

WATER AND SANITATION INFORMATION NETWORK - INDONESIA

(WASIN)

ASSESSMENT AND PROPOSALS FOR FURTHER DEVELOPMENT

by

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January 1992



IRC International Water and Sanitation Centre
Project: Capacity Building in Information Management

503-10993

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RN: *WH 10993*
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SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

1 Introduction

- 1.1 Water supply and sanitation form only part of the interests and responsibilities of both Cipta Karya and CDC-EH. The best way of meeting the need for information on other subjects in both organizations is to strengthen and improve their general library, documentation and information collections, facilities and services.
- 1.2 None of the existing WASIN member libraries in Cipta Karya or CDC-EH has adequate accommodation or professionally-qualified staff, and none of them appears to be very much used. There is an urgent need for these libraries to be improved.
- 1.3 The development of WASIN is distinct from, but dependent on, the general development of the libraries and documentation centres of member institutions.

2 General library development: Cipta Karya

- 2.1 General library development in the Ministry of Public Works is being promoted through an Institutional Development and Training Project, (IDTP).

Recommendation

1. In accordance with the IDTP proposal, it is recommended that Cipta Karya should have only one library and that this should be at least a fourth echelon unit located within the Directorate for Programme Development and based on its existing library.

3 General library development: CDC-EH

- 3.1 In CDC-EH, a World Bank project for a health information system may provide support for the creation of a central library and documentation unit.

Recommendation

2. A central library and documentation unit for CDC-EH should be established as a fourth echelon unit within the Information Division.

4 Physical facilities

- 4.1 The amount of space needed by any particular library will depend on many factors. The amount of space needed will be different in each case, but may be calculated in accordance with norms which are presented in the text.

5 Librarian

- 5.1 The head of the library in each member institution will be directly responsible to the director of the library's parent unit for the overall planning, development, coordination and management of the library and its participation in WASIN and other networks.
- 5.2 The specific responsibilities of the position, the educational and professional qualifications and experience, and the skills and personal qualities required are presented in the text.
- 5.3 If a suitable person is not available, either one should be recruited from outside, or an existing staff member should be given suitable training.

6 Budgetary provision

- 6.1 Budget subheads for library and information activities should include provision for both recurrent and development expenditure in respect of specific items which are stated in the text.

7 General development of WASIN

- 7.1 The necessary actions to ensure the development of WASIN within the framework of the proposals for general library development are outlined. These actions should be carried out in consultation with other institutions and organizations providing information services to the water and sanitation sector.
- 7.2 Before WASIN membership is extended to other institutions, it will be necessary to review, consolidate and improve what has already been done, to ensure a firm foundation for future expansion.

8 Aims, objectives and scope

- 8.1 To ensure the continued development of WASIN, members need to agree on its long term aims and objectives.

Recommendation

3. In order to maintain a recognizable identity as a reliable source of information in a specific subject field, WASIN should remain a specialized information network designed to meet the specific needs of specific groups of users for information on water resources, water supply, sanitation and related environmental and health issues.

9 Information users and their needs

- 9.1 In order to establish relevant objectives for WASIN, a thorough knowledge of the information needs of its actual and potential users is needed.

Recommendation

4. A survey of actual and potential information users and their needs for information on water resources, water supply, sanitation and related environmental and health issues in Indonesia should be carried out as soon as possible.

10 Organizational structure

- 10.1 A formal structure for WASIN is essential to provide a firm foundation for its development.

Recommendation

5. A formal network structure for WASIN should be established on a decentralized, democratic and cooperative basis. This structure, the rights and responsibilities of members in general, and the specific contributions to network activities or finances to be made by individual members, should be defined in a formal Memorandum of Understanding to be signed by all present and future members.

11 Membership and management

- 11.1 Institutions seeking membership of WASIN must be able and willing to participate fully in its activities.

Recommendation

6. In order to ensure that new members are able to participate fully in WASIN activities, strict criteria for membership should be established. Different criteria may be established for institutions which wish to use the network's products and services but are not able or willing to participate fully in its activities.

12 Information sources

- 12.1 An essential task of WASIN should be to identify the various institutional sources of information which already exist in the country, and to find out how many documents of what kinds they produce.

Recommendation

7. A survey of institutional sources of information on water resources, water supply, sanitation and related environmental and health issues in Indonesia should be carried out as soon as possible.

13 Document collections

- 13.1 It is important to collect accurate information on the existing collections of documents in WASIN member libraries, to assess the extent to which they meet the needs of users.

Recommendation

8. An assessment of the relevance of the existing document collections in WASIN member libraries to the needs of their actual and potential users for information on water resources, water supply, sanitation and related environmental and health issues should be undertaken as soon as possible, taking into account the results of the survey of information users and their needs.

Recommendation

9. Where necessary, document collections should be remodelled in order to meet the needs of users and in accordance with a written policy statement defining the kinds of documents to be included in the various collections.

14 Physical facilities and equipment

- 14.1 To ensure the most effective use of existing resources of physical facilities and equipment and identify needs for additional resources, it is necessary to know what facilities and equipment are already available.

Recommendation

10. A detailed inventory of the physical facilities and equipment already available for network purposes in existing and new member institutions should be carried out as soon as possible.

15 Finance

- 15.1 It is essential to prepare for the gradual transfer of financial responsibility for network activities from external agencies to WASIN member institutions and users of WASIN information products and services.

Recommendation

11. The operating and development costs of WASIN, and the contributions to these costs required from WASIN members, users of WASIN information products and services, and other sources, should be presented in a separate annual budget for WASIN, to be prepared by the network management.

16 Staff and staff training

- 16.1 Suitably-qualified staff in each member institution must be assigned clear responsibility for the development and operation of WASIN.

Recommendation

12. In each member institution, overall responsibility for participation in WASIN should be assigned to the head of the library.

17 Technical operations and access

17.1 The efficiency and effectiveness of the existing technical operations and access needs to be improved.

Recommendation

13. A number of specific actions should be taken, or procedures introduced, in order to improve technical operations and access in WASIN. The necessary actions are listed in the text.

18 Information products and services

18.1 The quality and usefulness of the existing information products and services of WASIN needs to be improved, and new products and services introduced.

Recommendation

14. A number of specific actions should be taken, or procedures introduced, in order to improve the information products and services of WASIN. The necessary actions are listed in the text.

19 Marketing of information products and services

19.1 Information products and services need to be properly marketed to their target audiences if they are to be effective.

Recommendation

15. A marketing strategy and programme for the information products and services of WASIN should be prepared to ensure their effective dissemination and use.

0. PREFACE

- 0.0.1 This report presents an assessment of the Water and Sanitation Information Network - Indonesia (WASIN) and proposals for its further development. WASIN was initiated in 1988 as a joint project of the Government of Indonesia and the International Development Research Centre (IDRC).
- 0.0.2 The assessment was carried out by the IRC International Water and Sanitation Centre in The Hague, Netherlands, who provided the consultant's services free of charge as a contribution to the development of information services in water supply and sanitation in the region, and who also paid the consultant's international travelling expenses. The WASIN project paid the consultant's local expenses during his stay in Indonesia.
- 0.0.3 The terms of reference for the study may be considered to have been set out in a letter addressed to the consultant by the Project Officer at the IDRC office in Singapore during a previous visit to Indonesia in May--June 1991. This requested the consultant to:

...undertake consultancy to assist the project team to prepare a detailed programmatic action plan and prioritize a budget for the next 18 months (July 1--Dec 31, 1992). ... Specifically,

- *to assess existing operational processes (organization, workflow, etc.) and suggest ways of improving efficiency if necessary*
- *to assess existing infrastructure (equipment, facilities, etc.) and suggest appropriate upgrade (e.g. CD-ROM player, CD-ROM, microcomputer, etc.)*
- *to strategize a promotion and marketing plan for greater utilization of the project's outputs and services*
- *to examine existing products and services and suggest enhancements in terms of improvements to them or the development of new product lines and services if appropriate and within their incremental capability*
- *to assess the present base knowledge of technical and managerial staff and specify human resource requirements*
- *to advise on a plan of action required to develop maintainability and sustainability of the project activities*
- *to assess the present participation of agencies in the project activities and determine if and how this network could be strengthened*
- *to examine and include any other factors that may be appropriate in the action plan for the project time extension phase.*

- 0.0.4 Due to other commitments, it was not possible for the consultant to begin the assignment in June 1991 as requested by IDRC. It eventually took place from 14 to 25 October 1991 and was based at the WASIN headquarters in the Directorate for Programme Development, Directorate General of Human Settlements (Cipta Karya), Ministry of Public Works, Jakarta.
- 0.0.5 During the period between the initial approach from IDRC and the beginning of the assignment, an extension of the project to the end of 1992, with no further increase in funding, was agreed by IDRC on the basis of a proposal submitted by the project team at WASIN. While the present report includes proposals for specific actions to be undertaken during this extension, some of which may require modification of the WASIN proposals, it is concerned mainly with defining the requirements for ensuring the continued development of WASIN after the end of the present project.
- 0.0.6 During the assignment, visits were made to library and documentation units participating in the network in Cipta Karya and the Ministry of Health, and to the National Scientific and Technological Information Centre (PDII), as well as to other libraries in Cipta Karya and the Ministry of Health.
- 0.0.7 On 24 October, the consultant, the WASIN Project Head and other members of the WASIN project team had a meeting with staff of the Institutional Development and Training Project of the Ministry of Public Works and the World Bank to discuss the relationship between the two projects.
- 0.0.8 The main findings of the assignment were presented to and discussed at a final roundup meeting with WASIN members, and in a separate meeting with the Secretary of Cipta Karya, on 24 October.
- 0.0.9 The consultant subsequently met with the Project Head, the Co-Project Leader and Project Manager from Cipta Karya, and the Project Manager from the Directorate General of Communicable Disease Control and Environmental Health (CDC-EH) of the Ministry of Health, at IRC headquarters in The Hague in mid-November 1991.
- 0.0.10 The comments received in the course of these various meetings and discussions have been taken into account in preparing the final text of the report.
- 0.0.11 In submitting this report, IRC would like to express its thanks to IDRC and the Indonesian authorities for providing the opportunity to carry out this study and for the help and support provided to the consultant by the WASIN Project Head, Co-Project Leaders, Project Managers and other project staff.

1 BACKGROUND

1.1 Introduction

1.1.1 WASIN is an information network in water supply and sanitation comprising five library and documentation units in the Directorate General of Human Settlements (Cipta Karya), Ministry of Public Works and three in the Directorate General of Communicable Disease Control and Environmental Health (CDC-EH) of the Ministry of Health. The National Scientific and Technological Information Centre (PDII) in Jakarta also participates in the network.

1.1.2 The Directorate General of Human Settlements is one of three such units in the Ministry of Public Works. It comprises a general Secretariat and six Directorates, as follows:

- Directorate of Programme Development
- Directorate of Urban and Regional Planning
- Directorate of Public Buildings
- Directorate of Housing
- Directorate of Water Supply
- Directorate of Environmental Sanitation.

1.1.3 The library and documentation units in Cipta Karya which are members of WASIN are located in the following units:

- Directorate of Programme Development
- Office of the Director
- Sub-Directorate of General Planning
- Directorate of Water Supply
- Directorate of Environmental Sanitation
- Directorate of Housing.

1.1.4 The Directorate General of Water Resources of the Ministry of Public Works has a library on water issues which is not a member of WASIN. This library has a collection of some 10,000 volumes and was recently supplied with a microcomputer and CDS/ISIS software under the World Bank/Ministry of Public Works Institutional Development and Training Project. The person in charge recently completed a three month course in basic library and documentation techniques at a private training institution in Jakarta. The library receives about ninety visitors per month.

