インドネシア
かんがい排水施工技術センター計画
帰国専門家報告書 Ⅳ

短期専門家(技術情報システム)

REPORT OF EXPERT

Short Term Experts

(Technical Information System)

昭和60年1月

国際協力事業団(JICA)

はしがき

インドネシアかんがい排水施工技術センター計画は，インドネシア国における食糧の増産を目的とした農業基盤整備事業を重点的に実施する為，かんがい技術者の資質の向上を目的として昭和５６年４月１日から５カ年のプロジェクト方式の技術協力として開始された。

これまで，R／Dのマスタープラン活動６項目について活動が進められ，モニタリングを始めとする分野に長期・短期専門家が派遣された。

本報告書は，本プロジェクトがスタートして以来帰国済短期専門家の業務報告書を分野別にとりまとめたものであり，今後，プロジェクト運営及び関係者の参考資料として利用されることを願うものである。

最後に，これまで御甚力を頂いた専門家各位，御協力を頂いた外務省，農林水産省，インドネシア側関係機関，在インドネシア国日本大使館に対し，ここに深く謝意を表する。

昭和６０年　１　月

国際協力事業団
農業開発協力部長
田内　堯

業務分野 (Field)	専門家氏名 (Name)	派遣時所属 (Position)	ページ (Page)
技術情報処理システム (Technical Information Service System)	関岡英明 (Hideaki Sekioka)	農林水産省構造改善局建設部設計課 (MAFF)	1
技術情報管理システム (Technical Information Management System)	津田義久 (Yoshihisa Tsuda)	同上 (ditto)	4
技術情報サービス (Technical Information Service)	辻　啓一 (Keiichi Tsuji)	農林水産省中国四国農政局土地改良技術事務所 (ditto)	101

目　　次
（Table of Content）

（技術情報処理システム）…… 関 岡 英 明（Hideaki Sekioka）…… 1

1. 業 務 の 目 的 …… 1
2. 業 務 の 日 程 …… 1
3. 業 務 の 内 容 …… 1
4. 今後の検討事項 …… 2
5. そ　の　他 …… 3

（技術情報管理システム）…… 津 田 義 久（Yoshihisa Tsuda）…… 4

1. 業 務 の 目 的 …… 4
2. 業 務 の 日 程 …… 4
3. 業 務 の 内 容 …… 4

（Report in English）

1. Table of Content …… 7
2. Master Plan …… 9
3. Technical Information Retrieval System …… 82

1. 業務の目的

CGSCプロジェクトにおいて，インドネシア共和国が実施するかんがいプロジェクトに関する技術情報サービスシステム開発の一環としてマスタープランの作成を行うことを目的とする。

2. 業務の日程

1984年2月8日	東京～ジャカルタ
9日	JICA事務所，大使館に挨拶
10日 ～ 13日	作業方針の打合せ
14日	かんがい局表敬
15日	資料収集，日本における情報
～ 20日	システムの事例紹介及びマスタープランの骨子を作成
21日 ～ 22日	計画設計部を調査
23日 ～ 3月17日	資料の作成及びカウンターパートへの説明
18日 ～ 22日	報告書作成
23日 ～ 25日	関係者へ作業内容を報告
26日	帰　国

3. 業務の内容

(1) インドネシア国のかんがい事業に関する資料の収集と分析

① 計画設計部に出向きかんがい事業に関する文書，レポート，図面等の収集，整理の状況及びイ国のかんがい事業の内容と仕組みについて調査を行った。調査結果は報告書（（英文）に資料として添付した。

② CGSCの文献の整備状況について，カウンターパートより聞き取りを行った。関連資料を報告書（英文）に添付した。

③ イ国のかんがい事業に関する事項及びマイクロフィルム，図書室の運営に関して，カウンター・パートより聞き取りを行った。結果は報告書に基礎資料として掲載した。

(2) 日本の技術情報システムの紹介

① 土地改良技術事務所における技術情報活動について

② 文献資料，図書資料リストについて

③ 工種別検索について

(3) マスタープランの作成

① イ国のプロジェクト関係資料の質と量

② イ国の行政組織の特性とCGSCの役割り

③ 日本の技術情報システムのイ国への適応の可能性

以上の観点よりイ国において実現可能かつ早急に実用化できる範囲の情報と施設を利用した技術情報サービスシステムのマスタープランを作成した。

4. 今後の検討事項

(1) モニタリングと技術情報サービスシステムとの関連

今回の業務の中においては，モニタリングと技術情報サービスシステムとの関連については深く言及していないが，モニタリング（狭義）活動と技術情報サービスシステムとは，データの内容，利用対象・目的が異なるものの，システム的手法は全く同じである。したがって，技術情報サービスをモニタリング（広義）活動の一環として位置づけるとともに，まず行政情報活動（モニタリング（狭義））を含めた情報活動の全体構想（モニタリング（広義））を明確にすることが，技術情報サービスシステムをはじめCGSCの情報活動の開発を円滑に推進する条件であると思料される。

(2) 技術情報サービスの早期の実施

技術情報サービスは，日本においても同様であるが，蓄積した情報量，サービスの実績，検索機能の向上等により確実にニーズが高まるものである。つまり，最初からユーザーのニーズをすべて満足し，利用度の高いシステムなど構築できるものではなく，基本となる小さなシステムを徐々に発展させていくことが肝要である。

このような意味から，現行の組織で可能な範囲において，最も重要な技術情報を選定して，早期に技術情報サービスを実施することが，イ国における技術情報サービスシステムの確立の近道である。

(3) スタッフの育成

技術情報サービスシステムを開発，運用するスタッフは，システム的な手法と同様に，技術情報の内容に対する深い理解が必要である。このため，担当者の育成が必要と思料される。

5. そ　の　他

(1) 技術情報サービスシステムの開発，運用に関しては，今後とも日本人専門家による指導が必要である。

(2) CGSCの他の活動及び，かんがい局の他部所の専門家の協力も不可欠である。

氏　　名	津　田　義　久
指導科目	情報管理システム
現住所	千葉県船橋市二和東5丁目36番地
勤務機関名および住所	農林水産省構造改善局建設部設計課 東京都千代田区霞ケ関1－2－1

1　業務の目的

CGSCプロジェクトに於いて，インドネシア共和国が実施している，かんがいプロジェクトに関する技術情報サービスシステムの内，「技術情報検索システム」のマスタープランを作成することを目的とする。

2　業務の日程

1984年2月　8日	東京　ジャカルタ
9日	JICA事務所，日本大使館に挨拶
10日 〜 13日	作業方針の打合せ
14日	かんがい局表敬
15日 〜 20日	資料収集，日本における情報システムの事例紹介及び検索システムの概要を作成
21日 〜 22日	計画設計部を調査
23日 〜 3月10日	検索システムフロー及び検索カードの作成
11日 〜 17日	検索カード及びコードシステムの作成
18日 〜 25日	報告書の作成
26日	帰　国

3　業務の内容

(1)　インドネシア共和国のかんがい事業に関する資料の収集と分析

①　計画設計部に出向き，かんがい事業に関する文書，レポート，図面等の保管状況及びかんがい事業の内容と仕組みについて，調査を行った。

② CGSCの文献の収集，保管状況について，カウンターパートにより聞き取りを行った。

③ マイクロフイルム・システム，ライブラリーシステムに関し，カウンターパートより聞き取りを行った。

(2) 日本の技術情報システムの紹介

① 土地改良技術事務所における技術情報活動について

② 文献資料，図書資料リストについて

③ 工種別資料について（検索を含む）

(3) 技術情報検索システムの作成

CGSCプロジェクトを中心としたかんがい事業の技術情報の一元化を図るため，現在インドネシア共和国で実現可能な「技術情報検索システム」のマスタープランを作成した。

(4) 今後の検討事項

この「技術情報検索システムは，将来におけるかんがい事業の全ての組織に於いて適用することが望ましい。

この事から更に関係者の間で検討をかさね実施する必要がある。

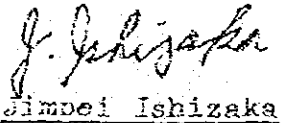
又，本システムはマスタープランに止どめたのでシステムの情報伝達に使用する「検索カード」の作成並びに電子計算機による検索プログラム等の完成が必要である。

P R E F A C E

This is a report covering technical information service system written by Mr. Yoshihisa Tsuda and Mr. Hideaki Sekioka compiled in March, 1984.

