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ESTABLISHMENT OF AN INDUSTRIAL SCIENTIFIC AND TECHNOLOGICAL DOCUMENTATION CENTRE

TF/GL0/88/907

REPUBLIC OF SEYCHELLES

Terminal report*

Prepared for the Government of the Republic of Seychelles by the United Nations Industrial Development Organization

Based on the work of Erik I. Vajda, industrial information adviser

Backstopping officer: Juraj Pavlik Institutional Infrastructure Branch

United Nations Industrial Development Organization Vienna

* This document has not been edited.
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EXPLANATORY NOTES

Currency

The Seychelles Rupee had the official value of 0.1759 US $ (i.e. 1 US $ was equivalent to 5.686 Rupees) at the starting time of the project and has the official value of 0.1922 US $ (i.e. 1 US $ is equivalent to 5.202 Rupees) at the date of the preparation of this report.

Acronyms and other short terms used

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ADDRESS</td>
<td>Addresses, Deadlines, References - Selective Store (database of CISTID)</td>
</tr>
<tr>
<td>AID</td>
<td>Answered Inquiries' Data (database of CISTID)</td>
</tr>
<tr>
<td>AIT</td>
<td>Asian Institute of Technology</td>
</tr>
<tr>
<td>APCTT</td>
<td>Asian and Pacific Centre for Technology Transfer</td>
</tr>
<tr>
<td>BAR</td>
<td>Books Acquisition Registry (database of CISTID)</td>
</tr>
<tr>
<td>CATAL</td>
<td>Computerized Access to Available Library Holdings (database of CISTID)</td>
</tr>
<tr>
<td>CD-ROM</td>
<td>Compact disc - read only memory; an opto-electronic medium for the storage of large amount of retrievable data on a small, machine readable disk</td>
</tr>
<tr>
<td>CDS/ISIS</td>
<td>(full name: Mini-micro CDS/ISIS) short name of a widely used database management software developed by Unesco for the storage and retrieval of textual (e.g. bibliographic) data (version 2.3).</td>
</tr>
<tr>
<td>CISTID</td>
<td>Centre for Industrial, Scientific and Technical Information and Documentation (of TSSD)</td>
</tr>
<tr>
<td>IIA</td>
<td>industrial information adviser</td>
</tr>
<tr>
<td>INTIB</td>
<td>Industrial and Technological Information Bank</td>
</tr>
<tr>
<td>MAP</td>
<td>Manufacturers and Products (database of CISTID)</td>
</tr>
<tr>
<td>OMIIK</td>
<td>National Technical Information Centre and Library (Budapest, Hungary; a Hungarian acronym)</td>
</tr>
<tr>
<td>PADIS</td>
<td>Pan-African Development Information System</td>
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- continued
Acronyms and other short terms used - continued

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tr>
<td>R &amp; D</td>
<td>research and development</td>
</tr>
<tr>
<td>SEYSER</td>
<td>Short name for Union Catalogue of Foreign Serials in the Seychelles (Seychelles’ Serials) (database of CISTID)</td>
</tr>
<tr>
<td>SDI</td>
<td>selective dissemination of information (services)</td>
</tr>
<tr>
<td>TIP</td>
<td>Technology Information Profiles (database of CISTID)</td>
</tr>
<tr>
<td>TSSD</td>
<td>Technological Support Services Division (of the Department of Industry)</td>
</tr>
<tr>
<td>WISE</td>
<td>World-wide Information Selection (database of CISTID)</td>
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</table>
The immediate objective of the project was to establish an industrial, scientific and technological information and documentation centre capable to provide up-to-date industrial, scientific and technological information to all potential users in the country. Project activities started in October 1989 and will be terminated in August 1991. The immediate objectives were or will be achieved by project activities. Appropriate information sources were made available; printed sources (journals, abstract journals, reference tools, books, reports etc.), and machine readable sources (UNIDO databases, CD-ROMs, remote access to international database hosts). A mechanism for the collection of data available at various agencies within the country has been prepared and the collection of data has been started. In-house databases were designed and have been established for a computerized library catalogue, as a source for current and retrospective information services, for special technological information, for data of products and their producers, for national inventories of ongoing and completed research and development projects, of databases established in the country and of foreign serial publications available in the country. Information services: inquiry services, selective dissemination of information (SDI) services, a current awareness bulletin and document procurement services were prepared and became partly operational. The necessary equipment for information activities was requested, delivered and almost completely installed. Professional training was provided by lectures, on-the-job training and fellowships abroad. Recommendations for further actions were made.
The background of the project was the awareness of the Government that in the interest of the overall development various economic activities offering additional possibilities to tourism, the traditional but uncertain source of the countries incomes should be developed. The Government also recognized that the lack of industrial tradition and information in a serious obstacle hindering overall economic development. To overcome these obstacles the Government established the National Research and Development Council and the Technology for Development Division of the Ministry of National Development and asked support to establish a centre for industrial, scientific and technological documentation within the above mentioned Division.

Prior to the present project a small library and a collection of standards and of research and development (R & D) reports has been set up at TSSD and preparations were made to request assistance in this field. In 1985 on the request of the Government preparatory assistance was provided under the project UC/SEY/85/004. The investigations carried out with the assistance of Mr. A. Nassar during his consultancy mission over the period 18-28 November 1985 resulted in the preparation of a project proposal which was submitted in 1986 for further consideration and was approved in June of the same year by the Government. In the meantime two posts were created for the centre.