- 1.1.5 Within Cipta Karya, the Directorate of Urban and Regional Planning has a library on urban and regional development which is also not a member of WASIN.
- 1.1.6 The Directorate General of Communicable Diseases and Environmental Health (CDC-EH) is one of four such units in the Ministry of Health. It comprises a Secretariat General and five Directorates, as follows:
- Directorate of Vector-borne Diseases Control
 - Directorate of Directly-transmissible Diseases Control
 - Directorate of Epidemiology and Immunization
 - Directorate of Environmental Health
 - Directorate of Water Sanitation.
- 1.1.7 The Secretariat General comprises five divisions, one of which is the Division of Information.
- 1.1.8 The library and documentation units in CDC-EH which are members of WASIN are located in the following units:
- Secretariat General
 - Division of Information
 - Directorate of Environmental Health
 - Directorate of Water Sanitation.
- 1.1.9 WASIN was established in 1988 as a joint project of the Government of Indonesia and the International Development Research Centre (IDRC). The project was originally intended to end in 1990; however, an extension until the end of 1992 was approved by IDRC in mid-1991 on the understanding that any further activities undertaken during the extension would be funded from the original project budget.
- 1.1.10 The development of WASIN must be seen in the context of other information projects and networking activities in the Indonesian water and sanitation sector in general and in the Ministry of Public Works and the Ministry of Health in particular.

1.2 ENSICNET-Indonesia

- 1.2.1 Three member units of WASIN (the Directorates of Programme Development, Water Supply and Environmental Sanitation) are also members of the Environmental Sanitation Information Centre Network (ENSICNET)--Indonesia, which was established in 1989 as one of six national networks in Asian countries forming a regional network centred on the Environmental Sanitation Information Centre (ENSIC) at the Asian Institute of Technology (AIT) in Bangkok, Thailand. The national focal point of ENSICNET-Indonesia is located at the Bandung office of PDII.
- 1.2.2 The objectives and activities of ENSICNET-Indonesia, which at present comprises more than twenty member institutions, are very similar to those of WASIN. They include the creation of a national computerized database of water and sanitation documentation and the submission of bibliographic records to the regional ENSIC database at AIT, the provision of information and documentation services and the publication of a newsletter.
- 1.2.3 By the end of April 1991, ENSICNET-Indonesia had submitted 142 records of Indonesian documents on water supply and sanitation to ENSIC. So far, there has been no exchange of computerized records between ENSICNET-Indonesia and WASIN. However, ENSICNET-Indonesia supplies WASIN with catalogue records in card form of the documents on microfiche which it receives from ENSIC. In addition, some members of WASIN staff have participated in training programmes organized by ENSICNET-Indonesia.
- 1.2.4 The future development of ENSICNET is now under discussion. However, it appears likely that it will be funded by the ADB for a further period of at least two years and that support will be provided for the further development of ENSICNET-Indonesia.

1.3 Development of libraries in the Ministry of Public Works

- 1.3.1 In connection with the Institutional Development and Training Project (IDTP) of the Ministry of Public Works and the World Bank, the Director of PDII recently carried out a consultancy to review and develop library policy in the Ministry and its seven Directorates General (including Cipta Karya).
- 1.3.2 The report on this consultancy has not been officially released and cannot be quoted in detail at this stage. However, it appears that its proposals are already being implemented. In broad terms, the report proposes that each Directorate-General within the Ministry should have only one library and that these libraries should be linked in a network centred on the existing library of the General Secretariat.
- 1.3.3 The IDTP consultant's report proposes that the library of Cipta Karya should be located in the Directorate for Programme Development and should be at least a fourth echelon unit. The IDTP staff responsible for the information and documentation component of the project emphasized that it is urgently necessary for Cipta Karya to make a decision on the location of its library if it is to receive proper support from the project.

- 1.3.4 The IDTP provides funds for the purchase of books, periodicals and equipment, as well as for staff training. Some books have already been ordered for libraries in Cipta Karya; however, there will be no money for books in 1992.
 - 1.3.5 The IDTP project as such makes no provision for increasing the amount of space occupied by the various libraries; however, the PDII consultancy report proposes that an area of between 300 and 400 square metres should be provided for the library in each Directorate-General of the Ministry.
 - 1.3.6 The training component of the IDTP provides for staff to be sent for full-time professional education in appropriate subjects, including library and information science.
- 1.4 Development of health information systems
 - 1.4.1 A World Bank consultant recently presented proposals for the development of a health information system in the Ministry of Health which provide for the establishment of an integrated computerized information system covering: manpower; finance; community services; hospital services; laboratories; drug inventory; material inventory; and an executive information system. These proposals do not appear to make any provision for the organization of document collections of any kind.
 - 1.5 A Health Information and Documentation Network was established in Indonesia in the 1970s. Its members are all libraries, and include not only libraries in the Ministry of Health, but also those in health education and training institutions.

2 AIMS, OBJECTIVES AND SCOPE OF WASIN

2.1 General objectives of information networks

2.1.1 Any information network comprises a number of individual information systems or services. It has been suggested that an information service can only be evaluated in relation to its stated objectives--although few such services do, in fact, state their objectives precisely.

2.1.2 In general terms, the ultimate objective of any information service must be to provide information products and services which will satisfy the needs of its users (and could satisfy those of potential users) in terms of:

- maintaining awareness of new developments in their fields of interest
- identifying documents containing information of interest
- locating and supplying copies of required documents
- answering enquiries.

2.1.3 In order to achieve this objective, an information service must:

- know who its actual and potential users are
- know what their information needs are
- provide collections of information materials, and information products and services, capable of meeting those needs
- ensure that actual and potential users are aware of these collections, products and services, and have access to them.

2.1.4 To fulfil these requirements, an information service must be able to perform a range of technical operations, including identifying and procuring documents and recording their existence in catalogues, indexes or databases.

2.1.5 This requires adequate resources, in terms of equipment, finance and staff, an appropriate organizational structure and the necessary legislative or administrative authority to undertake all these activities.

2.1.6 The general aim of an information network may be said to be to enhance the ability of its member institutions to perform the necessary technical operations and provide the desired information products and services, and so meet the information needs of their users more effectively. A network may thus be evaluated in terms of the extent to which it has, or is able to, achieve this aim.

2.1.7 While this report does not attempt to present a formal evaluation of WASIN, some general assessment of its objectives and the extent to which they have been achieved is necessary to provide a firm foundation for proposals for its development.

2.2 Aims and objectives of WASIN

2.2.1 The general aim of the project, as stated in the IDRC Project Proposal (number 3-P-87-0096 of 1987), was to assist Cipta Karya and the Directorate General of Communicable Diseases Control and Environmental Health (CDC-EH) of the Ministry of Health to establish a national water supply and sanitation documentation and information network.

2.2.2 The outputs and specific activities of the project, as set out in the Project Document, may be summarized as follows:

- to strengthen the professional and technical information resources of Cipta Karya and CDC-EH
- to develop a team of Indonesians trained in modern information handling procedures
 - to catalogue and classify existing document collections in water and sanitation in Cipta Karya and CDC-EH
 - to improve the mechanisms for capturing and processing documentation related to water and sanitation produced in the relevant ministries
- to establish national documentation network procedures
- to produce and make available for use microfiche copies of reports produced within the two Directorates General
- to promote the use of the documentation services among producers and users of information within the related ministries
 - to create a computerized database of water and sanitation documentation
 - to produce four water and sanitation bibliographies and eight holdings lists, and provide search services
 - to produce four issues of a national water and sanitation documentation network newsletter.

2.2.3 The extent to which these objectives have so far been achieved is discussed in general terms in succeeding sections of this report.

2.3 Scope of WASIN

2.3.1 The precise scope of WASIN has not yet been clearly defined. When the project document was prepared, Cipta Karya was responsible for water supply and sanitation programmes in urban areas, and the Ministry of Health for rural areas. By including

- both ministries in the project, it may be assumed that the intention was to cover information relating to all aspects of water supply and sanitation in both areas.
- 2.3.2 Since the project document was formulated, however, the respective responsibilities of Cipta Karya and the Ministry of Health have been changed. The former is now responsible for the design and construction of water supply and sanitation schemes, while the latter is responsible for the health aspects of such schemes, and of the provision--or lack of it--of clean water supply and sanitation facilities in general.
 - 2.3.3 The maintenance of local water supply and sanitation facilities, once they have been constructed, is the general responsibility of the Ministry of Home Affairs. At the provincial level and below, central government agencies operate through or in collaboration with the appropriate agencies of provincial and local authorities.
 - 2.3.4 The Project Manager in CDC-EH considers that, perhaps because the project was initially conceived of within Cipta Karya and the Project Head and most of the trained staff are located there, WASIN at present places significantly greater emphasis on the design and construction aspects of water supply and sanitation and correspondingly less on the health (and operation and maintenance) aspects. This is thought to account, at least in part, for the imbalance in levels of input to the WASIN database as between Cipta Karya and CDC-EH staff.
 - 2.3.5 The accuracy or otherwise of this observation could not be confirmed during the assignment; this is, in any case, of less importance than the fact that it has been made--that it, that there is a perceived bias in the scope of WASIN towards design and construction and away from health aspects.
 - 2.3.6 Project staff in both Cipta Karya and CDC-EH have indicated that the kinds of information provided through WASIN at present are relevant to the needs of only part of the staff of their respective institutions, and suggested that the subject coverage of WASIN should be extended to meet the needs of staff dealing with other aspects of health and public works such as, in Cipta Karya, housing and urban planning, and in CDC-EH, industrial, food and pesticide sanitation.
 - 2.3.7 It is for the members of WASIN to determine its scope. However, it is suggested that, in order to maintain the identity of the network and so facilitate its eventual recognition by users as a reliable source of information in a specific subject field, its scope should not be broadened too much beyond the fields of water supply, sanitation and related issues such as water resources, solid waste disposal and water-related environmental and health issues.
 - 2.3.8 The needs of users in other, unrelated fields, would best be met, first, by improving general library and documentation facilities in these fields and secondly by establishing similar specialized information networks (or joining existing ones) in the subject areas concerned.
 - 2.3.9 It is important for the longterm future of the project to resolve these issues. The WASIN team should take steps to define the scope of the network (and thus, of the database and its associated information products also) more precisely and in writing, as soon as possible.

2.3.10 The framework for the analysis of user needs presented in Appendix A may provide a basis for this process, using a suitable thesaurus such as the Interwater Thesaurus as a source of terms to be used in defining the subject scope of WASIN.

3 ORGANIZATIONAL STRUCTURE

3.1 Introduction

- 3.1.1 Any information network requires an appropriate organizational structure through which its resources can be applied in the performance of technical operations and the provision of services to users.
- 3.1.2 The organizational structure of an information network is influenced by administrative and organizational background factors and by any existing organizational arrangements for the supply of information in the sector as a whole.
- 3.1.3 The network structure also overlaps and interacts with the internal organizational structures of individual information units participating in the network and with those of their parent organizations, as well as those of other networks, institutions and organizations. This gives rise to questions of centralization, coordination and cooperation.

3.2 Structural and functional aspects

- 3.2.1 In the organization of government activities in Indonesia, a distinction is made between 'structural' units, such as directorates, divisions and sub-directorates, and 'functional' activities carried out by, or within, these units.
- 3.2.2 The lowest level of structural unit is known as 'echelon 4', represented in Cipta Karya, for example, by the Data Processing Section of the Sub-Directorate of General Planning in the Directorate of Programme Development. The library and documentation centre of the Sub-Directorate falls under the Data Processing Section.
- 3.2.3 Since the latter is already at the lowest level in the structural hierarchy, the library and documentation centre cannot form part of that hierarchy, but is considered to be a functional activity. This is the case also in most other units of Cipta Karya and CDC-EH. Only the library of the Directorate-General of Roads and Construction of the Ministry of Public Works is designated as a structural unit.
- 3.2.4 WASIN, as an interinstitutional cooperative activity involving various units of Cipta Karya and the Ministry of Health, is a functional activity without a formal place in the structural hierarchy. However, the units most directly involved in WASIN, the libraries and documentation centres of Cipta Karya and CDC-EH, are themselves considered to be only functional activities, and have no place in the structural hierarchy.
- 3.2.5 Library and documentation activities in Cipta Karya and CDC-EH are thus not institutionalized in any way at present, and are thus unable to provide a firm institutional base for the development and operation of WASIN.
- 3.2.6 This problem has also been recognized in the proposals for the development of library services in the Ministry of Public Works prepared by the Director of PDII, who has suggested that all libraries in the Ministry which have no official status or

which are below the fourth echelon should be upgraded to at least the fourth echelon in future.