We hope this report will be found especially useful for the management and retrieval of technical information.

We would like to express our sincere thanks to Dr. A. Hafied A. Gany BIE. MSc., Mrs. Kunhari Hadiati, Miss Sukarni and Miss Yarmi Sariya for frequent discussions with them on various topics during the preparation of this report and for their suggestions.



Jimpei Ishizaka

Team Leader,
Japanese Expert Team
CGSC Project
Bekasi

TABLE OF CONTENTS

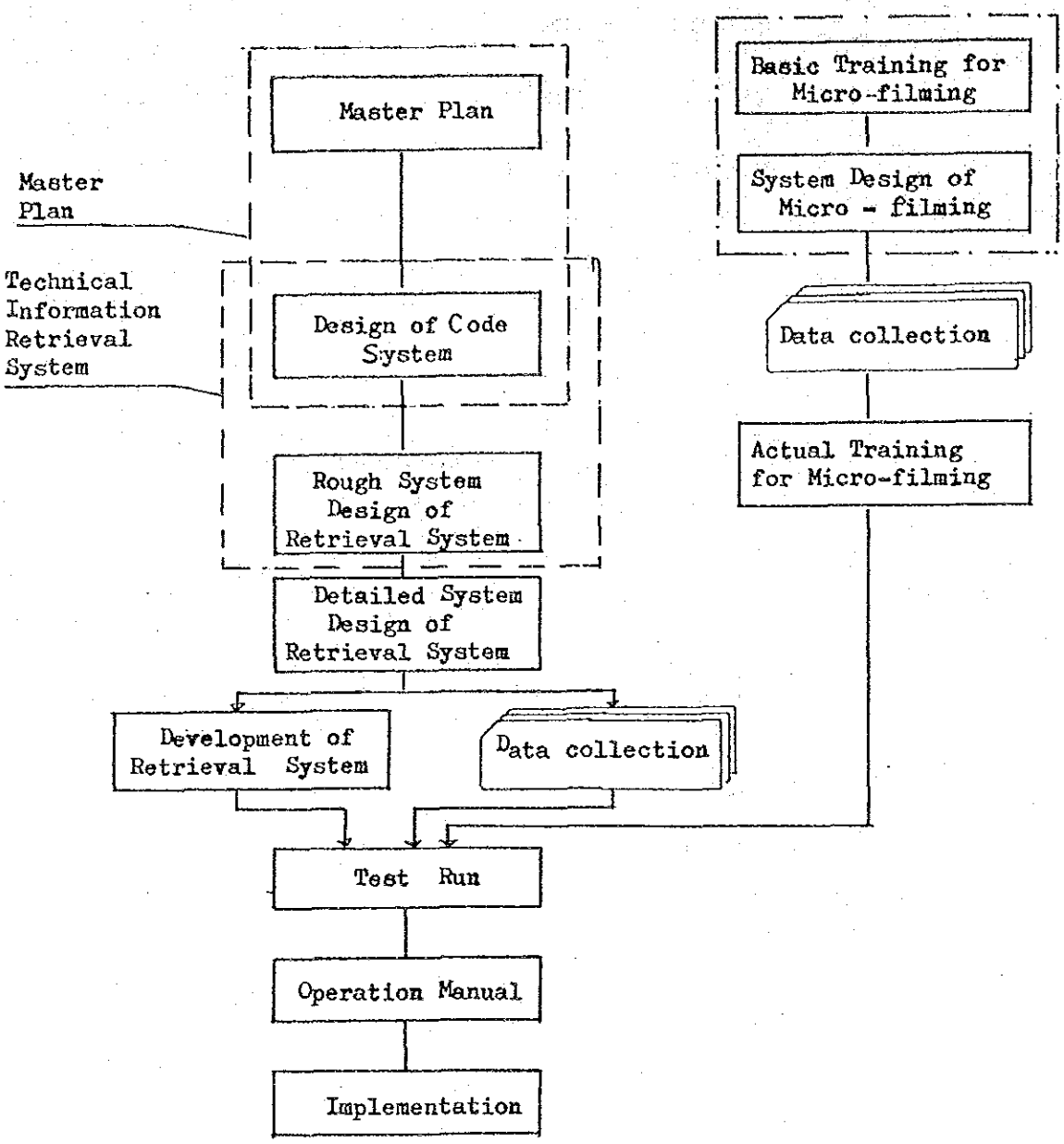
	Page
COVERING LETTER	i
TABLE OF CONTENTS	ii
CONTENTS OF WORKS	iii

I. M A S T E R P L A N

II. TECHNICAL INFORMATION RETRIEVAL SYSTEM

CONTENTS OF WORKS

Development Flowchart of Technical Information Service System



MASTER PLAN

CONTENTS

I-1 O U T L I N E

1 Purpose

2 Schedule

3 Outline of works

4 Recommendation

I-2 MASTER PLAN OF TECHNICAL INFORMATION SERVICE SYSTEM

1 Definition of Technical Information Service System

2 Role of the System

3 Content of Object Information

4 Framework and Management of the System

5 Code System

6 Data Flow of the System

7 Procedure of System Development

Attachment: 1) Inquiry of the Sub-Directorate of Planning & Design

2) Library Activities

3) A Brief Explanatory about Library Catalogue

I-1 OUTLINE

1 Purpose: Development of Technical Information Service System in the Construction Guidance Service Center

2 Schedule

Feb.8. 1984	Tokyo — Jakarta
10 to 14	Preparation
15 to 20	Making outline of master plan
21 22	Observation of the Sub-Directorate of Planning & Design in Bandung to collect data concerned with projects
23 to Mar.10	Making master plan
11 to 17	Making code system
18 to 25	Preparation of report
26	Jakarta — Tokyo

3 Outline of works

The completion works concerning master plan of technical information service system with assistance of counterparts during the period of the assignment are as follows:

1) Data collection and analysis of technical data and literature concerned with irrigation projects in Indonesia.

2) Introduction of technical information service system in Japan.

- Contents of the data and literature dealt with through the system
- Method of the retrieval

3) Making master plan

4) Design of code system

(Refer to Figure - i, ii, Table-i)

4 Recommendation

In order to implement the technical information service system in CGSC, the following working should be carried out in succession.

1) To select the most necessary data according to Indonesian condition and to collect as soon as possible in order to implement the system and to benefit DOI and projects. And information dealt with by the system is limited to technical data and literature concerned with irrigation projects.

2) Since the collection of available and sufficient data and working of preparing detailed classification standard and manual are essential to execute the actual design of the technical information service system coming next smoothly, it is desiable to arrange necessary enviroments to cope with those steps.