Further official arrangements were made in the following years (1987-1988) to identify possible funding sources. In May 1988 this project was selected by Government officials and Mr. Tsuyoshi Kikuchi, UNIDO Senior Industrial Development Field Adviser at the UNDP Resident Representatives’ Office in Dar es Salaam as a project for which funding should be requested by the Japanese Government. This request was approved and so the project got funded by funds in trust on behalf of the Government of
Japan. The final project document was approved and signed by the Government of Seychelles in September 1989.

The start of the project was scheduled for January, 1989 but it was delayed because of the funding problems. In November 1989 the backstopping officer of UNIDO visited the field and agreed with the national counterpart on further details. The project became operational with that mission because requisitions for some information sources were submitted and the national counterpart staff started further activities. The work plan was prepared and all further activities were started with the first mission of the industrial information adviser (hereinafter: IIA) in March 1990. Some project activities are going on and the project will terminate probably in August 1991. The national counterpart agency is the Technological Support Service Division (hereinafter: TSSD) of the Department of Industry, President’s Office, the successor of the Technology for Development Division mentioned above.

Contributions of UNIDO and the Government were as follows:

Total of UNIDO contributions in US $
\begin{array}{l}
\text{as stated in the project document} & 176,991 \\
\text{as stated by the last budget revision} & 176,991 \\
\text{disbursed or obligated (31/12/1990) or committed for 1991} & 145,818 \\
\text{uncommitted balance} & 31,173 \\
\end{array}$

which amount has been or will be used for personnel costs and for the training of two staff members, and will be entirely disbursed before the estimated termination of the project (August 1991). The changes made by budget revisions affected the internal structure of the budget but not the total of contributions. Under this point it should be mentioned that the work of a computer expert, originally planned for 3 m/m was reduced to a training course of 0.7 m/m, because the available knowledge of the counterpart staff made it possible to save the corresponding amount for other useful reasons mentioned in this report.
The Government contributions were in kind as stated in the project document.

The original (immediate) objective of the project was the establishment of an industrial, scientific and technological documentation centre, capable of answering to all the common requests of up-to-date industrial, scientific and technological information to all potential users in the country. This objectives were not revised, although a recommendation was made by the national counterpart and by the Tripartite Review Meeting to use some savings from the budget for preparing a draft project document on energy conservation. This field is one of the main subject of information services and will result among others in databases forming one coherent system with the databases established in the Centre.

The objectives of the project were fully achieved. The Centre for Industrial, Scientific and Technical Information and Documentation (CISTID) has been established in TSSD. This centre is furnished with appropriate information sources (including imported, online accessible and in-house databases), is capable to provide the designed and planned services by its trained and skilled staff, following the working procedures as defined in written documents and presented by training. It is capable to achieve the set objective, however further work (input of data, starting of some services, drafting further regulations, realizing the regular online information retrieval etc.) should be done until the termination of the project, following the recommendations of this report.

Appropriate training was provided to the national counterpart staff. The director of CISTID made a study tour and further two staff members are scheduled to take part on a training course abroad. The national counterpart organized basic training for staff members within the country. Intensive on-the-job training
was given by the IIA and the computer expert. The results of the training can be evaluated extremely positively: the knowledge of the staff increased significantly and is adequate to working requirements. For details see sub-chapter F. of chapter I.

All non-expendable equipment ordered for the project has been received. There is a significant delay in the delivery of non-expendable equipment (journals, including abstract journals and databases on CD-ROM) what has a negative effect on the starting or upgrading information services. The outstanding consignments of non-expendable equipment will be received by the head of the national project staff. The year-end inventory for 1990 was verified, signed and sent to UNIDO according to the relevant rules. For a copy of the last non-expendable property record forms see Annex 6. The equipment was not yet formally transferred to the Government (see also the relevant recommendation. All the equipment met the specifications and requirements (an offset duplicator and a copier for the preparation of offset masters was not tested yet, because the necessary manuals arrived a few days ago).

No subcontracts were awarded.

Substantial information included in the above introduction will not be repeated in the body of the report.
RECOMMENDATIONS

Recommendations of the Tripartite review meeting are repeated below to make this report comprehensive from the point of view of recommendations. Further recommendations are included. Recommendations for UNIDO, for the Government and for the national counterpart are divided and within these groups recommendations are presented in a priority order.

It is recommended to UNIDO

1) To urgently deliver the missing expendable equipment (information sources like journals, CD-ROMs).

2) To clarify the situation of the INTIB databases (IDA, OFFR, REQT, VENT, NODE) concerning their regular update and delivery.

3) To consider the possibility of "re-tailoring" by request its technological information services e.g. the "How to start..." series for the need of the smallest industries in general and of the small island countries in particular.

4) To assist the participation of two staff members of CISTID in the proposed training course in Brighton (UK) and to mobilize the necessary project funds for this training, taking into account the outstanding importance of this training for the effective functioning of CISTID.

5) To finance the mission of a consultant for the preparation of a draft project document (or project proposal) on energy conservation using the savings achieved during the execution of the present project, taking into account that energy conservation is one of the main subject fields which will be covered by information services and that the databases established by the present project and the energy databases should form one coherent databank system.
6) To assist CISTID in the use of the **electronic mail system** provided by INTIB.

It is recommended to the Government of Seychelles and to the governmental agencies in charge.

7) To **extend the staff** of TSSD as soon as possible by making the necessary posts available for the planned full staff of CISTID.

8) To **recruit the missing staff members** as soon as possible for all posts of CISTID not filled yet.

9) To ensure the effective operation of CISTID and the regular supply of its services by utilizing the **full capacity of CISTID's staff** for information and documentation activities.