3.2.7 In the Ministry of Health, all Directorates-General have an Information Division which is a structural unit responsible for the collection, analysis and dissemination of information--mainly statistical data. In CDC-EH, some Directorates, such as that responsible for epidemiology and immunization, have their own surveillance units which collect health data in their own fields.

3.3 Organizational structure of WASIN

3.3.1 The organizational structure of the WASIN project as such, and as laid down in the project document, comprises:

- an Advisory Group, consisting of representatives of PDII, the Directorates of Programme Development, Water Supply, Environmental Sanitation and Housing of Cipta Karya, the Institute of Human Settlements, and the Directorates of Environmental Health and Water Sanitation of CDC-EH.
- the project management team, comprising the Project Head, a Project Leader and a Project Manager from Cipta Karya and a Project Leader and Project Manager from CDC-EH.

3.3.2 It is important to recognize that the organizational structure established for the management of the project is not necessarily the most appropriate for the long term development of the network itself--particularly if, as is the intention, the network expands to include information units in other government and non-governmental organizations and in other parts of Indonesia. The lack of a firm conceptual foundation for the network structure is considered by the Project Manager in CDC-EH to be a major obstacle to the successful development of the network in the future.

3.3.3 The principal kinds of network structure were discussed in a recent article describing the experience of IDRC in supporting the development of information networks in Latin America. ¹

3.3.4 Since WASIN was from the start conceived of as an activity involving more than one institution, a decentralized, democratic and cooperative network structure, providing a high degree of flexibility in accommodating new members and in sharing responsibilities among them, would seem to provide the most suitable basis for the future development of WASIN.

3.4 Cooperation

3.4.1 An information network is, by definition, a cooperative activity:

Simply put, information networks constitute groups of individuals or organizations who share common interests and exchange information in various forms on a regular or organized basis. This sharing of resources is a practical way of utilizing available resources to meet the increasing demands for further information. ¹

3.4.2 The attitudes of network members to cooperation with other member institutions, and their ability to engage in cooperative activities, are thus crucial elements in the success or failure of a network.

3.4.3 The IDRC analysis identified the following network characteristic relating to this topic:

- **Ability to foster interdependent interaction and mutual trust.**

In a network of diverse membership, each partner accepts certain obligations to the other partners. Specifically, a network's function is 'to marshal resources from its environment to accomplish results beyond the ability of any one of its members'. Network members are, therefore, not passive clients but active participants in the gathering, processing and dissemination of information.

3.4.4 While the attitudes of existing network members to cooperating with each other seem to be generally positive, their ability to do so, in terms of the human and material resources at their disposal, and the way in which these resources are employed, is more doubtful.

3.4.5 Cooperation may be defined as: 'working together to the same end, purpose or effect': and effective cooperation thus requires, among other things, a broad measure of agreement on the objectives of the cooperative activity. If WASIN is to continue to develop after the end of the existing project, it will be necessary for network members to agree upon broader long term objectives with regard to the future role of WASIN in providing water and sanitation information to users in Indonesia, taking account of the activities of other agencies in this respect.

References

1. Akhtar, Shahid. Regional information networks: some lessons from Latin America. Information Development, vol. 6, no. 1, January 1990, 35-42.

4 WASIN MEMBERSHIP AND MANAGEMENT

4.1 Introduction

4.1.1 The terms of reference for the present assignment required the consultant to

assess the present participation of agencies in the project activities and determine if and how this network should be strengthened.

Some aspects of this question have already been touched upon in the preceding section; other general aspects are considered here, while the participation of member agencies in specific WASIN activities is considered separately in the appropriate sections below.

4.1.2 The IDRC analysis of Latin American information networks makes the following general point with regard to network membership and management which might serve as a basis for the consideration of these issues in relation to WASIN:

The success of resource sharing, the fundamental premise of information networking, depends not only on having appropriate goals and objectives, but also on creating and operating a service within the right legal, administrative and fiscal framework. Legal structure, membership and governance are the foundations upon which networks are built.

4.1.3 The analysis goes on to identify two network characteristics which are particularly relevant in this respect:

- **Two-way communication and accountability between members and governance regarding the needs and resources of the network.**

Each member of the network, simply by agreeing to participate, assumes a number of obligations with respect to the management and financing of the network's operations. Members also have certain rights, namely, to receive the results of joint work and to benefit by the services designed for the network.

- **Authority and power to enforce membership in accordance with the purpose of the network.**

Informally-structured network initiatives may be easier to set up, but they also tend to decline quite rapidly because of the lack of continuity among personnel, a weak sense of obligation or reliability amongst members, or the disappearance of participating organizations without alternative arrangements.

4.1.4 Participation by members in the management of the network is also identified by IDRC as a key characteristic:

- **Balanced representation of diverse members in the governance, either directly or indirectly.**

One major element of networking involves coordinating mechanisms consisting of consulting/technical committees, representing not only network members but also end-users.

These committees ensure equal participation by all members by involving them in decision-making on policy and technical matters.

4.1.5 Three further important characteristics relating to the overall management of the network are identified as:

- Ability to balance centrality of control and direction with the diverse needs of the members, avoiding over-distribution of power while rendering the governance responsive to the members.

An information network requires an explicit organizational structure defining the responsibilities, obligations and rights of each participating entity in regard to provision and dissemination of data, as well as managerial and administrative collaboration.

A coordinating centre must also be accountable to network members, for only mutual trust provides it with the authority to maintain the purpose of the network in spite of occasional differences.

- Ability to communicate with and direct management, ensure continuity of internal control and direction and generate correct and intelligent decisions quickly and under pressure.

The management of a network must be essentially democratic if the participants are to see themselves as equals.

- Flexibility to assume participation in or with various other government or private entities and programmes, both today and as they may change over time.

Clear and consistent policies regarding participation are critical both to the efficient operation and further development of the network, and experience suggests that they can also assist individual member units when appealing for funding to national authorities in order to meet their respective obligations.

Mechanisms to ensure balanced participation for diverse members and flexibility are key contributing factors to successful networking.

4.1.6 To ensure the creation of a firm foundation for the longterm development of WASIN, the project team will need to give careful consideration to the extent to which WASIN can and should be organized so as to incorporate these characteristics.

4.2 Legal structure

- 4.2.1 WASIN has no legal structure as such at present. To provide a firm foundation for the future development of the network, however, it would be advisable to define its overall structure, its management structure, the rights and responsibilities of members in general, and the specific contributions to be made by individual members (for example, in terms of tasks to be performed on behalf of the network), in a Memorandum of Understanding to be exchanged between network members.
- 4.2.2 The Memorandum of Understanding exchanged between the members of the Health Research and Development Information Network (HERDIN) in the Philippines provides a model which may provide a useful starting point for the development of a similar agreement for WASIN members.

4.3 Present and future membership of WASIN

- 4.3.1 The present membership of WASIN is outlined above. The members of the project team are agreed on the need to expand the membership to include, initially, the libraries of the Directorate General of Water Resources in the Ministry of Public Works, and the National Health Research and Development Institute, and subsequently other institutions.
- 4.3.2 Recent studies by IRC of other information networks in water and sanitation in Southeast Asia have revealed some fundamental characteristics of participants in these networks which may help to guide the future development of WASIN.
- 4.3.3 In the networks studied, a relatively large number of member institutions were admitted to membership at an early stage. It was subsequently found, however, that many of these institutions were only able to participate in the network mainly, or even solely, as users of information generated in other institutions, and not as producers of documentary information.
- 4.3.4 Participation in network activities by these institutions is essentially passive, rather than active, and it may be inappropriate to treat them as full participants, either in terms of the inputs expected of them or of the outputs they may expect to receive-or the terms on which those outputs are provided to them.
- 4.3.5 In contemplating the possible expansion of WASIN to include other kinds of institutional members, either in Jakarta or in other parts of Indonesia, it is important first to ensure that they are able to participate fully in the network in terms of enhancing its human and documentary resources and extending and improving the services provided.
- 4.3.6 Institutions which are unable to contribute in this way, but whose staff need access to the products and services of the network, may of course be allowed access on suitable terms and conditions, but should not be invited to participate as full members of the network.

5 INFORMATION USERS AND THEIR NEEDS

5.1 Introduction

5.1.1 The potential users of information in specific fields are often widely scattered and sometimes difficult to identify, especially in an interdisciplinary field such as water supply and sanitation. A thorough knowledge of the characteristics, size and distribution of the estimated potential user population (EPUP) is, however, fundamental to the successful provision of information to meet its needs.

5.2 Estimated Potential User Population

5.2.1 According to the project document, the primary beneficiaries of WASIN are expected to be the technical and professional staff of the Ministry of Public Works and the Ministry of Health working in the fields of water supply and sanitation, while similar staff in other institutions, including the Ministry of Population and Environment, the Ministry of Home Affairs, the National Planning Board and the Institute of Human Settlements, are also expected to benefit.

5.2.2 These are by no means the only potential users of the network. Others mentioned by project staff include the professional and technical staff of: the Ministry of Industry concerned with occupational health; the Ministry of Manpower; the public works, human settlements, health and planning departments of twenty-seven provincial governments; universities and training institutions; consultants and contractors; aid organizations and non-governmental organizations. Students and members of the general public are also potential users of WASIN.

5.2.3 The numbers of potential users of water supply and sanitation information in these various target groups are not known. The project document noted that Cipta Karya has a staff of 1,750 personnel, but did not indicate whether this figure included staff at all levels, in all units and all parts of Indonesia, or only professional and technical staff concerned with water supply and sanitation and based in Jakarta.

5.2.4 Information received from the WASIN Project Manager in Cipta Karya indicates that Cipta Karya has some 2,200 staff at all levels in Jakarta and a further 5,400 in other parts of Indonesia, giving a total of 7,600 staff, of which perhaps 3,000 (about 40 percent) are involved in water supply and sanitation activities.

5.2.5 The WASIN Project Manager in CDC-EH has indicated that about 800 staff are employed in CDC-EH, with a further 500 employed at the regency level. In addition, there are more than 6,000 local health centres throughout the country, each of which has at least one sanitation specialist on the staff.

5.2.6 Another indication of the possible size of the EPUP is provided by the fact that ENSICNET-Indonesia has more than twenty institutional members, only three of whom are also members of WASIN; and its geographical coverage is limited mainly to the Bandung and Jakarta areas.

5.2.7 It seems clear that the EPUP for water and sanitation information in Indonesia as a whole must be quite large; and an important task of WASIN--perhaps working in collaboration with ENSICNET-Indonesia--should be to create, and keep up-to-date, an accurate profile of the potential user population.

5.3 Actual users of WASIN

5.3.1 Records of the numbers of actual users of WASIN information products and services are not maintained systematically.

5.3.2 The numbers of copies of the various current awareness products (Accession list of water and sanitation, Bibliography of water and sanitation - Indonesia, and Warta air dan sanitasi [newsletter]) which are distributed regularly are noted in section 13.3 below, while data relating to document delivery services in the library of the Directorate of Programme Development in Cipta Karya, are discussed in section 13.5.

5.3.3 The latter indicate that very few people use this library as a source of information on any subject, and this is probably true of the other WASIN member libraries also. The numbers of actual users of any of the information products and services currently provided by WASIN thus appear to be very small.

5.4 Information needs of actual and potential users

5.4.1 No systematic attempt has yet been made to determine the information needs of actual and potential users of WASIN.

5.4.2 As noted above, the kinds of information provided through WASIN are relevant to the needs of only part of the staffs of its member institutions, and it has been suggested that the subject coverage of WASIN should be extended to meet these needs.

5.4.3 It is considered, however, that the best way of meeting the broad range of information needs of users in all units of Cipta Karya and CDC-EH is to strengthen and improve their general library, documentation and information collections, facilities and services to ensure adequate coverage of these needs, and to establish or join other specialized information networks designed to meet these other needs.