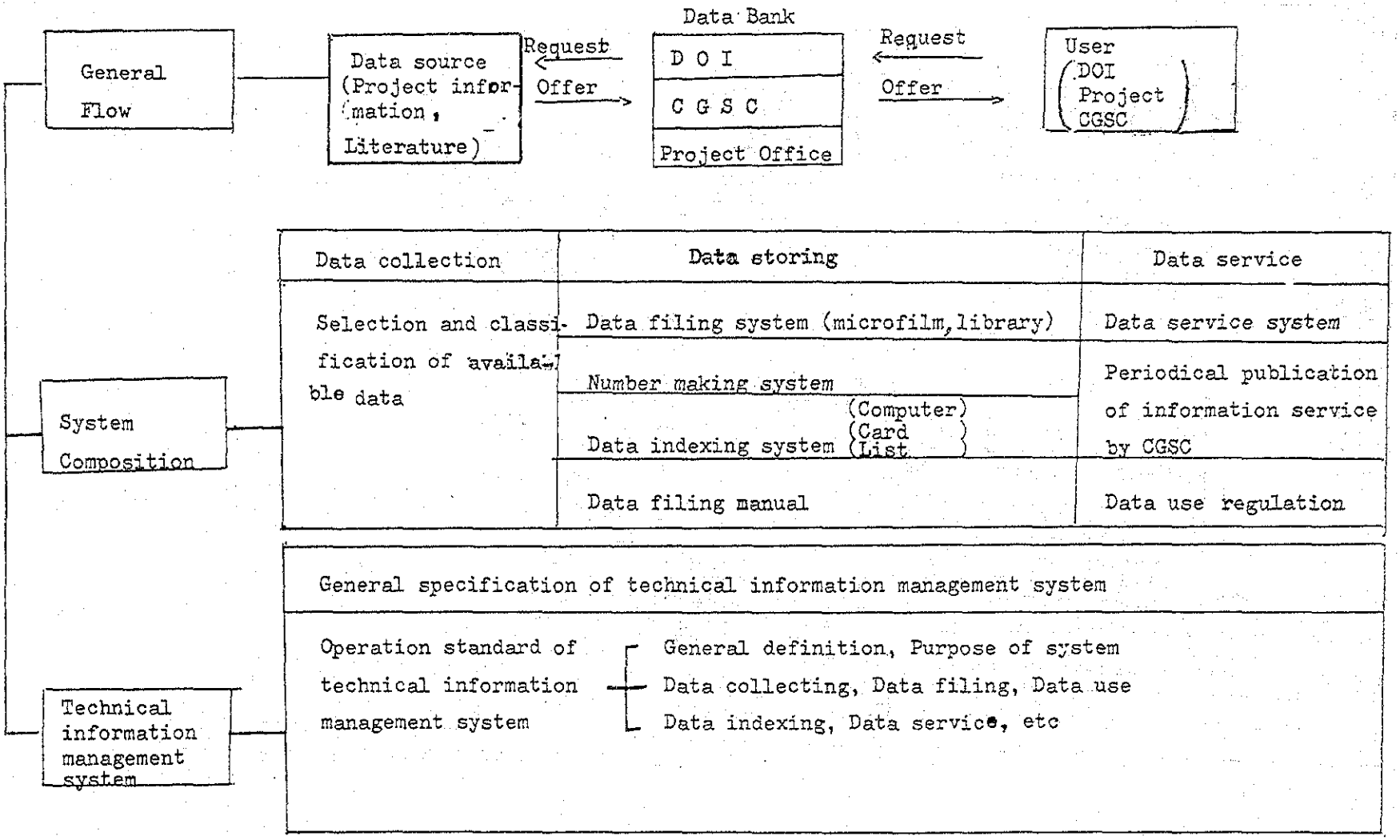
   In particular, for precise and rapid classification of data, it is required to train engineers in charge of that working sufficiently because such working is usually very difficult and also spends much time.

3) To increase staff and budget for micro-filming and space of library.

4) To manage library in laboratory and literature in other activities totally through the system.

TECHNICAL INFORMATION SERVICE SYSTEM (GENERAL PLAN)