10) To consider the financial motivation and the appropriate development of CISTID and its services by a financial structure which provides for the **use of incomes earned by services** for the direct financing of information activities.

11) To make it possible for CISTID to avoid the lengthy procedures of application for foreign exchange by a commitment on behalf of the Ministry of Finance for a defined amount of foreign currencies for the acquisition of information sources, without repeating application for every order.

12) To issue governmental regulations for the **collection of data for national scientific and technical inventories** (on research and development projects, databases etc.).

It is recommended to the national counterpart.

13) To circulate the final version of this terminal report among the key users of information and use other **publicity actions, contacts etc.** to make users aware of CISTID's services.
14) To finalize the preparation of data sheets for the collection of voluntarily supplied data on ongoing and completed R & D projects and circulate the data sheets; to start the input of collected data in the RADIO database.

15) To prepare the proposals for regulations on Governmental and Department level concerning mandatory supply of data for CISTID (national inventories, etc.).

16) To finalize the establishment of the installed databases by preparing the display formats; to start input to the databases, giving a priority to WISE, TIP and MAP.

17) To design and establish a database for the storage and retrieval of data on available databases following the outlined procedure; to start input to this database as soon as possible.

18) To start input to the SEYSER database using the filled questionnaires and collecting further data, which should be amended by using the international serials' directory; to publish and regularly update the union list of foreign periodicals.

19) To prepare the cost calculations of individual services as soon as the basic data will be available; to publicize these data when advertising services.

20) To take follow up actions for the acquisition of free information sources and for the ordering of information sources selected on the basis of sample copies received.
I. ACTIVITIES AND OUTPUTS

This chapter is organized by activities planned in the project document and in the work plan to the project. Activities are referred to in section titles in an abridged form. Outputs produced by the international experts together with the national counterpart staff are referred to in the context of the activities.

A. Establishment of contacts with users of information for assessing their information needs

The IIA and the director of CISTID paid visits to the most significant governmental bodies, parastatals and private enterprises considered as key users of information services and in some cases as cooperating partners. More than 30 places were visited and the information gathered by these visits was amended by drafting and circulating questionnaires.

The main aim of the visits was the collection of information on the users' information needs and interests concerning

- the broader and narrower subject fields in which they are interested,
- the special features of information required by them,
- the most appropriate types of information services.

Most users were ready to outline their interests. Also the questionnaires were received favourably: about 60% of the users filled in and sent them back. Some important general conclusions were drawn from the information given by the users. It became obvious that CISTID has to deal with some border fields of industry, too and that the sizes of the country justify an interdisciplinary approach when setting up some databases. A few users (including those representing a subject field which was considered by the project document especially important:
petroleum exploration) indicated that they are informed through other channels and are not interested in the services of CISTID.

The information collected from the users served as a solid basis for further activities. Information sources (journals, CD-ROMs, UNIDO documents) could be requested and connections to hosts of databases offering online access could be selected on the basis. The opinion of the users was also considered as the starting point for the design of databases and information services.

The visits paid to users of information had the further advantage that users became aware of the existence of CISTID and its planned services. By this an initial contact was established. As a follow up some key users were invited to attend the Tripartite Review Meeting on the evaluation of the project's progress as observers. This meeting increased awareness of these users of the possibilities offered by CISTID and contributions of some users assisted in details of further planning.

B. Identification of information services and areas for cooperation within the country

The report deals with the cooperation within the country in this section and not in Section F, deviating in this sense from the project document. This is justified by the close connection of the identification of information services and the cooperation in this field. This practice was followed by the work plan, too.

The documentation and information facilities of the institutions visited for studying their information needs were also investigated during the visits described in Section A. In addition visits were paid to the National Library, the National Archives and the library of the Seychelles Polytechnic. We came to the general conclusion that neither information and documentation centres in the real sense of this term nor scientific and technical information services were available in
Part of units (document collections) called documentation centres is inactive because of the lack of manpower or similar reasons. Others are more or less organized collections of documents, which could be developed to local special libraries. In some institutions there are very valuable information sources, but they are normally bound to some persons or desks and not accessible by others. The exceptions are the Documentation Centre of the Fisheries Department of the Ministry of Agriculture where not only traditional library material but useful secondary sources are available, and the Agricultural Documentation Centre which is in the phase of development within the framework of the project TCP/SEY/0051(T) "Establishment of a National Agricultural Documentation Centre" based on the assistance of the Food and Agriculture Organization of the United Nations (FAO).

Discussing the importance of co-operation an overall consent was achieved, including also the principle that some collections (e.g. the collection of standards at CISTID), some databases the setting up of which is more justified on a national level than within individual, subject-field oriented centres, as well as some special technological possibilities (e.g. remote searches in databases held by online hosts, individual CD-ROMS etc.) should not be duplicated within the country but should be made available to all interested centres and their users. Concrete talks with the international expert of the FAO sponsored and executed project mentioned above on the cooperation with the National Agricultural Documentation Centre were based on these principles.

We proposed to all institutions possessing sources of scientific and technical information the establishment of national inventories (union lists, catalogues) of important information sources (e.g.: foreign periodicals, reports, reference tools). Based on the consent of most partners CISTID designed and established a database for the union catalogue of foreign periodicals (SEYSER, see Section D.) and circulated a
questionnaire to collect data on foreign periodicals held by various organizations. The input of data is in progress and the circulation of the questionnaire among further addressees is planned. Further similar databases can be established gradually.

The possibilities of cooperation with the National Library and the library of the Polytechnic is limited to the above mentioned union catalogues, to the training of staff and to some methodological cooperation. The function of the National Archives is important from the point of view of industrial information because of information sources prepared at governmental agencies (see also Section C.) but neither the collection nor the kind of processing of documents by the National Archives makes this cooperation practically possible at the present stage.