5.4.4 Subject to the formal definition of its scope as suggested above, it is considered that WASIN should remain a specialized information network designed to meet the specific needs of specific groups of users for information on water resources, water supply, sanitation and related environmental and health issues.

5.4.5 The WASIN team should make a systematic attempt to survey the main groups of potential users in these subject fields, and to identify their information needs, as soon as possible. Guidance on the conduct of such a survey is provided in Appendix A.

6 THE SUPPLY OF INFORMATION

6.1 Introduction

6.1.1 It is impossible to meet the information needs of a particular group of users unless the required information already exists and is available at the right levels of presentation and in the right formats and languages, and is appropriate, in terms of timeliness and of the means by which it is communicated, to the needs of the users.

6.2 Information supply in WASIN member institutions

6.2.1 No attempt has yet been made to estimate the numbers of relevant documents produced by the WASIN member units in Cipta Karya and CDC-EH, let alone to try to estimate the numbers produced by other institutions in Indonesia.

6.2.2 Without such information, it is impossible either to estimate the probable rate of growth of the national database and the scale of the published products derived from it, to determine the hardware, staffing and materials needed to maintain the database and produce the information products, or to assess the extent to which the documentary production of network members is covered by the database and its products.

6.2.3 An essential task of WASIN should be to identify the various sources of information which already exist in the country, to provide a firm basis for the development of its own collections of national information materials, for the compilation and publication of a national directory of information sources and for the eventual creation of national union lists and catalogues of relevant library holdings.

6.2.4 This task may be carried out in conjunction with the collection of information on the EPUP and its information needs and also provide a basis for the compilation of additional information products such as a directory of water and sanitation professionals in Indonesia. Guidance on the conduct of such a survey is provided in Appendix A.

7 DOCUMENT COLLECTIONS

7.1 Introduction

- 7.1.1 As conceived under the present project, WASIN is primarily a bibliographic network, concerned with exchanging information about documents on water supply and sanitation. This being so, the condition of document collections in the participating institutions is a matter of vital importance for the success or failure of the network.
- 7.1.2 No matter how effective an information network may be in providing information about the document collections of its member institutions, or in supplying documents, or copies of documents, to users in those institutions, for most users the first requirement is to be able to find as many as possible of the documents they need, when they need them, in the collections of their own library.
- 7.1.3 An institution whose document collections are inadequate to meet the needs of its own users is unlikely to be able to participate effectively in networking activities, which necessarily require that these collections also be made accessible to users in other institutions.

7.2 Document collections in WASIN member libraries

- 7.2.1 Accurate and comprehensive data on the document collections of WASIN member units are not available at present.
- 7.2.2 Based on the results of a questionnaire survey of Cipta Karya libraries carried out by the WASIN Project Manager in Cipta Karya in September 1989, and on data obtained from the accessions register of the library of the Sub-Directorate of General Planning in the Directorate of Programme Development of Cipta Karya, the total number of documents of all kinds (including books, reports, periodicals, proceedings, maps and others) in the four Cipta Karya libraries in Jakarta may be roughly estimated to be about 12,000.
- 7.2.3 The size of the collections of the Institute of Human Settlements library in Bandung and of the three libraries in CDC-EH is not known. The latter were visited by the consultant and are estimated to contain not more than some 2,000 to 3,000 documents in total.
- 7.2.4 Not all the documents contained in these libraries are relevant to water supply and sanitation. Only 5 percent of the collection of the Housing Directorate (about 100 titles) are concerned with water supply and sanitation, and all the libraries contain a certain amount of general reference material--dictionaries, etc.--and material on general topics such as management, computer systems and so on.
- 7.2.5 Based on the above estimates, it seems possible that the total number of copies of documents relating to water supply and sanitation which are available in the network as a whole, is not more than 15,000 at most. If allowance is made for the duplication of, say, 10 percent of titles within and between the various collections, the total number of different documents on water and sanitation in the network as

a whole may be provisionally estimated at about 13,500. This includes both foreign and Indonesian documents of all types.

- 7.2.6 It is important to collect, and to keep up to date, accurate information on the contents of the existing document collections of member libraries, in order to assess the extent to which they meet the identified needs of information users. If the collections do not reflect the needs of users, they will have to be remodelled, through a systematic process of withdrawal, discarding and acquisition, until they do.
- 7.2.7 Information on the existing collections is also needed to assess the extent to which they are recorded in the WASIN database and its associated information products. The effectiveness of these sources as guides to the information resources of the network can only be assessed if the nature of those resources is known.
- 7.2.8 The project proposal provided for the microfiching of important documents produced from 1980 to the present. Up to now, only 50 titles have been microfiched on behalf of WASIN by PDII.
- 7.2.9 One problem noted during most of the visits to member libraries was the lack of current periodicals. Although the number of periodicals specifically concerned with water supply and sanitation is not very large, few of the institutions visited had more than one or two titles. An exception was the library of the Directorate-General of Water Resources in the Ministry of Public Works--which is, however, not a member of WASIN at present.

8 PHYSICAL FACILITIES & EQUIPMENT

8.1 Introduction

8.1.1 The terms of reference for the assignment required the consultant to

assess existing infrastructure (equipment, facilities, etc.) and suggest appropriate upgrade (e.g. CD-ROM player, CD-ROM, microcomputer, etc.).

This section of the report is therefore concerned both with the existing physical facilities, including the use made of equipment supplied under the project, and with future needs.

8.2 Physical facilities in WASIN member libraries

8.2.1 All the WASIN member libraries in Jakarta are housed in extremely unsatisfactory conditions. The libraries in Cipta Karya are all located in very small and overcrowded rooms, while in CDC-EH, they are located in rooms which are mainly used for other purposes. None of the libraries provides adequate seating accommodation for readers or adequate workspace for staff.

8.2.2 The two computers supplied under the project are still operational, but the photocopier supplied to Cipta Karya was damaged beyond repair some time ago and the two microfiche readers are each used only about once a month.

8.2.3 The extent to which further equipment of the kinds already supplied, such as microcomputers, photocopiers and microfiche readers, should be provided to network members who have not yet received such items, will depend on decisions to be made with regard to the expansion of the network, as well as on the completion of a detailed inventory of the equipment already available for network purposes in existing and new member institutions.

8.2.4 Given the present weaknesses of the WASIN database, the small number of documents on microfiche currently available and the limited use made of them, there seems little need at present to provide computers or microfiche readers to those who do not already have them.

8.2.5 If the photocopier supplied to Cipta Karya is really beyond repair, it should be replaced as soon as possible--preferably by a more robust model (e.g. Xerox 1045 or similar) suitable for the kind of high-volume copying which should be taking place in a national documentation centre, rather than a conventional desktop model suitable for office use.

8.2.6 The provision of a CD-ROM reader to a member institution with staff capable of making good use of it on behalf of the network as a whole could help to enhance the level of service to users provided that a selection of appropriate information sources on CD-ROM were also supplied at the same time.

8.2.7 It is suggested that a decision on this matter be taken by the project staff after the forthcoming visit of three of their number to IRC, where they will be able to see, use and evaluate both the technology and the available sources.

9 FINANCE

9.1 Introduction

9.1.1 The IDRC analysis of information networks identified the following network characteristic relating to finance:

- **Ability to attract funding on a general cooperative basis to ensure financial stability and, hence, self-reliance.**

A key element in the successful establishment and maintenance of a network is the provision of assured and adequate funding. ... As with any 'public good', information networks should not be expected to become self-financing on a commercial basis.

9.2 Finance in WASIN

9.2.1 None of the member libraries of WASIN has a regular line item in the annual budget of its parent unit, and there is a general lack of funds for library and documentation purposes within the two ministries concerned.

9.2.2 In a meeting with the consultant at the end of the mission, the Secretary of Cipta Karya emphasized the importance of making adequate provision in the regular budget for information and documentation in general, and for WASIN activities in particular.

9.2.3 The consultant's report on his recent evaluation of ENSICNET noted that

there seems to be limited scope for participating institutions to sell their information products and services due to the inability of users to afford to pay for them.

9.2.4 The case of ENSICNET-Indonesia, where users often cancelled requests for full-size copies of ENSIC microfiche on learning that they cost six times as much as a normal photocopy, was cited as a specific example of this problem.

9.2.5 It seems inevitable that the further development of WASIN will depend to a large extent on the availability of financial support from external agencies. To increase the chances of obtaining such support, it will be advisable to:

- present proposals for the development of WASIN within a broader framework, for example, within the context of proposals for the development of general information management capabilities in Cipta Karya and CDC-EH or their parent ministries, which in turn might form part of still broader development projects
- provide adequate counterpart funds for the developments foreseen under such projects

- in addition, make separate provision in the regular budgets of the institutions involved, for information and documentation activities in general and for participation in WASIN in particular
- make provision, in project proposals for WASIN and for the provision of information products and services in general, for at least a nominal degree of cost recovery through the introduction of charges to users.

10 STAFF AND STAFF TRAINING

10.1 Introduction

10.1.1 The consultant's terms of reference required him to

assess the present base knowledge of technical and managerial staff and specify human resource development requirements.

10.1.2 No information network can function without an adequate supply of suitably-trained and qualified manpower. Creating and maintaining a cadre of competent, highly-motivated and well-qualified personnel is therefore one of the most crucial tasks to be undertaken in developing an efficient and effective information network.

10.2 Staff provision in WASIN

10.2.1 The project proposal provided for the appointment from within the existing staffs of the member institutions of a Project Head (from Cipta Karya), two Co-Project Leaders, two Project Managers, six information staff, two secretaries/data input operators, and two office boys. One Co-Project Leader, one Project Manager, three information staff, one secretary/data input operator and one office boy were to be provided by each of the two main member organizations.

10.2.2 The Project Head and Co-Project Leaders were each expected to spend 20 percent of their time on the project, while the remaining staff (including the two Project Managers) were expected to spend all their time on the project.

10.2.3 There are at present a total of thirty-three staff in the two organizations who have received training under or related to the project, as shown in Table 1. Only two of them are working full time on the project; all of them have other structural or functional jobs in addition.

10.2.4 Only two staff members in this group have professional qualifications in library or information science. One of these is located at the Institute for Human Settlements in Bandung, while the other, who is on the staff of the Information Division of CDC-EH, is involved with WASIN only to a very limited extent.

10.2.5 The lack of staff with professional qualifications in library or information science constitutes a serious obstacle to the effective development of WASIN and of its member library and documentation units.

10.2.6 Discussing this same problem in relation to a similar project in Tanzania recently, the consultant commented that

it cannot be too strongly emphasized that, if this project is to succeed ... it must have an adequate staff complement of fully-qualified information professionals. Expecting a national water information system to be successfully managed by staff with only technician-level training in information work is like expecting a national rural water supply programme to be successfully managed by a pump mechanic.

10.2.7 It is no reflection on the hard work, enthusiasm and dedication of the existing project staff of WASIN to say that this comment is equally valid in relation to WASIN.

Table 1. WASIN. Staff, by unit and number of trainings received

Unit	Number of trainings						Totals	%
	1	2	3	4	5	6		
Cipta Karya								
PD	6	0	3	1	0	1	11	33
ES	2	0	0	1	0	1	4	12
WS	2	0	0	0	1	0	3	9
HS	0	0	0	1	0	0	1	3
HO	1	0	0	0	0	0	1	3
CK totals	11	0	3	3	1	2	20	61
MoH								
EH	1	1	0	0	0	0	2	6
WH	3	1	1	0	0	0	5	15
IN	5	0	0	1	0	0	6	18
MoH totals	9	2	1	1	0	0	13	39
TOTALS	20	2	4	4	1	2	33	100
%	61	6	12	12	3	2	100	

10.3 Staff training

10.3.1 Table 1 above shows the numbers of staff in each member unit of WASIN and the number of relevant trainings which each has received during the project.

10.3.2 The table shows that 61 percent of all trained staff are located in Cipta Karya and 39 percent in CDC-EH. One third of the staff are located in Directorate for Programme Development. Most of the staff (61 percent) have received only one training during the project.