Figure - 1

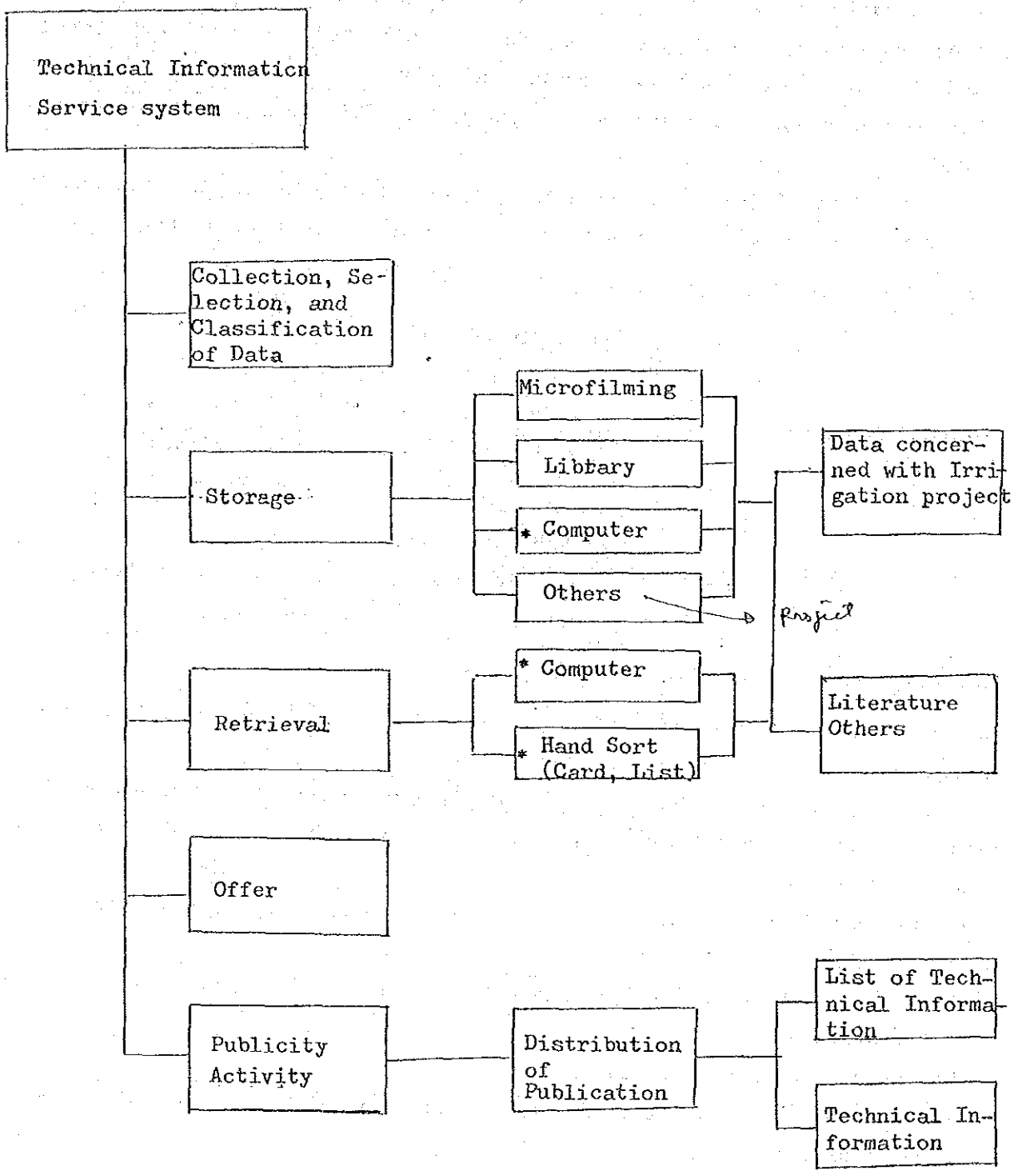


OUTLINE OF TECHNICAL INFORMATION SERVICE SYSTEM

Table - 1

	Kind of Data	Content of Data	Collection, Classification, Storage	Request, Retrieval, Offer	Remarks
Technical Information Service System	Data Concerning Irrigation project	Documents, reports, drawings, other data concerning irrigation projects under construction stage o Master plan o Feasibility study o Detailed design o Tender contract o Construction o Operation & maintenance manual o Others	Classification and storage of the data and retrieval cards collected from DOI and irrigation projects	1) The data lists prepared by CGSC should be supplied to DOI and irrigation projects. 2) Users should request the offer of necessary data to CGSC, appending the request sheets and, if inquired, the retrieval cards which necessary matters are filled with. 3) Data should be, in principle, offered to the users by means of copies only.	Data to be objective are the data concerned with irrigation projects under construction.
	Literature	1) Necessary technical literature under construction stage 2) Others	1) Collection, classification and Storage of technical literature necessary for DOI and irrigation projects 2) Literature collected is classified according to the Universal Decimal Classification (UDC)	1) The data lists prepared by CGSC should be supplied to DOI and irrigation projects. 2) Users should request the offer of necessary data to CGSC, appending the request sheets. 3) Data should be, in principle, offered to the users by means of copies only.	

FRAMEWORK OF TECHNICAL INFORMATION SERVICE SYSTEM Fegure - 11



(Note) : * Only key information

1. Definition of Technical Information Service System

This Technical Information Service System (here in after called the system) is the system that technical data and information necessary for the construction management of irrigation projects are collected, selected and stored, and that the data mentioned above or the information concerning the places stored are offered to users who are engaged in DOI, irrigation projects and CGSC.

The scope of the information managed by this system is the data and literature concerned with irrigation projects under construction stage.

1.1 Function of the system

Function of the system
- (1) Technical information service
  - o Collection, Classification, Storge, Retrieval and Offer of the data.
  - o Method of Storing and Retrieval
    - — Library, Computer, Micro-film
- (2) Publicity activity
  - Publication of list of technical data, literature and routine information

1.2. Limitation of the system

The technical data produced in DOI and projects should be collected and stored through the total information system.

It is difficult to deal with all of the data produced in DOI and projects because of limitation of budget and staff, and also from view point of cost-benefit of data management.

The data dealed with through the system should be limited, in priciple, to the data as follows :

1) The data can be stored rationally and be utilized beneficially by means of total storage.
2) The data important in furture.
3) The data which be utilized many times and data which will be utilized in case of urgent matter.

The data dealed with through the system are limited according to items as shown in Table - I.

Table - I

Item	Explanation
1) Volume of the data	Even if the data stored every year are little, many data will be stored for several years. So the data should be collected and stored under long-term plan depending on the facilities, the budgets, number of staff and so on.
2) Selection of the data	The data to be utilized temporarily should not be selected.
3) Collection of the data	The data should be limited to the data sent to CGSC and literature obtained by CGSC.
4) Classification of the data	The data dealt with through the system should be classified except the data having fixed user.
5) Storage	The data should be stored by means of library, micro-film and computer. The data stored by computer are only key imporation for retrieval.
6) Processing of the data	Content of data should not be changed or rearranged through out process of information service.
7) User	Users are limited to DOI, project and CGSC.

2. Role of Technical Information Service System

2.1 Role of the system in DOI

Role of the system is assigned as data bank in relation to technical information service in DOI.

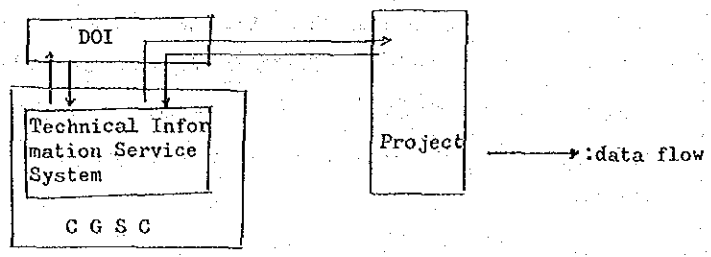


Figure - I

2.2 Role of the system in CGSC

CGSC has technical information service and other five activities, namly, monitoring activity, standardization activity, training, laboratory and computer service. These five activities are acting with technical information.
In order to carry out the activities of CGSC smoothly, it is necessary to collect and to store technical information.

On the other hand, CGSC provides DOI and projects with technical data produced from five activities in CGSC through the system in order to execute irrigation projects smoothly.

All after, role of the system is also assigned as important and fundamental data bank in relation to technical information service in CGSC.

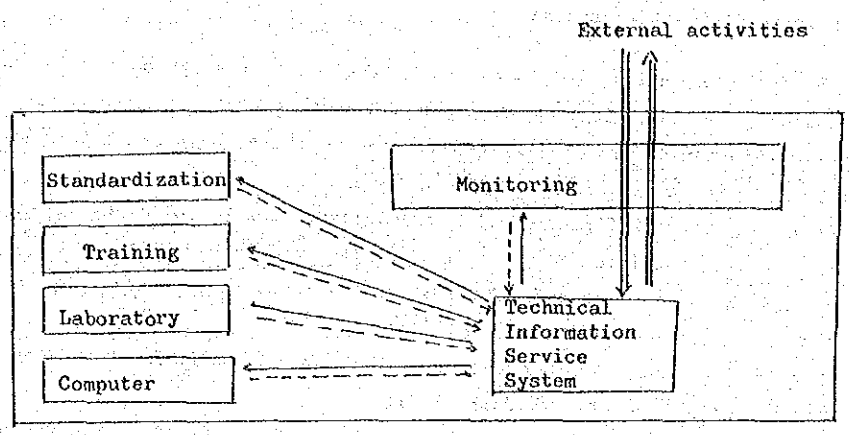


Figure - II Relation to other activities

——→ : Data offered by Technical Information Service System

- - - - - - - → : Data produced and processed by other activities

The system has connection with other five activities in respect of the following works :

1) Collection of the data necessary for other five activities

2) Classification and storage of the data should always consider requirement of other five activities.

3) Collection, classification and storage of the data produced by other five activities.

4) Offer of the data produced in CGSC to DOI and projects.

5) Publicity of the data produced in CGSC

3. Content of Objective Information

The scope of the information, mentioned in "Definition of the system" is the data and literature concerned with irrigation projects under construction stage. But objective information must be limited to some important data and literature according to priority by several conditions.