C. Collection and processing of data available with Government specialized agencies

The scientific and technical information (data, databases, project results) produced in TSSD is available to CISTID. However further in-house regulation was recommended and those regulations which will be proposed on the level of the Department of Industry and on Governmental level will contribute to the improvement of collecting information within TSSD.

The collection of data from other governmental agencies is partly related to the cooperation outlined in Section B. Informal contacts were and will also be used to gather data from files and publications available with various agencies. The most important additional step is the organization of national inventories of the ongoing and completed research and development (R & D) projects executed in or being related to the country, as well as, of databases prepared in the country and available to authorized agencies.

The outlines of proposals for appropriate governmental
regulations and for additional regulations on the level of the Department of Industry were discussed and their preparation is in progress. The database for the national inventory for R & D projects has been designed and installed and data sheets were designed for the collection of data on a voluntary basis. The design of the database of databases has been finalized and the database will be installed soon.

The preparation of a further proposal for a governmental regulation concerning the coordination of information and documentation activities within the country was found premature by the Tripartite Review Meeting. The proposal for this regulation can be prepared after the termination of the project if appropriate.

D. Designing computerized data bank and information services

The information services of CISTID are based in a big extent on its in-house databases, forming a coherent system (databank). In fact the "databank" which can be used for the services includes imported databases (INTIB databases, CD-ROMs) and online accessible databases, too. However the selected, "tailored" basis of services and the auxiliary tools for their preparation are first of all the in-house databases.

Ten CDS/ISIS based databases were designed in detail, using the approach of database compatibility, and relying as far as possible on the content of the Common Communication Format, prepared by Unesco. A single matrix of all data elements (fields and subfields) was produced with all necessary data (including indexing details) for the establishment of the databases. In addition a data element directory was prepared what includes the detailed specifications for all data elements, concerning their CDS/ISIS characteristics, their definition, their occurrence and status in the various databases for various types of records, their sources and the rules for their presentation. (A sample data element specification is attached as Annex 8.).
Additionally guidance was given for the preparation of CDS/ISIS worksheets and for the definition of display formats.

On the basis of the above mentioned design the databases were established and are ready for input. The procedures for data collection, selection, description, indexing, classification and input were designed and prepared in a written form (e.g. the use of serials for data input) and/or discussed with the counterpart staff during lectures and on-the-job training. The input of data can reach the appropriate level for the preparation of information services before the termination of the project.

A short description of databases is attached (see Annex 7.) However, some characteristics should be mentioned here, too. One of them (CATAL) is a computerized library catalogue and also a source for records transferred to other databases. Four databases: WISE, a selected bibliographic and abstracts database of articles and other up to date literature, TIP, the database of technology profiles, RADIO, the national inventory of research and development projects (see also Section C.) and MAP, a database of products and their producers will be the main sources of information services. One database (SEYSER) will be the national inventory of foreign serials. The other databases are tools for the management of CISTID, its services and its library.

A further database will be established for the national inventory of databases. The structure of the database was discussed with the counterpart staff and designed in principle.

Inquiry services are the most important information services planned, and designed for and started to some extent by CISTID. They are and will be based on the full scale of information sources (printed sources, in-house, imported and remote-accessed databases), but sometimes also on correspondence (also via electronic mail) with producers of equipment, holders of technologies etc. The procedures for answering inquiries were
discussed in detail and are outlined in the training material for the counterpart staff, prepared by the IIA.

Selective dissemination of information (SDI) services will serve the users too keep them up to date informed on various subjects defined by them when making inquiries or otherwise. This service can be started when the input to the in-house databases can guarantee for significant output. The service will be started on the basis of the questionnaires filled by users on their broader and narrower subject interests (see Section A.). A computer aided standard profile service will serve users being interested in a broader subject field and a fully computerized service will inform the users on narrower, more specific subjects. The procedures were designed and the staff was trained for this service by the IIA as for inquiry services.

The most general service of CISTID, a bimonthly industrial current awareness bulletin can be started hopefully in July this year after the necessary duplicating equipment have been installed. The overall content and the physical structure of this publication, as well as, the procedures for its preparation were discussed and outlined as mentioned above concerning other services.

The above mentioned services are complemented by an operational document procurement service for providing documents or their copies to users from the collection of the CISTID library, from other sources in the country or, if necessary, from abroad. Other services (e.g. publication of subject oriented bibliographies or repackaged collections of information) can be started at any time on the basis of the present structure, if requested by users.

E. Selection, ordering and installation of equipment: selection and ordering of books and periodicals

The national project management and UNIDO agreed on some
changes in the planned structure of equipment. Instead of a project car and some furniture planned in the project document, more powerful and sophisticated computer hardware and software was requested, purchased and delivered. The budget revision has similarly cut the amount planned for information sources (non-expendable equipment). However, savings within the total equipment component made it possible to use near the originally planned amount for information sources.

All non-expendable equipment (see also the annexes 5. and 6.) ordered for the project (including computer hardware and software, copying and microfiche reader-printer equipment, audio-visual equipment, as well as, an offset duplicator and a copier for the preparation of offset masters) was delivered and, except the offset duplicator and master-copier, installed. The equipment is powerful, is used very intensively and works properly.

After thorough selection the most important information sources were requested. A part of them was delivered but unfortunately the major part of CD-ROMs did not arrive and the delivery of the majority of journals has not started yet. The complete delivery of the non-expendable equipment (information sources) is extremely important.