10.3.3 This is partly due to the fact that some fifteen staff (45 percent of the total) were only assigned WASIN duties when they attended an in-house course on computerized bibliographical processing at the beginning of October 1991. All but three of the thirty-three staff involved in WASIN participated in this course, either as facilitators or as trainees.

10.3.4 The main trainings attended by project staff either in preparation for the project or since it began (including trainings foreseen up to the end of 1991), are as follows:

1987 Universiti Sains Malaysia, Penang

Library automation and computers (2 trainees)

1988 PDII, Jakarta

Bibliographical processing and CDS/ISIS (12 trainees)

1989 Asian Institute of Technology, Bangkok

Library automation (2 trainees)

Ministry of Public Works, Jakarta

Newsletter production workshop (9 trainees)

1990 Asian Institute of Business Administration, Los Baños

Indexing and abstracting (3 trainees)

Ministry of Public Works, Jakarta

Library management (3 trainees)

Asian Institute of Technology and other institutions in Bangkok

Comparative study tour (4 trainees)

ENSICNET-Indonesia, Bandung

Workshop on ENSICNET (3 trainees)

1991 ENSICNET-Indonesia, Bandung

Workshop on information handling and CDS-ISIS (2 trainees)

WASIN, Jakarta

Computerized bibliographical processing (23 trainees)

Indexing, abstracting and classification (16 trainees)

Asian Institute of Business Administration, Los Baños

Indexing and abstracting (3 trainees)

IRC International Water and Sanitation Centre, The Hague

Information management course (3 trainees).

10.3.5 It can be seen that almost all the trainings were concerned with technical aspects of information work, and particularly with computerization. Table 2 below summarizes the numbers of trainings received each year by the staff of each WASIN member unit.

Table 2. WASIN. Trainings received, by year and unit*

Unit	Trainings					Totals	%
	1987	1988	1989	1990	1991		

Cipta Karya							
PD	1	3	4	6	11	25	36
ES	1	2	1	2	6	12	17
WS	0	1	2	2	2	7	10
HS	0	1	1	0	2	4	6
HO	0	0	0	0	1	1	1
CK totals	2	7	8	10	22	49	71

MoH							
EH	0	1	0	0	2	3	4
WH	0	3	1	1	3	8	12
IN	0	1	2	2	4	9	13
MoH totals	0	5	3	3	9	20	29
TOTALS	2	12	11	13	31	69	100

%	3	17	16	19	45	100	

* excluding WASIN indexing, abstracting and classification course (16 trainees)

- 10.3.6 The table shows that 71 percent of the trainings were received by staff of Cipta Karya and 29 percent by staff of CDC-EH.
- 10.3.7 Table 3 below shows the average number of trainings received per staff member in each WASIN unit.
- 10.3.8 This table emphasizes the discrepancies between the amounts of training received by the staff of the various individual units of WASIN and, more generally, by WASIN staff in Cipta Karya and those in the Ministry of Health.
- 10.3.9 In order to develop WASIN successfully, at least one staff member with full professional qualifications in library or information science at the degree or postgraduate level should be assigned responsibility for WASIN activities in each member institution. In view of the difficulty of creating new positions in the public service, this person may need to be recruited from among the existing staff and given the opportunity to obtain professional qualifications either in Indonesia or abroad.

Table 3. WASIN. Trainings per staff member

Unit	Staff	Trainings	TRG/STAFF
Cipta Karya			
PD	11	25	2.27
ES	4	12	3.00
WS	3	7	2.33
HS	1	4	4.00
HO	1	1	1.00
CK totals	20	49	2.45
MoH			
EH	2	3	1.50
WH	5	8	1.60
IN	6	9	1.50
MoH totals	13	20	1.54
TOTALS	33	69	2.09

11 TECHNICAL OPERATIONS

11.1 Introduction

11.1.1 The consultant's terms of reference required him to

assess existing operational processes (organization, workflow, etc.) and suggest ways of improving efficiency if necessary.

This section of the report is therefore concerned mainly with the technical operations by means of which documents are collected and made available to users. The question of access is discussed in section 12 below.

11.2 Acquisition of documents

11.2.1 It was not possible to obtain accurate information on the numbers of documents acquired by each unit of WASIN each year. The responses to the 1989 questionnaire survey indicated that the libraries of the Directorates of Environmental Sanitation and Housing had each acquired about 120 documents in the previous year, but no data were provided by the other two units involved in the survey.

11.2.2 Some foreign publications have been purchased for WASIN member libraries from project funds and donations of books have been received from organizations like the Asia Foundation.

11.2.3 The lack of regular budget allocations for library purposes, and of qualified information staff, suggest that little, if any, systematic collection building has taken place in most WASIN member units so far.

11.3 Classification and cataloguing

11.3.1 Two of the four Cipta Karya member libraries covered by the 1989 survey classify their collections by the Universal Decimal Classification (UDC), one arranges them in the same way as the first edition of the IRC 'Basic list of publications on water supply and sanitation' and one uses an inhouse system. The Institute of Human Settlements in Bandung also uses UDC. The collections in CDC-EH are not classified at all.

11.3.2 Three Cipta Karya libraries covered by the 1989 survey have catalogued part of their document collections. Three have card catalogues and one a book catalogue; three have dictionary catalogues and one a classified catalogue. The Institute of Human Settlements in Bandung and the libraries of CDC-EH also have card catalogues of part of their collections.

11.4 Creating the national database

- 11.4.1 One of the activities of the project during the first phase was to be the creation of a computerized water and sanitation documentation database. This involves preparing bibliographic records relating to documents on water supply and sanitation held in WASIN member libraries.
- 11.4.2 These records are first prepared on worksheets which provide the necessary information about the documents for the data entry operators to create computerized versions of them for addition to the database. In some cases the computerized records are created in individual member units and added to these units' inhouse databases as well as being submitted on diskette for inclusion in the WASIN database.
- 11.4.3 The computerized records submitted for inclusion in the database should be checked and edited by a senior staff member before being finally incorporated into the database. This is not being done at present in WASIN.
- 11.4.4 The database constitutes an information product in its own right, and may be searched at the computer to provide information directly to users about the documents held by network members. It may also used to create other information products and services, such as published lists of newly-acquired documents, specialized bibliographies on various topics, and Selective Dissemination of Information (SDI) services for individual users. The use of the WASIN database in this way is discussed below.
- 11.4.5 While the creation of a computerized database makes it possible to dispense with conventional library catalogues in card or book form, it is often wise, in situations where electricity supplies are unreliable or there are not enough computers available to serve users and provide for data input at the same time, to maintain a conventional catalogue in parallel with the computerized database, as is done in the member libraries of WASIN.
- 11.4.6 In such cases, the manual catalogue entries, whether in card or book format, may be produced from the database entries with little extra effort. This is not yet being done in WASIN.
- 11.4.7 Considerable difficulty seems to have been experienced in persuading WASIN members to prepare adequate numbers of worksheets or computerized records for the documents in their libraries, and to submit them regularly for inclusion in the database.
- 11.4.8 In an attempt to overcome this problem, worksheets are often prepared during fortnightly meetings of about eight project staff, including the two project managers. However, this is an inefficient and time-consuming way of dealing with the problem.

11.5 The WASIN database

- 11.5.1 In principle, the numbers of bibliographic records submitted by network members for inclusion in the database should be the same as the number included in the holdings list and the bibliography, less any duplicates removed at the editing stage.
- 11.5.2 On this basis, the current holdings list file should include most of the 1,202 records included in the first eight issues of the published list (though these contain a number of duplicate entries, as noted below). However, when the database was demonstrated to the consultant this file appeared to contain only 506 records. It was not possible to discover the reason for this discrepancy.
- 11.5.3 The bibliography file in the database at resent contains 708 records as compared with 610 included in the published bibliographies, showing that new records have been added to the file since the last bibliography was published in December 1990.
- 11.5.4 Table 4 below shows the total numbers of records from Cipta Karya and CDC-EH which have been included in the holdings list and the bibliography to date.
- 11.5.5 The table shows that WASIN members in Cipta Karya have so far contributed a much higher proportion (76 percent) of the records included in both publications than members in the Ministry of Health (17 percent). A small proportion of the total was supplied by PDII.

Table 4. WASIN. Records contributed, by major unit and publication

Major unit	Number of records				Totals	%
	HL	%	BIB	%		
Cipta Karya	897	79	433	71	1330	76
MOH	188	16	101	17	289	17
PDII	55	5	76	12	131	7
TOTALS	1140	100	610	100	1750	100
%		65		35		100

- 11.5.6 Problems have been experienced in producing abstracts of the documents added to the database, due mainly to the lack of suitably-qualified staff with enough time to prepare abstracts. A partial solution to this problem may be to use author abstracts whenever these are included in the documents; another may be to use freelance abstractors, possibly either former staff members who have retired, or married women who are unable to work full-time due to family responsibilities.

12 ACCESS

12.1 Introduction

- 12.1.1 One of the main functions of a documentary information network is to provide access to documents, both indirectly, by means of lists of new acquisitions, catalogues, indexes, etc.; and directly, through various arrangements for access to the system and its collections.
- 12.1.2 The library catalogue provides an essential means of indirect access to the contents of the collections, and must be kept up-to-date if it is to perform this function effectively.
- 12.1.3 If information users are to derive full benefit from the participation of their own institutions in an information network, other member institutions must also allow them access to their document collections, both directly and through interlibrary loan and the supply of copies.

12.2 Access in WASIN

- 12.2.1 The basic objectives of WASIN are essentially concerned with providing better access to information on water supply and sanitation to users in member institutions.
- 12.2.2 Indirect access to the contents of individual WASIN member libraries is provided by their catalogues. As noted above, however, three of the libraries in Cipta Karya and those of the Institute of Human Settlements and CDC-EH have catalogued only part of their collections.
- 12.2.3 The WASIN database is meant to provide access to information about the collections of the network as a whole, at least to documents published or added to the collections after a certain date. At present, however, the database contains records relating to only a small proportion of the total collections of member institutions, and many of those records are inaccurate and incomplete.
- 12.2.4 Access to information about the documents in the collections of WASIN member libraries is therefore very restricted at present, and certainly not adequate to encourage users to regard WASIN as a reliable source of such information.
- 12.2.5 There appear to be few, if any, regulatory restrictions on direct access to member libraries by either internal or external users. However, direct access to some libraries is in practice made difficult by the lack of signs indicating where the libraries are located or when they are open, and even more so by cramped and overcrowded accommodation or by the fact that some libraries are located in offices which are in regular use by senior staff.

13 INFORMATION PRODUCTS AND SERVICES

13.1 Introduction

13.1.1 The consultant's terms of reference required him to

examine existing products and services and suggest enhancements in terms of improvements to them or the development of new product lines and services if appropriate and within their incremental capability.

13.1.2 The ultimate objective of any documentary information system must be to provide information products and services that will satisfy the information needs of its users (and be capable also of satisfying those of potential users), in terms of:

- current awareness

of general developments in the sector, organized events, research and development projects and their results, new technical products and services and new information materials, sources, products and services

- literature searching

of published and unpublished records of documentary production, to identify specific documents or sets of documents

- document delivery

of originals or copies of complete documents or parts of documents held by the information system or available from elsewhere

- answering enquiries

ranging from quick reference services to research services.

13.1.3 Other services, such as translation services, may also need to be provided.

13.2 Information products and services in WASIN: general

13.2.1 The project aimed to enable WASIN to produce three current awareness products and provide literature searching services. The project document did not mention the provision of document delivery or enquiry services.

13.2.2 The IDRC analysis identified the following network characteristics relating to products and services:

- Ease of implementation and operation and provision of information services.

The responsibility for delivering products and services to users should normally rest with each of the participating entities in a network, rather than with the coordinating centre of the network itself.

- **Ability to respond to end-user needs through initial involvement in the feasibility study and design stages and, eventually, feedback.**

A network is enhanced only by its utilization by the many information seekers involved in implementing development. Potential users of network services and products should be directly involved in their design...User confidence in the network depends on the quality and speed of information access in relation to their own specific needs.