Content of objective information will decide according to following items :

a) Grasp of existing condition

a-1) Grasp of kind, content and volume of the data which are managed by the system (refer to Table - II)

a-2) Grasp of necessary items concerned with irrigation projects under construction stage (refer to Table - III)

a-3) Grasp of which division has in charge of execution of irrigation projects (refer to Table - IV)

b) Estimation of amount of data

c) Kind of objective literature

d) Examination of scope of data which be able to be collected and stored according to staff, budget and facilities

e) Dicision of the scope of objective information

3.1 Data concerned with irrigation projects

1) Data list (all of the data)

Table-II

Stage of the project execution	ITEMS	Volume of Data						
		Letter		Report			Map·drawing	
		Size A4 (sheet)	Size A2 (sheet)	Volume (Volume)	Size A4 (sheet)	Size A2 (sheet)	Size AO (sheet)	Size A1 (sheet)
I Master plan	(1) Master plan report	50	20	1	200	25		
	(2) Fundamental data for master plan			2	400	50		
	(Total)	(50)	(20)	(3)	(600)	(75)		
II Feasibility Study	(1) Feasibility Study Report			1	300	30		
	(2) Agriculture			1	300	30		
	(3) Economic			1	300	30		
	(4) Social			1	300	30		
	(5) Transport			1	300	30		
	(6) Hydrology			1	300	30		
	(7) Engineering			1	300	30		
	(Total)			(7)	(2100)	(210)		
III Detailed Design	(1) Detailed Design Report	50	20	1	450	50	100	3400
	(2) Agricultural Survey			1	300	30		
	(3) Soil Survey			1	300	30		
	(4) Soil Mechanics			1	300	30		
	(5) Geology			1	300	30		
	(6) Hydraulic Model			1	300	30		
	(7) Others			1	300	30		
	(Total)	(50)	(20)	(7)	(2250)	(230)	(100)	(3400)
IV Tender Contracting	(1) General & Technical Specification			2	500	60		
	(2) Tender Document	500	200	10	2000	500	100	3400
	(3) Contract Document	500	200	15	3000	500	100	4000
	(Total)	(1000)	(400)	(27)	(5500)	(1060)	(200)	(7400)
V Construction	(1) Monthly Report			60	3500	600		
	(2) Quarterly Report			20	2000	400		
	(3) Annual Report			5	1500	250		
	(4) Engineering Report			1	400	50		
	(5) Inspection Report			5	2000	250		
	(6) Others			5	500	100		
	(Total)			(96)	(9900)	(1650)		
VI Completion	(1) As Built Drawings						100	3400
	(2) Completion Report	100	20	1	600	100		
	(Total)	(100)	(20)	(1)	(600)	(100)	(100)	(3400)
VII O & M Manual	(1) Manual			1	350	50	10	20
	(Total)			(1)	(350)	(50)	(10)	(20)
	TOTAL (5 years)	1200	460	142	21300	3375	410	14220
	1 year	240	92	28,4	4260	675	82	2844
	73 projects/year	17520	6716	2073	310980	49275	5986	207612

Note: This table is prepared by the counterpart.

2) Outline of irrigation projects under construction in DOI

Table - III

Name of Sub-Directorate concerning project	Number of projects	Classification of projects	Organization of execution	Irrigation area (ha) average of model projects	Main Facilities (model project)	Remarks
Sub-Directorate of Construction Guidance I	22	Particular Irrigation	DGWRD	9900	Dam, Weir, Main canal, Drainage system, Outfall structure, Cross structure, Spillway	
Sub-Directorate of Construction Guidance II	29	Medium, Small, Simple, Irrigation	DGWRD	1000 - 41400	Secondary canal, Outfall structure, Tertiary box, Drainage system, Drop structure, Spillway	
Sub-Directorate of Rehabilitation	15	Rehabilitation	DGWRD	--	Rehabilitation for construction of the irrigation projects	
Sub-Directorate of Operation & Maintenance	31	Operation & Maintenance	DGWRD	--	Operation & Maintenance for construction of irrigation projects	
Total	97					

3) Organization concerned with execution of irrigation projects

Table- IV

Organization concerned with Master Plan and Feasibility Study	Organization concerned with Detailed Design	Organization concerned with Tender and Contract	Organization concerned with Execution of Construction
Directorate Planning & Programming	Directorate of Irrigation	Directorate of Irrigation	Directorate of Irrigation

Note: Some data concerned irrigation projects are stored in the Sub-Directorate of Planning & Design. Explanation of the method of data storing in the Sub-Directorate of Planning & Design is shown in attached paper I.

4) Annual estimated amount of the data

a) Precondition of estimating data volume

a-1) Period of construction stage is assumed five years

a-2) Irrigation area is assumed 20,000 ha.

a-3) Objective data are shown in Table-II

b) Amount of the data per projects

- Letters	1600 sheets
- Report and documents 142 vols	367.550 sheets
- Drawings and maps	14.630 sheets

c) Annual amount of the data of per project

- Letters	332 sheets
- Reports and documents 28,4 vols	4.935 sheets
- Drawings and maps	2.926 sheets

d) Annual amount of the data of all projects

- Letters	24.236 sheets
- Reports and documents 2073 vols	360.255 sheets
- Drawings and maps	213.598 sheets

3.2 Literature concerned with irrigation projects Table-V

No.	Kind of Literature	UDC number	No.	Kind of Literature	UDC number
1.	Economics & Sosial Science	3	19.	Special works	624.1
2.	Soil Mechanics	624.13	20.	Temporary Construction	624.1
3.	Structural Mechanics	624	21.	Labour rate	624.008.2
4.	Hydraulics	532 or 626	22.	Construction Management	624.008.2
5.	Hydrology	551.48	23.	Concrete	691 or 693
6.	Planning of Civil Engineering Works	624.001.1	24.	Material (Except Concrete)	691
7.	Civil Engineering	624	25.	Construction Equipment	621
8.	Computer	518.5 or 681.14	26.	Oil and fuel	662.765
9.	Mathematics & StatistiCS	51 & 31	27.	Electric	621
10.	City water and Sewerage	628	28.	Architecture	72
11.	Canal works	626 or 627	29.	Pump and gate	621.65
12.	Tunnel	624.19	30.	Surveying	* Note
13.	Dam and head works	627.8	31.	River bank	626.13
14.	Land slide	551.244	32.	Laws	34
15.	Road	625.71	33.	Standard	389.6
16.	Bridge	624.21	34.	Information	659.2
17.	Foundation	624.15	35.	Enviromental pollution	628.51
18.	Sheathing Hurdle	624.1	36.	Others	

Note: U D C is " Universal Decimal Classification"

1) Since literature shown in the above table will be mainly required under construction stage, they should be collected step by step.

2) Literature should be classified according to Universal Decimal Classification (U D C).

3) Table - VI shown in next page is a list of kind of literature classified according to U.D.C.

* Note

Geology survey	550.81	Social survey	308
Agriculture survey	631.47	Land Survey	528.4
Soil survey	624.131.47		

Table – VI

UDC No.	Name of branch	Content	Volume
3	Social Science	Economic Social Science	
308 31	Statistics	Social Survey Statistics	
34	L a w s	L a w s	
3896	Standardization	Standard	
51	Mathematics	Mathematics	
550.81 551.244	Geology	Geology Surveying Land slide	
551.48	Geology	Hydrology	
714.7 621	Mechanical & Electrical Engineering	Enviromental pollution Construction equipment	
621	-"-	Electric	
621.65	-"-	Pump & Gate	
624	Civil Structural Engineering	Civil Engineering	
624	-"-	Structural Mechanic	
624.001	-"-	Planning of Civil Engineering Works	
624.008	-"-	Labor rate	
624.008	-"-	Construction equipment	
624.012	-"-	Concrete structure	
624.1	-"-	Sheathing hurdle	
	-"-	Special works	
	-"-	Temporary construction	
624.13	-"-	Soil mechanic	
624.131 624.15	-"-	Soil Surveying Foundation	
624.10	-"-	Tunnel	
624.21	-"-	Bridge	
625.71	Highway, Road Engineering	Road	
626	Hydraulic Engineering and Construction Works	Hydraulics	
626.1		Canal works	
626.13		River banks	