F. Exchange of information with other sources outside the country

For co-operation within the country see Section B.

UNIDO/INTIB was considered as one of the most important cooperation partner and source of information for CISTID. The requested UNIDO documents arrived to CISTID and are useful for its activities. However, unfortunately there are some problems concerning some important publications and the INTIB databases. The series of UNIDO "How to start manufacturing industries?" is considered as an extremely important source of information, but
our experiences have shown that the scale of the described technologies is too large for small island countries like the Seychelles. It is hoped that some additional information on smaller scale oriented technologies can be obtained through the inquiry services or by asking the "re-tailoring" of some profiles. UNIDO/INTIB databases, first of all the technology databases (OFFR and others) could contribute to the solution of this problem but their missing update makes them not really significant. Connections to INTIB will be hopefully improved after having solved technical problems of electronic mail connections to UNIDO.

Data were collected on information centres in developing countries. Addresses of centres in the region or in other regions but considered similar enough to be faced with similar industrial/technological problems as the Seychelles were selected and letters proposing concrete ways of cooperation were sent to them. Regional centres (PADIS, APCTT) were addressed in a similar way.

The necessary equipment (hardware and software) for the establishment of online connections with international and foreign database hosts was requested and has been delivered. Preliminary contracts with four major hosts in Europe were established, too. However at the moment data transmission problems are still hindering the online access to remote databases. The Seychelles gets its connection to the international package switching networks soon, but some economic and technical problems within the country are not solved yet.

G. Training of information and documentation officers

A study tour was planned and arranged for the director of CISTID covering the fields of UNIDO/INTIB activities (Vienna), methods and procedures of online, remote and CD-ROM based information retrieval (OMIKK, Budapest) and management of information centres in developing countries (AIT, Bangkok). Two further
staff members will take part in a training course in the Institute of Development Studies in Brighton, UK, devoted to the work of information centres and libraries in developing countries with special regard to the use of microcomputers.

The computer expert to the project, Mr. Gabor Stiegrad presented a two weeks long training course to the national counterpart staff on the use of the CDS/ISIS software. The establishment of databases, the information retrieval methods and the output of search results and other parts of the databases were the main subjects of this course. As a result of this course three staff members are able to establish and maintain CDS/ISIS databases and other staff members are also familiar with indexing and search features of the software.

The IIA presented 25 lectures/discussion meetings during, his two missions on information sources, information services and their preparation, as well as, on information retrieval systems and retrieval languages (classification, indexing, thesaurus preparation etc.) The audio-visual equipment delivered for the project was used and more than sixty overhead transparencies were prepared. The transparencies were also copied for the participants (the present five CISTID staff members) together with other handouts. The procedures for classification and indexing, for the selection and input to databases and for the preparation of information services were discussed during these lectures. In addition on-the-job training was given on various aspects of library and information activities (serials handling, building of the library collection, use of documents for database input etc.) The results of the training can be evaluated very positively.

H. Calculation of costs of services

A proposal for the financial structure and for the methodology of cost calculation was prepared by the IIA. The calculation of individual prices for services would be premature
but can be done by the national counterpart staff using the proposed methods. The proposed structure is based on a differentiated, mixed structure of governmental financing and financing by incomes earned from services.

II. ACHIEVEMENT OF IMMEDIATE OBJECTIVES

Chapter I. contains a detailed report on activities and outputs and serves as a basis for evaluation of the achievement of immediate objectives. This chapter, therefore, does not repeat the detailed information presented in Chapter I. and is limited to some references to the work plan and to a general statement concerning the project's objectives.

A. Achievement of the schedules and targets of the work plan

Most schedules and targets of the work plan were achieved. All targets can be achieved until the end of the project, August 1991. Some delay in the termination of the project and in the achievement of targets scheduled in the work plan was caused by the lack of manpower in CISTID and by the late delivery of information sources. In the following part only those targets of the work plan are mentioned, which were not fully attained until the scheduled deadline and/or until the preparation of the present report or where the change of the target was considered to be necessary. Reference is made to the number of the given target in the work plan.

3.1 and 3.3. Drafts for governmental regulations for the supply of data for various national inventories were prepared but the final version could be outlined only.

3.2 The Tripartite Review Meeting has considered the preparation of a draft regulation on coordination of documentation and information activities as premature.

3.5 The collection of data for the national inventory of R & D projects is in progress.
4.4 Not all information services could be started, because the input to databases is at an initial stage.

6.4 The regular information exchange with regional and other sources of information outside the country was prepared but is not yet operational.

8.2 Only the methodology for cost calculation but not the individual calculations were prepared, because not all cost factors are known.

9.1 A Project Performance Evaluation Report and an amendment to the same was prepared for the Tripartite Review Meeting in addition to the Technical Report and to the present Terminal Report mentioned in the work plan.

B. Achievement of objectives of the project

The project has a single immediate objective (see the Introduction to this report). This objective, the establishment of the Centre for Industrial, Scientific and Technical Information and Documentation capable to provide information services as specified by the project document has been attained. The full scale of services can be launched before the termination of the project if the necessary manpower will be available. Any qualitative evaluation can be done afterwards based on the experiences and ongoing interests of users.

III. UTILIZATION OF PROJECT RESULTS

Some results of the project have been already utilized. Many users of information became aware of the possibilities of industrial information services, expressed their demands and some of them used the facilities of CISTID.