13.2.3 Users or potential users have not been involved in the design of the information products and services of WASIN up to now. This should be rectified in the next stage of the development of the network.

13.3 Current awareness services in WASIN

13.3.1 The principal current awareness products issued by WASIN and foreseen under the project are:

Daftar koleksi tambahan informasi air dan sanitasi (Accession list of water and sanitation). ISSN 0215-9724.

(no. 1, May 1989; no. 2, July 1989; no. 3, January 1990; no. 4, April 1990; no. 5, July 1990; no. 6, September 1990; no. 7/8, January 1991)

Bibliografi air bersih dan sanitasi Indonesia. (Bibliography of water and sanitation - Indonesia). ISSN 0215-9589.

(no. 1, March 1989; no. 2, January 1990; no. 3, July 1990; no. 4, December 1990)

Warta air dan sanitasi. [newsletter] ISSN 0215-9570.

(no. 1, June 1989; no. 2, December 1989; no. 3, July 1990; no. 4, January 1991).

13.3.2 The 'accessions list' (actually a holdings list, since it includes entries for older items already held in the collections of member libraries) and the bibliography are each distributed to 163 recipients in Indonesia and to others elsewhere. The total regular circulation of each is said to be about 250. In addition, specimen copies are distributed to participants in meetings and other events concerned with water and sanitation whenever possible. The newsletter has a total circulation of about 350.

13.3.3 In addition, project staff in the Directorate for Programme Development produce a monthly bulletin of press clippings which is circulated to heads of Sub-Directorates within Cipta Karya. The Information Division in CDC-EH produces

a similar bulletin on a weekly basis, which is designed for and distributed only to top managers and decision makers in CDC-EH.

- 13.3.4 When the project began, the staff had no previous experience of creating current awareness products of the kind required, and early editions of the holdings list and the bibliography were neither well-organized nor well-produced. Recent editions are much better, but still capable of improvement.
- 13.3.5 The seven issues of the holdings list produced so far (including the double issue, nos. 7/8, January 1991), contain a total of 1,202 records of documents held in the collections of member libraries. The list is arranged first by library, then by author.
- 13.3.6 Early issues of the list provided minimal information on the documents included--only author and title--and had no indexes. Geographical, keyword, author and corporate indexes were added in the second issue.
- 13.3.7 The issues produced so far do not provide any explanation of the layout or content of the entries, nor of the scope of the lists, which include general works--e.g. English dictionaries and books on management and computers--as well as material on water supply and sanitation.
- 13.3.8 Some of the entries, even in recent issues, refer to documents which are several years old, including some published before the supposed cut-off date of 1980. Some documents are listed more than once, either in different sections of the same issue or in different issues; for example:
- White, Alastair. Community participation in water and sanitation: concepts, strategies and methods. The Hague, IRC, 1981.
- appears in issue number 1 as item 54, in number 3 as item 65 (wrongly indexed as being item 162), and again in number 7/8 as item 195.
- 13.3.9 This is but one of several such examples noted by the consultant among the English-language documents; there may well be others among the documents in Bahasa Indonesia.
- 13.3.10 If the WASIN database were properly managed and entries only added after checking and approval at a central point, such duplication would not occur.
- 13.3.11 The author index is arranged by first names, not surnames, and only the fact that most issues contain so few entries makes it possible to use it to identify documents by a particular author.
- 13.3.12 The corporate body indexes contain many errors and sometimes enter the same institution under different forms of name in the same issue: e.g. Asian Institute of Technology, Environmental Sanitation Information Centre', and 'ENSIC-AIT' in issue number 6.
- 13.3.13 If this publication is indeed intended to be a holdings list, providing consolidated information on the existing collections of member libraries, each issue should be organized in one sequence (preferably by subject) with codes added to the

individual entries to identify the libraries where copies of the items listed are held. The list should also be cumulated at regular intervals to provide an increasingly complete record of the holdings of member libraries.

13.3.14 If the publication is intended to be an accessions list, it should include only documents newly added to the collections of member libraries, arranged as suggested above, but without cumulations.

13.3.15 In both cases, it may be advisable to exclude certain types of material--e.g. current issues of periodicals, language dictionaries and ephemeral materials--or material on subjects not related to water supply and sanitation.

13.3.16 The bibliography is arranged first by broad subject category and then alphabetically by author. It is meant to be a listing of Indonesian publications, but sometimes includes foreign publications. Some items in the holdings list also appear in the bibliography, sometimes with slightly different publication details: e.g. item 128 in issue number 7/8 of the holdings list also appears as item number 119 in issue number 4 of the bibliography.

13.3.17 The bibliography has been greatly improved with the inclusion of abstracts and a better method of production in issue number 4. However, it still suffers from some of the same problems as the holdings list, namely, poor indexes and frequent spelling and typographical errors. The subject index includes geographical names even though there is a separate geographical index.

13.3.18 There are many typing and spelling errors in most issues. Neither publication refers to the existence of the WASIN database or to other services provided by WASIN members, nor do they include order forms to make it easier for readers to request copies of listed documents from member libraries.

13.4 Literature searching

13.4.1 As far as can be established, none of the WASIN member libraries conducts retrospective literature searches for users on a systematic basis. Requests for individual documents are met by searches of the manual card catalogues in most cases, not in the WASIN database.

13.5 Document delivery

13.5.1 In most WASIN member libraries, lending service is provided only to members of the unit within which the library is located, or to other staff of the parent institution who are known to the library staff.

13.5.2 The only statistics with regard to document delivery are those for items lent from the Directorate for Programme Development library from January 1990 to October 1991. Data on loans made from this library in the twenty-one months from January 1990 to October 1991 indicate that a total of 283 items were lent to 47 different users in 73 visits to the library. This represents an average of only 3.5 visits per month, or less than one visit per week.

- 13.5.3 Twenty-three users (49 percent) were from the Sub-Directorate of General Planning, in which the library is located. Eleven (23 percent) were consultants and three (6 percent) were students. Apart from one user from the Department of Health and one from PDII, the remainder (17 percent) all came from within Cipta Karya.
- 13.5.4 Thirty-one users (66 percent) visited the library only once during the twenty-one month period. Eleven (23 percent) visited it twice, three (6 percent) visited three times, one (2 percent) four times and one seven times.
- 13.5.5 The total number of documents borrowed by each user during this period ranged from one to sixty-four; however, 75 percent of users borrowed four documents or less, and 28 percent borrowed only one.
- 13.5.6 None of the other libraries maintains a register of users or accurate statistics of use. However, if these data from Directorate for Programme Development are typical--and there seems no reason to assume otherwise--it seems clear that the use made of the member libraries at present--and not only by users interested in water supply and sanitation--is very low indeed, while use generated within the framework of WASIN seems likely to be infinitesimal.
- 13.5.7 Users may request photocopies of the documents they require; however, in Cipta Karya at least, since the photocopier supplied under the project is damaged beyond repair, copies have to be made in commercial copy bureaux at a cost of Rs 50 per page plus binding costs if necessary.
- 13.5.8 No facilities exist within the project to make full size copies of microfiche.

13.6 Answering enquiries

- 13.6.1 As far as is known, none of the member libraries provides an organized query-answering service at any level.

14 PROMOTION AND USER EDUCATION

14.1 Introduction

14.1.1 The consultant's terms of reference required him to

strategize a promotion and marketing plan for greater utilization of the project's outputs and services.

14.2 Promotion of WASIN

14.2.1 There has been no systematic attempt to promote WASIN as yet. In general, the project team have relied on the distribution of the network's information products to promote it, but since these contain only minimal information about WASIN and its other information products and services, their effectiveness in this respect is very limited.

14.2.2 The staff of the Directorate for Programme Development have tried to promote their library but feel this has been useless due to its inadequate collections. Many people in the Directorate for Programme Development do not know where the library is. There is felt to be a need to attract more users to allow the library to grow and extend its scope.

14.2.3 Promotional efforts cannot succeed if basic information resources, facilities and services are inadequate. The basic problems of the management, financing, staffing and operation of the network must therefore be resolved before making further efforts to promote it.

14.2.4 It should be noted also that the aim of attracting more users should not be to enable the library to grow, but to meet their information needs. If the library does this satisfactorily, demand will increase, as will support, and the library will grow naturally in consequence.

15 CONCLUSIONS AND RECOMMENDATIONS

15.1 Introduction

- 15.1.1 Water supply and sanitation form only part of the interests and responsibilities of both Cipta Karya and CDC-EH, and WASIN project staff therefore suggested that the scope of WASIN should be extended to include information on subjects other than water supply and sanitation.
- 15.1.2 It is considered, however, that the best way of meeting the need for information on other subjects in both Cipta Karya and CDC-EH is to strengthen and improve their general library, documentation and information collections, facilities and services, including, where appropriate, the establishment of specialized information networks like WASIN to serve the needs of users working in other subject areas.
- 15.1.3 None of the existing WASIN member libraries in Cipta Karya or CDC-EH has adequate accommodation or professionally-qualified staff, and none of them appears to be very much used. Some have no catalogues at all, while in others only part of the collection is catalogued. There is an urgent need for these libraries to be improved, both to be able to meet the information needs of Cipta Karya and CDC-EH staff in general, and to provide firm foundations for the further development of WASIN.
- 15.1.4 Within the framework of general library development in Cipta Karya and CDC-EH, WASIN should be developed as a specialized cooperative activity in which the newly centralized and strengthened libraries participate and in which other institutions might be invited to join once it has been put on a firm basis.
- 15.1.5 The development of WASIN is therefore distinct from, but dependent on, the general development of the libraries and documentation centres of member institutions, particularly those of Cipta Karya and CDC-EH.

15.2 General library development: Cipta Karya

- 15.2.1 General library development in the Ministry of Public Works is being promoted through the IDTP project, under which it is proposed that Cipta Karya should have only one library, which should be based on the existing library of the Directorate of Programme Development and be at least a fourth echelon unit. IDTP staff have emphasized that it is urgently necessary for Cipta Karya to make a decision on the location of its library if it is to receive proper support from the project.

15.2.2 Recommendation

1. In accordance with the IDTP proposal, it is recommended that Cipta Karya should have only one library and that this should be at least a fourth echelon unit located within the Directorate for Programme Development and based on its existing library.

15.2.3 Implementation

- Make a decision on this recommendation as soon as possible.
- Strengthen the existing library in preparation for the implementation of the IDTP proposal.
- Decide which of the existing libraries should be physically relocated in the new library and which may continue to be physically separate while remaining administratively part of it.
- Allocate adequate space and provide the necessary furniture and equipment for the new library (see below).
- Establish a position as head of the library, to be occupied by a qualified librarian (see below).
- Include adequate financial provision for the operations of the library in the regular budget of the parent unit as a separate line item (see below).
- Maintain close liaison with the IDTP on all matters concerning the development of the central library and documentation unit.

15.3 General library development: CDC-EH

15.3.1 In CDC-EH, the Information Division would be the most appropriate administrative location for a central library and documentation unit, and the World Bank project for a health information system may provide support for the creation of such a unit.

15.3.2 Recommendation

2. A central library and documentation unit for CDC-EH should be established as a fourth echelon unit within the Information Division.

15.3.3 Implementation

- Make a decision on this recommendation as soon as possible.
- Formally establish a central library and documentation unit as at least a fourth echelon unit at the appropriate point in the administrative hierarchy.
- Decide which of the existing libraries should be physically relocated in the new library and which may continue to be physically separate while remaining administratively part of it.
- Allocate adequate space and provide the necessary furniture and equipment for the new library (see below).

- Establish a position as head of the library, to be occupied by a qualified librarian (see below).
- Include adequate financial provision for the operations of the library in the regular budget of the parent unit as a separate line item (see below).
- Seek support for the development of the library from the World Bank project and from other sources.