UDC No.	Name of branch	Content	Volume
627.8	Natural water and Channel River, Post, Harbour and Coast works: Dams, etc	Dam and Head works	
628.2	Public Health Engineering	City water and sewerage	
659.2	Publicity Information	Informations	
662.765	Explosive Fuels	Oil and fuel	
681.14	Precision Mechanism, Apparatus and Machines	Computer	
691	Building Industry, Material Trades, Construction	Material (Exceot concrete)	
691.3		Concrete	
693		Concrete construction	

3.3 Scope of information can be collected according to staff, budget and facilities

Annual amount of the data

Tabel-VII

Contents of Data		Annual amount of the Data	Facilities
Data concerned with irrigation projects	Documents & Reports	2073 vols (360.255 sheets)	Library
	Letters & Drawings	(Micro-sheet) 24.236 frames (Aperturecard) 213.598 sheets	Micro-film
Literature		-	Library

Ability

Table-VIII

Facilities	Number of staff	Budget	A b i l i t y
Micro-film	Supervisor 1 Staff 3	-	Micro-sheet 52.000 frames/year or Aperturecard 10.000 sheets/year
Library	Supervisor 1 Staff 1	-	Literature 2000 vols (room is 500 vols) Report and Documents 581.000 sheets

Necessary staff and budget for management of all of data shown in Table-VII

Table - IX

Facilities	Volume of Data	Number of Staff	Budget	Comment
Micro-film	Micro sheet 24236 frames Aperture card 213598 sheets	Supervisor 1 Staff 22	Only material Rp. 23.860.000,-	If volume of necessary data is over ability at present, DOI should increase staff, budget and facilities according to volume of data.
Library	Documents & Reports 2073 vols (360255) sheets	Supervisor 1 Staff 2		

* Note: Figures on tables are estimated by the counterparts

Fundamental data for estimation

1) Micro-film

1-1) Case-1 Micro-sheet (16mm)

a) Content of works: From taking photograph to completion of micro-film jacket

b) Number of staff: Supervisor 1 person, Staff 3 persons

c) Ability of processing per day : 250 frames

1-2) Case-2 Aperturecard (35mm)

a) Content of works: From taking photograph to completion of aperturecard

b) Number of staff: Same as case-1

c) Ability of processing per day 50 sheets

1-3) Ability of processing per year

Ability of processing per year	Remarks
Micro-sheet 39.000 frames or Aperturecard 8.000 sheets	250 frames/day x 365 days/year x 6days/7days x 2 persons/3persons = 52.000 frames 50sheets/day x 365days/year x 6 days/7 days x 2 persons/3persons = 10.000 sheets

Assumption: All staff is 3 persons

2 persons are for making micro-film

1 persons is for other work, (for example offer, storing, etc)

1-4) Material cost

Micro-sheet Rp.15,- (Rp.15 x 24236 = Rp.360.000,-)

Aperturecard Rp.110.- (Rp.110.- x 213598 = Rp.23-500.000,-)

(Total Rp.23.860.000,-)

* Note : Figures are estimated by the counterparts.

2) Library

2-1) Width of shelves

type A

83cm x 4 x 6 x 5 = 996 cm

type B

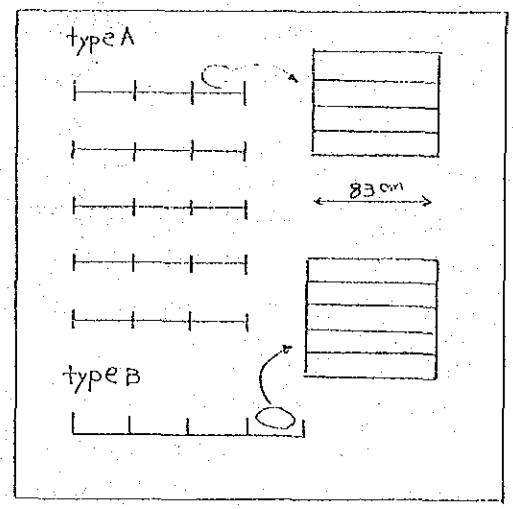
83cm x 5 x 4 = 1660 cm

Total

9960 + 1660 = 11.620cm

Half of the space (5810cm) is for literature

The other space (5810cm) is for reports and drawings



2-2) Ability of storage

Kind of Data	Ability of storage	Remarks
Literature	1900 vols (Room is only 400 vols	5810cm ÷ 3cm/vol = 1900 vols There are 1000 books in the Library now
Reports & Documents	581000 sheets	5810cm + 1cm/100sheets = 581000 sheets

a) Average thickness of books is assumed 3cm per one.

b) Average thickness of reports and documents is assumed 1cm per 100 sheets

2-3) Ability of making catalogue card and data list

a) Content of work: Classification, making catalogue card and data list, storing.

b) Ability of processing: 5 volumes (book, report, document)/day/person

2-4) Ability of processing per year

Ability of processing per year	Remarks
1600 vols/year	5 vols/day x 365days/year x 6days/7days = 1600 vols/year

Assumption: Staff is 1 person, half a day is assigned for making catalogue card and data list and the other time is assigned for another work.

* Note: Fundamental data are provided by the counterpart.

3.4 How to decide the scope of objective information

Objective information should be decided according to following items :

(1) To clarify the user

(2) To clarify the data which will be used by anthorized user

(3) To clarify the utilization purpose

(4) To check up on supporting data

(5) To clarify the effectiveness of having complete data

(6) To clarify following items :

a) Place where objective data are produced

b) Method of classification, storage and offer

(7) To judge from items (1)–(6), whether the data should be managed by the system or not.

(8) To decide order of priority of management by the system according to utilization time, importance, etc..

Example of decision of data utilization

Case	1 User	2 Data to be used	3 Utilization purpose	4 Supporting data	5 Effectiveness of having complete data	6 Collection, classification, storage and offer of the data
Case 1	D O I Sub Directorate OOO OOO	As built drawings & documents	-Graps of the existing state of irrigation facilities for rehabilitation -Fundamental data for design work	-Topographic map -Geological map	Saving cost and time for survey and measurement for rehabilitation	-Collection -from project office province government -Classification -Code system of irrigation project -Storage Drawings - Micro-film Report etc - Library -Offer By copy
Case 2	CGSC OOO Unit	Literature concerning soil test	Soil test in laboratory	-Engineering report	Improvement of soil test techni	(Literature concerning soil test) -Collection-purchased by DOI or CGSC -Classification -Universal Decimal Classification -Storage -Library -Offer -By copy (Engineering report) -Collection - from project office province government -Classification -Code system of irrigation project -Storage : - Library -Offer -By copy

3.5 Conclusion

1) As shown in Table-VII, VIII, IX, only some of the data concerned with projects (refer to Table-II) are possible to be managed by the system. So CGSC should manage the information where data is stored and data which can be managed on basis of number of staff, budget and facilities.

2) The Sub-Directorate of Planning & Design has stored the data concerned with irrigation projects at each stage from master plan to tender. (Refer to attached paper I) But it has not stored data and literature concerned with irrigation projects from contract to completion of construction.

3) Therefore, CGSC should manage the data and literature except data stored in the Sub-Directorate of Planning & Design and select them strictly and store according to the ability of management at the first step of the system.

And CGSC should manage the system as soon as possible and benifit DOI and project.

The data and literature which should be managed preferentally are shown in Table - X

4) CGSC should increase staff, budget and facilities according to the volume of the necessary data stey by stey in the future.

