents are copied for the customer,
 - microfiche form: the documents are printed by the microfiche reader/printer,
 - magnetic tape form: the corresponding tape(s) stored at the library are looked up, entered into the COM device and the output microfiche are either handed over to the customer or printed for him by the microfiche reader/printer,
- if suitable, the on-line connection to ISONET will be used to search the international databases.

The outlined utilization of the established system can be expanded in the future according to the development of the technical equipment of ISIRI (Headquarters and branch offices) and its customers. There can be, e.g., considered services like on-line searching of bibliographic databases from ISIRI's branch offices, utilization of telefax, on-line connection to other databases (like, e.g., the Iranian National Union Catalogue - a nationwide computerized network to be established among all libraries in Iran) etc.

Remark: The CDS/ISIS software system is considered to be the most suitable one for the development of bibliographic databases due to the following reasons:

- it is an efficient database management system for non-numeric databases supplied in three versions: mainframe, mini and micro, so that it is implementable on mainframes, minis and microcomputers. It is provided with a facility enabling transfer of data between any pair of these versions,
- it is used worldwide (e.g. the number of mainframe installations exceeds 2000),
- data can be handled in the internationally recognized ISO 2907 format,
- it is supplied free of charge,
- the mainframe version has already been installed in Iran (the Ministry of Higher Education).

CONCLUSIONS

1. The objectives stated in the Project Document can be reached without revision.
2. To achieve the goals of the project, it is not absolutely necessary to install the IBM 4341 mainframe at ISIRI's Headquarters in Karaj provided that the adequate mainframe capacity will be at disposal at the Ministry of Industries and/or the Ministry of Higher Education. If installed at Karaj exclusively for the purpose of the project implementation, the mainframe would not be fully utilized.
3. The procedure outlined on p.10 is considered to be the most appropriate way of achieving the goals of the project. The computerized documentation and information system established in this way will be flexible and expandable enough to meet the needs of ISIRI in the future as well.
4. The objectives of the project can be achieved within the project budget (UNDP inputs) provided that the government takes over the expenses related to the acquisition of the factographic information stored on magnetic tapes from international information sources, PERINORM database up-dating (subscription) and the costs of on-line access to ISONET (INTIB).

ANNEX 1

Items suggested to be purchased
within the UNDP inputs

Item	Estim. Price (USD)
IBM PS/2 80-311 386/20M, 2MB, 314MB, 1.44 FDD (Personal Computer)	12 000
Colour Display, 14'', VGA	800
FDD 5.25'' 1.2 MB for PS/2 Micro Ch. incl. Adapter	800
80 MB Streamer, PS/2 Micro Ch. incl. Adapter	900
80 MB Streamer Prgr.	100
Optical Disc Drive incl. Control Unit for Micro Ch.	2 600
Magnetic Tape Unit, 6250/1600 BPI, incl. Control Unit and Adapter for Micro Ch.	3 500
Laser Printer	4 500
IBM 3270 Adapter for PS/2 Model 80, Remote Connection	700
IBM PC 3270 Emulat. prgr.	800
Serial Mouse	100
DOS 4.0, 3.5'', English	200
Modems (switch line facility)	3 000
PERINORM (1st year)	1 500
Microfiche Reader/Printer	4 000
Misc. (FDs, streamer cassettes, magnetic tapes, expendable material for laser printer,...)	3 000
TOTAL	38 500

ANNEX 2

Items suggested to be purchased
within the Government inputs

Factographic data stored on magnetic tapes from international
information sources like ISO, INTIB

PERINORM up-dating (subscription)

Microfiche reader/printers

Copying/enlarger machines

Uninterruptable power supply (for personal computers)

IBM PC/AT compatible computers

ANNEX 3

FELLOWSHIP AND STUDY TOUR NOMINATIONS
(Suggestions)

FELLOWSHIPS

1. Ms. Zahra YARI
Post: Expert in International Relations Dpt.
2. Ms. Khadijeh KERAVASH
Post: Specialist in Documentation
3. Ms. Maryam FASIHI
Post: Expert in Computers
4. Ms. Mahvash SEIFI
Post: Specialist in Information and Documentation

STUDY TOURS

1. Mr. Hassan Hossini ALAST
Post: National Project Coordinator
2. Mr. Hassan Yegane AMIRI
Post: Director; Planning, Programming and Process Control
Dpt.