15.4 Physical facilities

15.4.1 The amount of space needed by any particular library will depend on many factors, including:

- the number of users who are expected to use the library
- the numbers of documents of different kinds which the library contains at the outset
- the rate at which the document collection is expected to grow
- the kinds of user services to be provided--in particular, how much emphasis is to be placed on consulting documents in the library and how much on lending documents for consultation elsewhere
- the numbers of staff to be employed.

15.4.2 The amount of space needed for the library will thus be different in each case, but may be calculated in accordance with the following norms:

- **Accommodation for users**

One seat should be provided for every 25 potential users who have easy access to the centre (i.e. excluding those who are too far away to visit it regularly), with a minimum of 4 seats even if the number of potential users is less than 100.

Space required for each seated user: 2.3 square metres (25 sq.ft.).

- **Accommodation for collections**

Space required for books and other documents in book format: 200 documents per square metre (18.6 documents per square foot).

This includes the space needed for users to get access to the storage units. The number of documents per square metre may be increased if many of them are flimsy reports, etc., of only a few pages.

Space required to display current periodicals: 25 titles per square metre (2.3 titles per square foot).

- Accommodation for staff

Space required for each staff member: 9.3 square metres (100 square feet).

- Traffic and utility space

25 percent of the total of the above requirements.

- Space for expansion

At least 10 percent of the total of the above.

This should be determined in accordance with the projected growth of the collections and any other growth factors (e.g. any expected increase in the numbers of potential users).

15.5 Librarian

15.5.1 The head of the library in each member institution will be directly responsible to the director of the library's parent unit for the overall planning, development, coordination and management of the library and its participation in WASIN and other information networks.

15.5.2 The specific responsibilities of the position will include:

- supervising the implementation of basic library routines, including identification, acquisition, processing, storage, circulation, reproduction, weeding and disposal of documentary information sources
- supervising the operation of information equipment
- collecting documentary information materials from different divisions of the parent institution
- formulating a documentary information policy for the parent institution
- recruiting, training and supervising staff
- advising on the selection, acquisition and use of information and documentation equipment, including computers, and operational tools, including classification schemes, indexing languages, software, etc.
- ensuring the provision of documentary information services to users
- such other duties as the exigencies of the service may from time to time require.

15.5.3 The person appointed should have:

- a university degree or the equivalent, preferably in a scientific or technical subject
- postgraduate qualifications in information science or librarianship
- substantial practical experience in the development and management of technical libraries or documentary information centres
 - a good knowledge of the information sector in Indonesia
- preferably, previous knowledge and experience of information work in the water and sanitation sector.

15.5.4 The person selected should have the necessary communication skills and personal qualities to enable him or her to work effectively with colleagues and information users at all levels.

15.5.5 If a suitable person is not available, either one should be recruited from outside, or an existing staff should be given suitable training.

15.5.6 The training component of the IDTP provides for staff to be sent for full-time professional education in appropriate subjects, including library and information science. A suitable candidate for such training in Cipta Karya would be the WASIN Project Manager, who has already expressed an interest in receiving professional training in library and information science, either in Indonesia or elsewhere.

15.5.7 The possibility of obtaining similar support from the World Bank project or some other suitable source for the training of a CDC-EH staff member should be investigated.

15.6 Budgetary provision

15.6.1 Budget subheads for library and information activities should include provision for both recurrent and development expenditure in respect of:

- staff salaries and allowances, pensions, etc.
- purchase and replacement of office and library furniture, equipment and supplies
- purchase of information materials (books, periodicals, audiovisual materials, databases, software, etc.), including a foreign exchange component for the acquisition of materials published abroad
- running costs (including maintenance and upkeep) of premises and equipment
- costs of participation in WASIN and other information networks.

15.7 General development of WASIN

15.7.1 Within the framework of the above proposals for general library development in Cipta Karya and CDC-EH, the development of WASIN should involve the following broad groups of activities:

- revision, consolidation and improvement of what has been done so far
- establishment of an improved network management system
- extension of membership to other institutions
- development of new information products and services
- marketing of improved network products and services.

15.7.2 The necessary actions are outlined below. To avoid unnecessary duplication of effort and resources, these actions should be carried out in consultation with other institutions and organizations providing information services to the water and sanitation sector, such as ENSICNET-Indonesia and the Health Information and Documentation Network.

15.7.3 Before any steps are taken to extend WASIN membership to other institutions, it will be necessary to review, consolidate and improve what has already been done, to fill gaps, correct errors and ensure that there is a firm foundation for the future expansion of the network.

15.8 Aims, objectives and scope

15.8.1 To ensure the continued development of WASIN after the end of the existing project, network members will need to agree on long term aims and objectives with regard to its role in providing water and sanitation information to users in Indonesia, taking account of the activities of other agencies in this respect.

15.8.2 Recommendation

3. In order to maintain a recognizable identity as a reliable source of information in a specific subject field, WASIN should remain a specialized information network designed to meet the specific needs of specific groups of users for information on water resources, water supply, sanitation and related environmental and health issues.

15.8.3 Implementation

- The management of WASIN should prepare and submit to network members for approval a written policy statement defining the aims, objectives and scope of WASIN, taking into account the results of the survey of information users and

their needs referred to below. Such a statement may form part of a general statement of information policy for WASIN.

15.9 Information users and their needs

15.9.1 In order to establish relevant objectives for the further development of WASIN, the network management need to have a thorough knowledge of the information needs of its actual and potential users.

15.9.2 Recommendation

4. A survey of actual and potential information users and their needs for information on water resources, water supply, sanitation and related environmental and health issues in Indonesia should be carried out as soon as possible.

15.9.3 Implementation

- The survey of information users and their needs may be carried out as part of a comprehensive information survey. Guidance on the conduct of such a survey is provided at Appendix A.

15.10 Organizational structure

15.10.1 The creation of a formal structure for WASIN is essential to provide a firm foundation for its future development. A decentralized, democratic and cooperative structure would appear to be most appropriate.

15.10.2 Recommendation

5. A formal network structure for WASIN should be established on a decentralized, democratic and cooperative basis. This structure, the rights and responsibilities of members in general, and the specific contributions to network activities or finances to be made by individual members, should be defined in a formal Memorandum of Understanding to be signed by all present and future network members.

15.10.3 Implementation

- Existing models of information network structure and organization should be studied and formal proposals for a new structure for WASIN prepared and circulated to members for comment.
- Existing documents of agreement between members of information networks should be studied and a draft Memorandum of Understanding for WASIN prepared and circulated to members for comment.

- The comments of WASIN members should be taken into account in drawing up a final structure for the network and in preparing the final text of a Memorandum of Understanding reflecting that structure.
- Copies of the final text of the Memorandum of Understanding should be distributed to all existing network members for signature and the new organizational structure thereby brought into force.

15.11 Membership and management

15.11.1 Institutions seeking membership of WASIN must be able and willing to participate fully in its activities.

15.11.2 Recommendation

6. In order to ensure that new members are able to participate fully in WASIN activities, strict criteria for membership should be established. Different criteria may be established for institutions which wish to use the network's products and services but are not able or willing to participate fully in its activities.

15.11.3 Implementation

- Institutions wishing to become full members of WASIN should:
 - be active in the fields of water resources, water supply, sanitation and related environmental and health issues
 - produce, or acquire from other sources, a reasonable amount of documentation in these fields
 - have an organized document collection under trained supervision
 - be able and willing to submit records of relevant documents for inclusion in the WASIN database
 - be able and willing to provide copies of relevant documents, carry out literature searches and answer enquiries, for users in other member institutions
 - be able and willing to accept responsibility for the provision of an appropriate information product or service on behalf of the network as a whole.
- Institutions able and willing to fulfil these conditions should receive in return at least the following benefits:
 - the complete database on diskette, if they have suitable computing facilities

- regular updates of the database
- copies of all other WASIN publications and products
- access to all WASIN services
- regular training programmes for staff and users.

15.12 Information sources

15.12.1 An essential task of WASIN should be to identify the various institutional sources of information which already exist in the country, and to find out how many documents of what kinds they produce.

15.12.2 Recommendation

7. A survey of institutional sources of information on water resources, water supply, sanitation and related environmental and health issues in Indonesia should be carried out as soon as possible.

15.12.3 Implementation

- The survey of institutional sources of information may be carried out as part of a comprehensive information survey. Guidance on the conduct of such a survey is provided at Appendix A.

15.13 Document collections

15.13.1 It is important to collect, and to keep up to date, accurate information on the existing collections of documents on water resources, water supply, sanitation and related environmental and health issues in WASIN member libraries, in order to assess the extent to which they meet the identified needs of information users.

15.13.2 If the collections do not reflect the needs of users, they will have to be remodelled, through a systematic process of withdrawal, discarding and acquisition, until they do. This is a long-term process which should continue indefinitely.

15.13.3 Recommendation

8. An assessment of the relevance of the existing document collections in WASIN member libraries to the needs of their actual and potential users for information on water resources, water supply, sanitation and related environmental and health issues should be undertaken as soon as possible, taking into account the results of the survey of information users and their needs.

Recommendation

9. Where necessary, document collections should be remodelled in order to meet the needs of users and in accordance with a written policy statement defining the kinds of documents to be included in the various collections.

15.13.4 Implementation

- The existing document collections of member libraries should be examined at first hand in conjunction with the results of the user survey and their respective strengths and weaknesses identified and recorded.
- On the basis of this assessment, the management of WASIN should prepare and submit to network members for approval a written policy statement defining the kinds of documents to be included in the collections of member libraries. Such a statement may form part of a general statement of information policy for WASIN.

15.14 Physical facilities and equipment

- 15.14.1 Among the resources which WASIN member institutions should provide to support network activities are those of physical facilities and equipment. To ensure the most effective use of existing resources in this area, and to identify needs for additional resources, it is necessary to know what facilities and equipment are already available in member institutions.

15.14.2 Recommendation

10. A detailed inventory of the physical facilities and equipment already available for network purposes in existing and new member institutions should be carried out as soon as possible.

15.14.3 Implementation

- The conduct of such an inventory is a straightforward task which could form part of a comprehensive information survey of the kind described in Appendix A.

15.15 Finance

- 15.15.1 While some of the costs of the further development of WASIN may be met by external support agencies in the short or medium term, it is essential to prepare for the gradual transfer of financial responsibility for network activities from external agencies to WASIN member institutions and users of WASIN information products and services in the longer term. The contributions from various sources should be reflected in a separate annual budget for WASIN itself.

15.15.2 Recommendation

11. The operating and development costs of WASIN, and the contributions to these costs required from WASIN members, users of WASIN information products and services, and other sources, should be presented in a separate annual budget for WASIN, to be prepared by the network management.

15.15.3 Implementation

- WASIN policy with regard to payment for information products and services should be defined, and rates of payment determined on an annual basis.
- Each WASIN member institution should make provision for its financial contribution to WASIN within its proposed budget subhead for library and information activities.
- The WASIN management should prepare an annual budget for the network which should take account of income from the sale of information products and services, from member institutions and from other sources.

15.16 Staff and staff training

- 15.16.1 If WASIN is to be able to meet the information needs of users effectively, suitably-qualified staff in each member institution must be assigned clear responsibility for its development and operation.

15.16.2 Recommendation

12. In each member institution, overall responsibility for participation in WASIN should be assigned to the head of the library.

15.16.3 Implementation

- In cases where the head of the library in a member institution lacks the necessary professional and other qualifications, as outlined above, he or she should be provided with appropriate training.

15.17 Technical operations and access

- 15.17.1 The efficiency and effectiveness of the existing technical operations and access within WASIN needs to be improved.

15.17.2 Recommendation

13. A number of specific actions should be taken, or procedures introduced, in order to improve technical operations and access in WASIN.