Estimation of staff and budget necessary for management of data in Table-II is shown in Table - XI

Data and literature which should be managed preferentially

Table-X

Kind of data	Contents	Data volume (Annual)		
		Micro-sheet (Frames)	Apertu-recard (sheets)	Report (sheets)
Letter	All of the letter concerned with irrigation projects	24000		
Tender and contract	General and technical specification of the contract Contract documents (except drawings)			60.000
Construction	-Engineering report -Inspection report -Others (report concerning standard material test, hydraulic test, etc.)			50.000
Completion of contruc-tion	-As built drawings -Completion report		50.000	10.000
Operation & main-tenance manual	-Manual		400	6.000
Literature	To select literature necessary for internel activities in CGSC and instructive literature for training			
	Total (except literature)	24.000	50.400	126.000

Estimation of staff and budget

Table-XI

Facilities	Volume of Data	Necessary staff	Necessary budget	Remarks
Micro-film	Microsheet 24000frames Aperturecard 5040Osheets	Supervisor 1 Staff 6	Only material cost Rp.6.000.000.-	
Library	126.000sheets (1260cm)	Supervisor 1 Staff 1		There is room for 4 years

4. Framework and Management of the Technical Information Service System

4. 1. Framework of the system

Framework of the system is shown in the figure - III.

1). The system is composed of five activities as follows :

a. Collection, selection and classification

b. Storage

c. Retrieval

d. Offer

e. Publicity

2). Method of storage is composed as follows :

a. Micro-film

b. Library

c. Computer

d. Others

3). Method of retrieval is composed as follows :

a. Computer

b. Hand sort

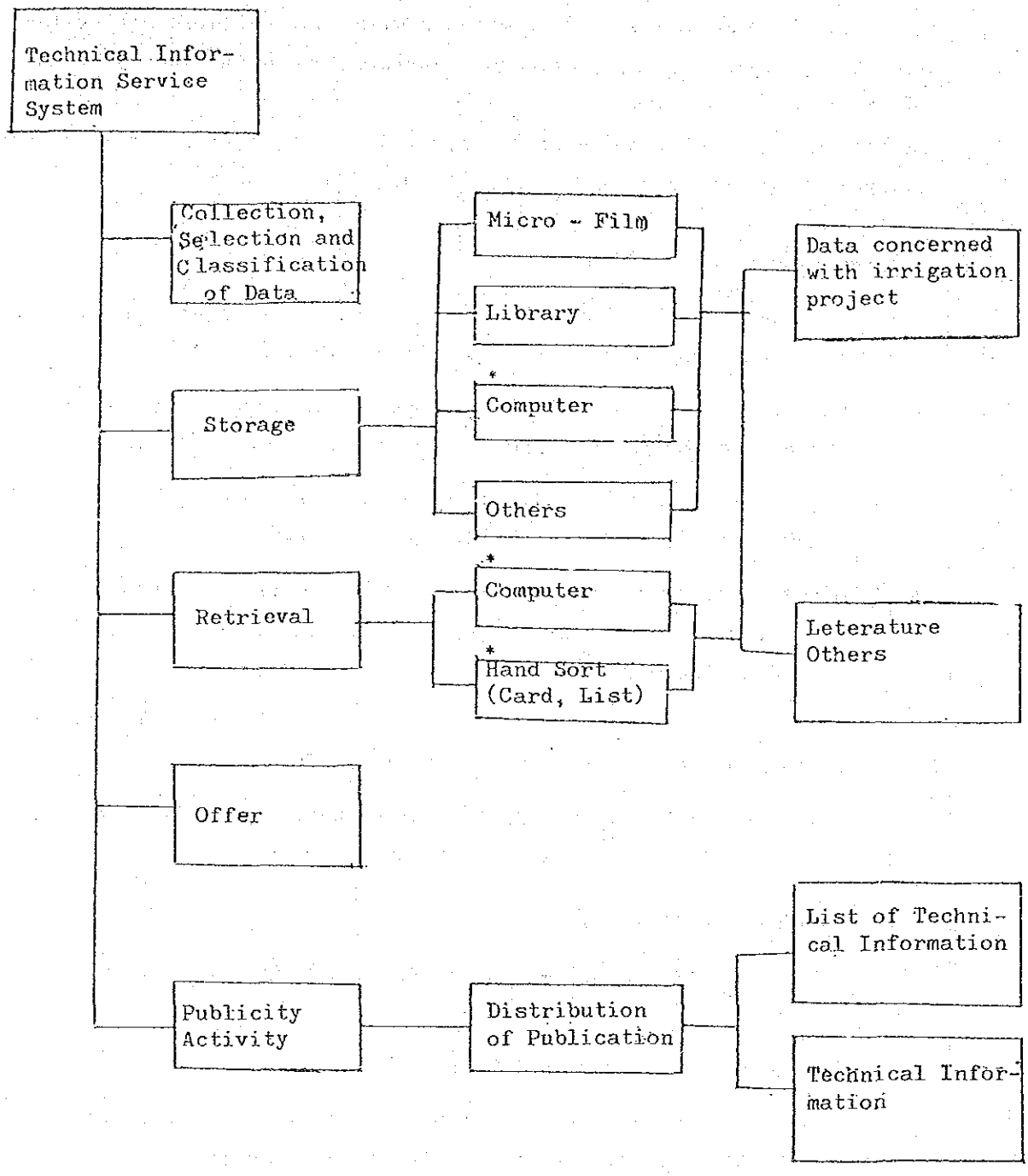
b-1. Retrieval card

b-2. Information list

4). Publicity

Publicity is performed by means of periodical publication.

FRAMEWORK OF TECHNICAL INFORMATION SERVICE SYSTEM Figure - III



(Note) :* Only key information

4.2 Management of the system

1) Application of the most suitable method

Technical information should be managed with most suitable collection, selection, classification, storage, retrieval and offer according to the feature of the data.

Each data can be utilized effectively by using the most suitable method.

Management system is shown in Table - XII,XIII.

a. Explanation of Table - XII.

a -1. In case of data impossible to be collected, at least key information regarding data address should be obtained.

a -2. Data classified according to project name, organization, stage of the project execution, kind of irrigation works and so on.

a -3. Letters should be stored in the form of micro-film, because their volume are too little to be stored in library.

a -4. Since reports and documents are usually compiled as books by suitable size, for example A4, A5, B5, B6 and so on,they should be stored in library.

a -5. Drawings and maps are usually too large to be stored in library, so they are stored in the form of micro-film.

a -6. The data are retrieved by means of computer and retrieval card and lists of the data are distributed to users.

b. Explanation of Table - XIII.

b -1. Literature is classified according to only Universal Decimal Classification.

b -2. Literature is stored in library.

b -3. Literature is retrieved by means of four kinds of catalogue cards and lists of literature are distributed to users.

Management system for data concerned with projects

Table - XII

Kind of data / Activity		Collection and Selection	Classification	Storage	Retrieval	Offer
Date concerned with projects	Letter	Collection and selection of the data offered from D.O I and projects	Classification according to code system concerned with project and irrigation works	Micro-film	1. By computer and retrieval card 2. Data lists are distributed to users From of data lists is shown in Sample -I, II.	By copy
	Document and Report			1. Original data should be stored separately in library. 2. In case of borrowed data, it should be stored in the form of micro-film.		
	Drawing and Map.			1. Micro-film 2. Original data are stored separate from the other data in library		
	Others					

Management system for literature

Table - XIII

Kind of data \ Activity	Collection and selection	Classification	Storage	Retrieval	Offer
Literature	DOI and CGSC should select and collect literature necessary for execution of irrigation works under construction stage.	According to the Universal Decimal Classification	Library Literature is stored separate from the data concerned with projects.	1. By four type catalogae cards and literature lists 2. Literature lists are distributed to users. From of literature lists is shown in Sample - III, IV, V.	By copy

Note : Library activities and Universal Decimal Classification are shown in Attached Paper-II, III.