However, most results will be utilized only after the termination of the project, i.e. after all regular information services have been started. On the basis of the needs and demands expressed by the users the intensive use of these services can be anticipated.
The main factor, which affects the effective utilization of project results will be the regularity and the quality of CISTID's services, as well as the intensity of publicity actions, which have been planned to keep users aware of the possibilities offered by CISTID. Indirectly this depends particularly on the availability of the full manpower planned for CISTID, on the delivery of missing information sources and on the solving of telecommunication problems hindering the access to online databases and the use of electronic mail.

IV. CONCLUSIONS

The following conclusions can be drawn from the experiences gained during the execution of the project:

a) Industrial information activities in a small islands country have specific features concerning the selection and use of information sources, the interdisciplinary character of services and the specific requirements for technological information being feasible for the smallest scales of production.

b) Factual technological information like descriptions of appropriate technologies, data on equipment and their suppliers etc. becomes especially important and has a priority over indirect, bibliographic information in countries were not the research but the development component of scientific and technological activities is characteristic.

c) The training of information personnel and of users of information is especially important in small countries being faced with permanent problems concerning skilled manpower.

d) International organizations can assist not only in the establishment of information infrastructure but also in the supply of information. This, however, requires a higher reliability of information supply as in present.
Annex 1

THE INTERNATIONAL STAFF OF THE PROJECT

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<th>Name and nationality</th>
<th>Function</th>
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<tr>
<td>Erik I. Vajda</td>
<td>Industrial information adviser</td>
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<td>14/12/1990-10/03/1991</td>
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<tr>
<td>Gabor Stiegrad</td>
<td>Computer expert</td>
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<td>(Hungarian)</td>
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**Annex 2**

**SENIOR NATIONAL COUNTERPART STAFF**

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<tr>
<td>Terence Cooposamy</td>
<td>32</td>
<td>Director</td>
<td>Electrical engineer</td>
</tr>
<tr>
<td>Amy Quatre (Mrs.)</td>
<td>39</td>
<td>Librarian</td>
<td>Diploma teacher</td>
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FELLOWSHIPS AWARDED TO MEMBERS OF THE NATIONAL COUNTERPART STAFF

Fellowship was awarded to Mr. Terence Cooposamy, Director of CISTID, the Head of the national counterpart staff for a study tour. The subjects studied were: (1) Activities and services of UNIDO/INTIB; (2) Online information retrieval, (3) The management of information centres in developing countries. Institutions: (1) UNIDO, (2) National Technical Information Centre and Library (OMIKK, Budapest, Hungary) (3) Asian Institute of Technology (Bangkok, Thailand).

The preparation of the participation of two further staff members in a training course by fellowship is under preparation.
TRAINING COURSES AND CURRICULUM

1. **Training course on the Mini-micro CDS/ISIS software**

   **Lecturer:** Mr. Gabor Stiegrad, computer expert
   **Duration:** Two weeks.
   **Curriculum:** General characteristics of the software; establishment of databases; preparation of the field definition table, the field select table and input worksheets; the formatting language of CDS/ISIS, the file structure of CDS/ISIS databases; inverted files; the search language of CDS/ISIS; execution of information searches; sorting and printing files; establishment and use of a sample database.

2. **Series of lectures/discussion meetings on information sources and services and on information retrieval**

   **Lecturer:** Erik I. Vajda, industrial information adviser
   **Duration:** 25 lectures; mostly two times every week.
   **Curriculum:**
   a) The role and significance of scientific and technical information; primary and secondary sources of information, their acquisition and use.
   b) Current and retrospective, bibliographic and factual, active and passive information services; types of secondary information sources.
   c) The databases of CISTID; structure, content and use of databases; the organization of input to the databases; other sources for the information services of CISTID: printed sources, imported databases, online access to remote databases.
   d) The information services of CISTID. Procedures for servicing inquiries, for the preparation of standard

   - continued
Annex 4 - continued

and tailored profile SDI services, for the preparation and
technical layout of the current awareness bulletin; use of
in-house databases for services, repackaging of
information, feedback from users.

e) Information retrieval systems; the process of
retrieval, the comparison of queries and stored
information, the information retrieval languages and their
main elements; types of retrieval languages:
classifications, coordinating languages and semantic
languages (thesauri);

f) Classification schemes; the Dewey Decimal
Classification, its advantages, disadvantages and use in
manual and computerized systems; the Universal Decimal
Classification (short outline); the International Standard
Industrial Classification (ISIC).

g) The use of keywords and descriptors; controlled
vocabularies, thesauri; the methods of and sources for the
preparation of a thesaurus for CISTID.

h) The system of retrieval languages at CISTID; use
of classification and indexing in databases; additional
(free text and marked text) retrieval possibilities offered
by CDS/ISIS.
Annex 5

EQUIPMENT PROVIDED BY UNIDO*

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* Without expendable equipment

** Supplies and airfreight are not included
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We certify that the quantities of non-expendable equipment received, less the quantities of non-expendable equipment written-off, reflect the physical count of the items on hand.

Unido project manager or Resident representative: ____________________________

Government counterpart: ____________________________

Date: ____________________________

Date: 28-1-91
**Project Title**: ESTABLISHMENT OF AN INDUSTRIAL SCIENTIFIC AND TECHNOLOGICAL DOCUMENTATION CENTRE

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We certify that the quantities of non-expendable equipment received, less the quantities of non-expendable equipment written-off, reflect the physical count of the items on hand.