15.17.3 Implementation

- The following procedures should be initiated, or actions taken:
 - The database should be completely reviewed and duplicate entries removed, and inaccurate or incomplete entries corrected or completed.
 - The computerized records submitted for inclusion in the database should be checked and edited by a senior staff member before being finally incorporated into the database.
 - An authority list of Indonesian and other corporate bodies should be used to ensure consistency in entering and indexing corporate bodies. Such lists may already be available from other organizations such as PDII.
 - Manual catalogue entries, whether in card or book format, should be produced by computer directly from the database, not by manual retyping.
 - Worksheets should be prepared only by staff who have been properly trained in this task and who can commit sufficient time to it.
 - Other staff members should use a simpler 'notification sheet' rather than a worksheet to notify those responsible for preparing worksheets of the existence or acquisition of new documents.
 - The reason for the discrepancy between the numbers of entries in the database holdings list file and the published list should be investigated.
 - The editing of database entries should be organized so as to keep pace with the initial inputting process. The final editing of WASIN records should be done at one central point for the sake of consistency and to ensure the removal of duplicates.
 - The possibility of employing suitably-qualified freelancers--possibly retired staff members or married women who have given up full-time work because of family responsibilities--to prepare abstracts on a piecework basis should be investigated.

15.18 Information products and services

15.18.1 The quality and usefulness of the existing information products and services of WASIN needs to be improved, and new products and services introduced.

15.18.2 Recommendation

14. A number of specific actions should be taken, or procedures introduced, in order to improve the information products and services of WASIN.

15.18.3 Implementation

- The following procedures should be initiated, or actions taken:
 - Decide whether the Holdings List is meant to be a list of existing holdings, or of new accessions, and organize the list accordingly.
 - Define the scope of the Bibliography and the Holdings List in terms of subjects, types and dates of publication of materials to be included.
 - Include, in both the Bibliography and the Holdings List, explanations of their scope and coverage and of the layout and content of the entries.
 - Include, in both the Bibliography and the Holdings List, general information about WASIN, the database, and the other publications and services available, as well as forms for requesting copies of items listed or for membership/subscription.
 - Arrange non-Indonesian names in the author indexes by surnames in accordance with standard cataloguing practice.
 - Proofread the texts of both publications carefully before sending them for printing.
 - Develop new information products, such as a directory of water and sanitation professionals in Indonesia.
 - Develop new information services, such as organized query-answering services or Selective Dissemination of Information (SDI) services
 - Define WASIN policy with regard to payment for information products and services and design subscription packages accordingly.

15.19 **Marketing of information products and services**

15.19.1 Information products and services need to be properly marketed to their target audiences if they are to be effective.

15.19.2 Recommendation

15. A marketing strategy and programme for the information products and services of WASIN should be prepared to ensure their effective dissemination and use.

15.19.3 Implementation

- Study the marketing strategies and techniques employed by other information networks and services and prepare a formal marketing strategy and plan for the products and services of WASIN.

OUTLINE METHODOLOGY FOR A COMPREHENSIVE INFORMATION SURVEY

1. Introduction

1.1 Basic methods of data collection for any kind of survey include:

- a review of existing sources
- the conduct of original investigations.

2. Review of existing sources

2.1. Existing sources of data may include:

- published statistics
- unpublished records
- reports on previous studies and surveys
- books and periodical articles
- maps, charts, plans
- audio-visual materials, etc.

2.2 A review of existing sources can be very time consuming and unproductive unless sources are carefully selected on the basis of their accuracy, reliability, relevance and date.

2.3 Data provided by the selected sources must be carefully checked:

- internally
for arithmetical errors and other inconsistencies
- externally
against other selected sources for reliability.

2.4 Data from various sources may be combined to give a more comprehensive picture of the existing situation provided that they have been checked, internally and externally verified and assessed for compatibility and consistency.

Appendix A

2.5 The existing presentation of some data elements may have to be revised in order to ensure overall consistency.

3. Original investigations

3.1 A review of existing sources should be undertaken before any decision is made with regard to the conduct of original investigations. Such investigations are expensive, time-consuming and difficult to organize and carry out, and it is important to ensure that they are not undertaken in order to obtain data which is already available from existing sources.

3.2 The basic steps in planning and carrying out any kind of investigation are:

- determine its objectives and scope
- select data collection methods
- assess the resources available for carrying out the investigation
- prepare the design of the investigation
- test design
- carry out investigation
- collate data
- analyze data
- publish results.

4. Inventory of institutions in the water sector

4.1 This should aim to identify and locate the main institutions in the sector and obtain basic information on: their staffs; on their involvement in generating and disseminating information, particularly in documentary form; and on whether or not they have a library or documentation centre. This information would provide the basis for the remaining stages of the survey, which are described below.

4.2 In view of the present condition of the postal and telephone services in many developing countries, the most reliable way of collecting data on these institutions will often be through personal visits. It will therefore be necessary to impose some limitations on the coverage of the inventory to ensure that all institutions which it is decided to include can be visited in a reasonable period of time.

- 4.3 One of the main difficulties in deciding on what institutions should be included is that many of them are often only partly concerned with the water sector; they are often also active in other areas. It will be necessary to organize the inventory so as to focus only on those elements which are concerned with the water sector.
- 4.4 It will often be appropriate, at the first stage, to restrict the inventory to appropriate elements of central government ministries and major parastatals and non-governmental organizations, rather than attempting to cover every institution, no matter how small, with responsibilities in the water sector. The inventory should aim to include regional and local offices of these bodies, though it will probably not be possible to collect data on all these organizations through personal visits.
- 4.5 The principal actions involved in the conduct of the inventory are:
- identify and obtain copies of existing lists of the names and addresses of units of the ministries and parastatals to be covered by the directory
 - identify the specific units to be included
 - define the categories of data to be collected, which might include:
 - name of unit, street address, postal address, telephone, telex, fax numbers
 - institutional affiliation (to ministry, parastatals, etc)
 - date established
 - changes of name since foundation
 - nature of governing body, if any
 - internal organization (principal departments, substations, etc, including existence or otherwise of a library or documentation unit and basic information on its holdings)
 - numbers and types of professional and technical staff, (including library and documentation staff)
 - summary of objectives and activities, including details of any products or services available, publications issued, regular events (conferences, seminars, etc.) and training activities
 - formal links with other organizations in the country and abroad
 - design data collection instrument (interview schedule/questionnaire)

Appendix A

- test data collection instrument and revise as necessary
 - reproduce final version of data collection instrument in quantities required
 - plan conduct of inventory, including:
 - proposed programme of visits
 - arrangements for informing intended interviewees in advance about the inventory and the types of data to be collected, and for confirming dates and times of interviews
 - arrangements for travelling to interviews
 - arrangements for recruiting, briefing, supervising and paying any assistants required
 - arrangements for return visits or other follow-up in case of difficulties or queries
 - carry out inventory
 - check data and initiate follow-up procedures in case of queries
 - compile and edit individual entries, including assignment of subject descriptors, if appropriate
 - input edited entries to computer.
- 4.6 If it is desired to publish the results as a directory, it will also be necessary to:
- compile and edit complete text and indexes
 - proofread and correct text and indexes as required.
5. Analysis of Estimated Potential User Population (EPUP)
- 5.1 The data on number and types of professional and technical staff collected in the course of the inventory should be collated to create a consolidated profile of the EPUP showing the numbers of staff of different types working in different organizations and different geographical locations. This will:
- provide a basis for the selection of a stratified sample of potential information users for further study under section 6 below

- provide a first source of information on the professional expertise available in the country for use in compiling the proposed directory of water and sanitation professionals
- make it possible to identify the main concentrations of potential users of different types, as an aid in planning the future development of the system and the various kinds of information services to be provided.

6. Survey of information needs and information use

- 6.1 This involves the collection of detailed information on the information needs and information-seeking and information-using behaviour of a members of a stratified sample of the EPUP, drawn from the consolidated records. Such a survey may be carried out through questionnaires, interviews, group techniques or a combination of any or all of these.
- 6.2 The use of questionnaires alone, however, is not recommended as it rarely produces satisfactory results. It is preferable to distribute questionnaires in advance, together with an explanatory covering letter, so that respondents may be forewarned about the kind of information required. This should be followed up by an interview in which the questionnaire is completed by the interviewer and the respondent working together. If it is not possible to interview all members of the sample, an attempt must be made to interview at least a representative sample of the sample.
- 6.3 The main features of a suitable questionnaire are outlined below. The actual design of the questionnaire should be done by the project team with advice, if necessary, from social scientists with experience in questionnaire design.
- 6.4 Where appropriate, respondents may be asked to rank certain items in order of importance.

Appendix A

OUTLINE OF QUESTIONNAIRE

A. PERSONAL DETAILS OF RESPONDENTS

- name, title, etc.

B. WORK

- place of work, address, main function of the organization and the nature and extent of its involvement in the water sector
- respondent's job title, profession, nature and extent of involvement in the water sector.

C. INFORMATION NEEDS

- the respondent's needs for information related to his primary work roles and in terms of :
 - **subject content**
e.g. about slow sand filtration techniques
 - **purpose**
e.g. whether designed to communicate facts, change attitudes or inculcate skills
 - **orientation**
e.g. whether practical or theoretical
 - **level**
e.g. whether elementary or advanced, designed for students or for research workers
 - **language**
e.g. whether the language in which the information is presented can be understood by its intended users
 - **currency or timeliness**
e.g. how up-to-date the information is in relation to how up-to-date it needs to be.

Appendix A

D. INFORMATION USE

- the main kinds of sources from which the respondent obtains - or tries to obtain - the information he needs, i.e.
- documentary records

including written and printed documents (correspondence, reports, books, etc.) and audiovisual media (sound recordings, films, slides, etc.)
- mass media

including radio and television broadcasts
- formal personal contacts

including training courses, conferences, seminars, etc.
- informal personal contacts

including extension work, community meetings, individual conversations, etc.
- the main specific sources which the respondent uses to obtain information e.g.
- private purchase of books or periodicals
- specific libraries documentation centres or information systems
- specific radio or television programmes
- recent or regular attendance at specific courses, conferences, etc.
- specific examples of the use of personal contacts, e.g. membership of professional societies, correspondence with other specialists, etc.
- relative success of the respondent's efforts to obtain the information he needs.

E. INFORMATION GENERATION AND DISSEMINATION

- the extent and nature of the respondent's involvement in generating and disseminating information through
- **documentary records**
including production of regular reports, periodical articles, conference papers, books, slides, films, etc. (with bibliographic details or actual copies, if possible)
- **mass media**
including appearances on, writing for, or producing radio or television broadcasts
- **formal personal contacts**
including regular or occasional participation in, or organization of training courses, conferences, etc.
- **informal personal contacts**
including participation in extension work, etc.

This information could be used to supplement the survey of institutional activities in this regard, which is outlined below.

F. GENERAL COMMENTS

Respondents should be given an opportunity to make general comments and suggestions with regard to their need for information and the problems they experience in obtaining, using and generating it.

7. Survey of information generation and dissemination

- 7.1 This survey will be carried out by correspondence and would aim to obtain, from all the institutions responding positively on this subject at the inventory stage, full details of their activities in respect of the generation and dissemination of information, including lists and copies of any documents produced. It will be supplemented by information on the activities of a sample of individual users collected under the survey of information needs and information use, above.

Appendix A

7.2 Since institutions will be asked, in the course of the inventory, to supply details of any publications issued, the present survey will have to be carried out on an institution-by-institution basis, seeking further information, checking bibliographical details, requesting copies of the publications listed, etc. The survey will provide information both for general planning purposes and as an aid to building library collections and databases.

8. Survey of library and documentation units

8.1 This would be carried out by questionnaires and interviews and would seek to obtain, from all institutions responding positively on this topic at the inventory stage, further details of their library or documentation units and their resources and services.

8.2 An important aim of this activity will be to collect data on holdings of water-related national documents, including:

- documents published in the country
- documents by nationals published abroad
- documents about the national water sector by non-nationals, published abroad.

8.3 The main actions to be taken are:

- identify libraries, documentation centres and other document collections in the institutions included in the inventory; this will be done in the course of the inventory
- collect general data on the contents of these collections, including:
 - numbers of bound volumes of books, periodicals, etc.
 - number of current periodical titles received
 - quantities of other types of material held (audiovisual aids, maps, etc)
 - nature of the records of the collections (catalogues, etc.)
 - numbers and types of staff employed
 - equipment
 - special collections
 - information products and services available.