Unido project manager or Resident representative

[Signature]

Date 04-03-91

Government counterpart

[Signature]

Date 04-03-91
Short description of the planned databases of CISTID

Victoria, 1990/1991
1. CATAL - Computerized Access To Available Library Holdings

This database is a computerized catalogue of all library holdings except standards, and some UNIDO documents. It contains the cataloguing data of the following types of documents:

a) Books, including single and multi-volume monographs, reference tools (except serials having no distinctive volume titles), conference proceedings, working documents of UNIDO and other organisations, and other material not belonging to the following categories (b-c).

b) Reports (foreign and indigenous), i.e. documents bearing a report (and/or project) number, and/or called in the title or subtitle as "report" and/or qualified as reports by the cataloguer because of their contents. Note: serial reports (annual reports etc.) without special, individual meaningful titles, of volumes should not be treated as reports but as serials (periodicals).

c) Serials, i.e. journals, newspapers, yearbooks, annual, semi-annual or quarterly reports or other similar documents. Volumes and issues of serials should not be catalogued separately, except special issues of serials bearing a distinctive issue (or volume) title. Finally, the monographic series the individual volumes (issues) of which are bearing individual titles should be catalogued as serials as a whole, with the minor deviation as explained in the description of the datafields and sub-fields (data elements).

Analytics (works included in books or serials, like articles, papers, studies) should not be processed for CATAL, only their presence should be indicated in the appropriate field of the host document.

The database is prepared for

a) identification and retrieval of works (publications) by a given author, or of a given publication, based on identification elements (access points) like author, title, identification numbers etc;

b) subject searches, based on classification and indexing;
c) selection of whole items, or parts of them (analytics) which should be described for entering into the databases WISE, RADIO and TIP respectively.

The datafields and subfields, (data elements) of CATAL contain elements of the bibliographic description, heading elements (for retrieval), elements for subject retrieval and additional, technical data.
2. **RADIO - Research And Development Information Online**

The database represents a national inventory of ongoing and completed research and development projects. It is based on data to be supplied by agencies executing and/or ordering/financing R & D activities. These data will be supplied by the organizations dealing with R & D projects, by filling out questionnaires circulated by TSSD/CISTID, the national agency for maintaining the R & D inventory. The supply of data may be mandatory or voluntary depending on regulations.

The data can be amended or replaced by data transferred from the CATAL database, describing R & D reports.

The database is prepared for:

a) information retrieval by R & D subjects, before starting new projects, to avoid the duplication of efforts and the scattering of resources;

b) information retrieval by R & D subjects to link related subjects and researchers concerned with them together;

c) preparation of published inventories and subject oriented statistics for the public and for the government for analysis and evaluation;

d) preparation of regular information services (inquiry services, SDI, current awareness services) using the database, together with WISE and/or TJP for retrospective or current retrieval.

The datafields and subfields (data elements) of RADIO contain descriptive data of projects and their outputs, identification data of individuals and organizations involved, financial data, elements for subject retrieval and additional technical data.
3. WISE - World-wide Information Selection

This database is the main source for the information services of CISTID. It consists of data records:

a) gathered from secondary information sources: abstracts or bibliographic description + subject indication of articles, books, reports, patents etc. selected from abstracting and indexing services (journals);

b) produced by abstracting/describing/indexing articles of primary periodicals, subscribed by the library and not abstracted by any of the scanned abstracting and indexing services (see a);

c) produced by abstracting analytics (papers, articles) from books (collections, conference papers) acquired for the library holdings and designated for input;

d) produced by describing some documents (monographs) acquired for the library holdings and designated for input.

The database is prepared for

a) retrieving marked highlight information for inclusion into the current awareness bulletin;

b) information retrieval by subject to answer inquiries (providing inquiry services);

c) regular information retrieval by markers or by subject profiles and dates to prepare SDI services;

d) preparation of bibliographies of given authors, on given subjects etc.

The fields, and subfields (data elements) of WISE contain elements of the bibliographic description of the documents and their host documents, if the described item is a part: (article, paper - analytic), heading elements for retrieval, the abstract of the document (if available), elements for subject retrieval and technical data (markers, flags etc.).

The WISE database is related to two subordinated, auxiliary databases: WISE-SDIU and WISE-SDIP containing data of users subscribing SDI SERVICES AND DATA OF SDI profiles.
4. TIP - Technology Information Profiles

This database contains the data of documents comprising information on technologies, i.e. on the production of given products (exceptionally on the preparation of given services) under given circumstances, e.g. using given raw materials. It contains the data of documents:

a) not catalogued in the CATAL database because of their special character (e.g. materials of UNIDO stored in folders and entitled: How to start manufacturing industries or descriptions of technologies attached to the books: Appropriate technologies, if applicable);

b) imputed in CATAL, RADIO, or WISE and having the characters of descriptions of technologies as shown by appropriate flagging. Their inclusion in TIP is necessary to make the integrated retrieval of technological information possible and to assure the appropriate indexing of such documents.

The database is prepared:

a) for information retrieval to answer special inquiries of technological character;

b) for the preparation of technology packages or other materials popularizing up-to-date technologies, if appropriate;

c) for information retrieval to include into the regular information services special materials not imputed into WISE and RADIO.

The fields and subfields (data elements) of the database are similar to those of CATAL or WISE, with the difference that they provide for special classification elements (ISIC) and categorized descriptors for information retrieval. Technical data include unique identification of TIP documents.
5. MAP - Manufacturers And Products

This is a database of manufacturers' and their products' data arranged by manufacturers but containing retrievable information on product groups and products, too. The data for input are collected from various sources: i.e. from industrial and commercial organization of the country, from reference tools like, "Kompass" or, "Who makes what", from databases, accessed on-line or available on CD-ROM, from journals and from leaflets, product catalogues, press releases sent by manufacturers on request.

The database is prepared to answer special inquiries concerning the available sources for given types of equipment, material, services etc.

The fields and subfields (data elements) of the database contain the exact address data of the manufacturers, the description of their production profile, standard indexing and classification data for products, as well as references to data sources.
6. SEYSER - Union Catalogue of Foreign Serials in Seychelles

This database contains the data of the foreign serial (periodical) publications received regularly by libraries and other organization in Seychelles. The data for input are collected by circulation and receiving filled in questionnaires on these serials. The data can be amended by using international directories and databases of serials.

The database is prepared to direct users asking for copies of articles or aiming at browsing the serial publications to the organization where the publication is available. As an additional feature the database is identifying those periodicals back issues of which can be transferred to appropriate libraries.

The fields and subfields, (data elements) of the database contain the essential bibliographic data of the serial publications, their broad subject indication, the data of the holding libraries, the identification of the available volumes and issues, and the terms of availability.
7. ADDRESS - Addresses, Deadlines, References - Selective Store

This database is a computerized list of addresses of CISTID's customers, potential customers, partners and other bodies within the country. It is combined with data for checking deadlines, data referring to users' interests and subscription data to services.

The input data to this database are collected from official documents, correspondence, internal data concerning the activities of CISTID etc.

The database is prepared

a) to print addresses and lists of addresses for sending circulars, services, etc;

b) to analyze subject interests of users;

c) to retrieve deadlines for answering letters or circulars, paying fees, etc., not met by the addressee.

The majority of fields and subfields (data elements) is permanent and describes the name, address and activities of the individual bodies. Other data elements (deadlines) are rapidly changing, whereas data elements describing users' interests and subscription data can change eventually.
8. **BAR - Books Acquisition Registry**

The database contains the data of books and other publications selected for ordering and/or ordered by the CISTID Library. The data for input are taken from acquisition sources and/or are reflecting transactions of the library.

The database is prepared

a) to select titles belonging to a general subject field for decision on acquisition (ordering);

b) to retrieve titles, using the database as an additional catalogue to avoid duplication of order;

c) to register the data of suppliers, orders and delivery deadlines;

d) to register the receipt or the non-availability of the item.

The fields and subfields (data elements) of the database contain of abbreviated bibliographic descriptions and main heading elements, allowing the identification of the item, general subject indication, as well as, data of suppliers and acquisition transactions.
9. RESIN - Received Serials' Inventory Notes

The database is an inventory of all current serial titles received regularly by the CISTID library on the basis of subscription, exchange or free or charge. In addition it contains data on the scheduled and actual receipt of the individual issues of these serials.

The database is prepared to register the receipt of serial issues by the library and serves as a basis for claiming missing issues.

The fields and subfields (data elements) of the database contain the essential elements of bibliographic description and main heading elements, ensuring the identification of the title, as well as data on the scheduled and actual receipt and claims made.
10. AID - Answered Inquiries' Data

The database contains data of users' inquiries and of services answering the inquiries, listing the sources used for the preparation of or supplied as answers. Simple inquiries, not requiring subject searches are entered in a simplified way.

The database is prepared to

a) avoid duplications of efforts by retrieving the answers given on previous inquiries on the same or similar subject;

b) to provide basic data for the analysis of demands;

c) to provide data for performance statistics.

The fields and subfields (data elements) of the database consist of data of the user (name, address, profession) of data concerning the inquiry (type, subject) and of data concerning the service (answer) like the type, the essential data of sources used and/or given, etc.
DATA ELEMENT DIRECTORY OF CISTID DATA BASES

FIELD LEVEL

TAG: 230 SUBFIELDS: "a" "b" REPEATABILITY: R INDEXING:

NAME: OTHER TITLE

DEFINITION: Any title of the item or related to the item, being not presented in field 200 as title and identified as useful to provide access to the item. It includes former and later titles, too. For the definition of qualifier see subfield "b.

OCCURRENCE AND STATUS:

<table>
<thead>
<tr>
<th>CATALOG</th>
<th>WISE</th>
<th>TIP</th>
<th>RADIO</th>
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<th>B A</th>
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SOURCES: Any part of the described item or related items or other (bibliographic) sources

PRESENTATION AND USE: See subfields

SUBFIELD LEVEL

SUBFIELD IDENTIFIER: "a" INDEXING: 4

NAME: TITLE

DEFINITION: See at the field level

OCCURRENCE AND STATUS:

<table>
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<tr>
<th>CATALOG</th>
<th>WISE</th>
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For the conditions of mandatory presentation see the rules on presentation and use.
PRESENTATION AND USE: The data element should be presented as in the source. The presentation of former and later titles is mandatory for serials (in records describing serials and monographic series in the CATAL database and in records of the SEYSER database) if available.

SUBFIELD IDENTIFIER: "b"  INDEXING: 4

NAME: QUALIFIER

DEFINITION: The indication of the type of the other title(s). It should be followed by the text. For the conditions of mandatory presentation see the rules on presentation and use.

OCCURRENCE AND STATUS:

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The presentation of subfield "b" is mandatory whenever subfield "a" has been presented.

PRESENTATION AND USE: The qualifier for former or later titles is former and later respectively. For variant titles the word "variant" and further explanatory terms (e.g. variant on the cover) can be entered. The presentation of subfield "b" is mandatory whenever subfield "a" has been presented.
PROJECT DOCUMENTATION

1. Planning
1.1 Project Document - 1987
1.2 Work plan - 1990

2. Technical report
2.1 Planning and starting the establishment of the documentation centre (based on the work of E. I. Vajda) - 1990

3. Documents of the Tripartite Review Meeting
3.2 Amendment to the PPER - 1991