2) Publicity activity

CGSC should provide DOI and projects with two kinds of information as follows :

a. List of technical information

b. Technical information

The information is provided by means of periodical publication.

a. List of technical information

Items necessary to search the data are listed in the lists.
List of technical information is mainly separated into two kinds of lists as follows :

a-1. List of the data concerned with irrigation projects.
a-2. List of literature

b. Technical information

Technical information is the data necessary generally for the staff engaged in irrigation projects.
Technical information is composed of two kinds of data such as the following items.

b-1. Suitable information selected from the stored data regarding the improvement of staff's technical-knowlwdge.

b-2. Information produced by CGSC for staff engaged in DOI and irrigation projects.

3) Contents of publicity activity

Table - XIV

Kind of contents		Collection and selection	Compilation	Publication	Distribution
List of technical Information	The data concerned with irrigation projects	To summarize key information from the data stored in CGSC, DOI and projects.	Form of edition is show in Sample - I 1) According to Universal Decimal Classication 2) Form of edition is shown in Sample - II	1. To publish all of the lists periodically 2. To publish the supplementary lists according to necessity.	To distribute to DOI and projects
Technical Information		1. To select from the data stored through the system 2. To select from the information produced by CGSC.	Case by case	To publish periodically several times a year	To distribute to all staff engaged in DOI and projects

4. 3 Form of the lists

1) Lists of the data concerned with irrigation projects
Lists are composed of general list and individual list.

a. General lists

a-1. Content : project code, project name, kind of data stored, Page of individual list

a-2. Form : it is shown in Sample - I

Sample - I

Project code	Name of Project	Kind of data									Page of individual list
		Letter	F.D	M.D	G.T	Co	E.C	C.C	O.M	Others	
oooooooo	o o o	C	C	C	C						
oooooooo	oooooooo	C	C	O	O	O					

Note: 1. "Kind of data" is composed of nine parts as Following items:

1. Letter
2. F.D : Fundamental data on project plan
3. M.D : The data concerned with raster plan and design works
4. G.T : The data concerned with general and technical specification
5. Co : The data general with contract
6. E.C : The data concerned with execution of construction
7. C.C : The data concerned with completion of construction
8. O.M : The data concerned with operation and maintenance manual
9. Others

2. Explanation of mark " C " and " O "
" C " means the data are offered by CGSC
" O " means the data are offered by DOI and projects.

b. Individual list

b-1. Content : Reperesentative information about each data

Form : It is shown in Sample - II

Sample - II

Project code	Name of project	Period of execution of construction from (year) to (year)	Date of data list Completion (day) (month) (year)

Sequential number	Kind of the data	Language	Name of data	Type of data	Volume	Date of Production	Date producer	Date owner	Content of data 1	2	3	4	5	6	7	8	9
1	L.T	I	ooooo	D	10 sheet	1.4.1984	ooo	C									O
2	F.D	I		R D	1 vol 5 sheet	1.4.1984	oooo	O	O								O

Supplementary explanation

1. Kind of the data is same as that in Sample - I
2. Language is classified as follows :
   I ... Indonesian, E ... English, O ... Other language
3. Type of the data is composed of four styles as follows :
   L ... Letter
   R ... Report and document
   D ... Drawing and map
   O ... Others
4. Data owner
   "C" and "O" mean same as them in Sample - I
5. Content of data
   Number means "Code of irrigation works"
   Shown in Table - IXX

2) Lists of the literature

Lists are composed of two kinds of general lists and individual list. One of general list is a list for periodical publication, and the other is a list for nonperiodical one.

Periodical publication means literature is published periodically with cycle shorter than a year, for example montly and quarterly.

a. General lists

a-1 Periodical publication

Content : number, language, name of literature, term of publication of literature stored, major content

Form : It is shown is Sample - III

Form of General list (Periodical Publication) Sample - III

			Date of literature list completion (day) (month (year)		
Sequential number	Language	Name of Literature	Term of publication of literature stored		Major content
			From Vol (day.month.year)	To Vol (day.month.year)	
1	I	ooo	1. (1.3.1984)	2. (1.4.1984)	Geological survey

Supplementary explanation

Language is classified as follows:

I ... Indonesian, E ... English, O ... Other language

a-2 Nonperiodical publication

Content : Sequential number, kind of literature, volume, page of individual list.

Form : It is shown in Sample - IV

Sample IV

Sequential number	Kind of literature	Date of Literature list Completion (day) (month) (year) Volume of literature	Page of individual list
1	Social science	15	1
2	Statistics	5	2
3	Civil engineering	35	3
4	Planning of civil engineering works	10	7

Supplementary explanation

1. Kind of literature is composed of each items of content in Table - VI
2. It should be ordered according to Universal Decimal Classification (UDC).

b. Individual list (only nonperiodical publication)

Sample - V

No. of list		Kind of literature	Number of UDC oo. oo. ooo		Date of literature list completion (day) (month) (year)		
Sequential number	Language	Name of Literature	Author	Publisher	Date of Publication	Size of Literature	Major contents
1	I	o o o	o o	o o o	1.4.1984	A4	- Soil test
2	I						- Concrete test

Supplementary explanation

1. Language is classified as follows:
   I .... Indonesian
   E .... English
   O .... Others
2. Major contents are introduced with the expression as simple as possible

5. Code system

Necessary and fundamental codes in the system

5.1 Table - XV

Kind of code	Divinision of figure
1. Project code	6
2. Organization code	4
3. Code of stage of project and kind of data	2
4. Code of irrigation works	2
5. UDC (Universal Decimal Classification) code	7
6. Code of place where data are stored	not constant

1) Project code is shown in Table - XVI

2) Organization code is show in Table - XVII

3) Code of stage of project and kind of data is shown in Table - XVIII

4) Code of irrigation works is shown in Table - IXX

5) UDC code is used for classification of literature.

6) Code of place where data are stored is decided according to condition of each system, for example micro - filming system and retrieval system.

5.2. Method of using code

Combination of codes is decided by each system.

IRRIGATION PROJECTS OF THE DOI
TABLE OF PROJECT CODES

	Project Name	Project Code
A	Program Perbaikan Dan Peningkatan Irigasi	
1	Aceh Utara - Aceh Barat	470183
2	Simalungun	470193
3	Serayu	470109
4	Gambarsari Pesanggrahan	470115
5	Warujayeng Turi Tunggorono	470177
6	Semarang Barat	470130
7	Delta Brantas	470161
8	Tukad Ayung Yeh Ho	470240
9	Sumba Rote Sabu	470280
10	Kalimantong	470265
11	Lombok Selatan	470259
12	Jeneberang	470234
13	Tabo-Tabo	470228
14	Mbay-Lembor	470271
15	Bolango Bionga	476326
16	Embung-Embung	474825
17	Jawa Timur	477312
18	Citagampai	476332
B	Program Pembangunan Jaringan Irigasi Baru	
	Proyek Pusat	
1	Survey, Penyelidikan Pengukuran dan Perencanaan Perluasan Irigasi	470300
2	Survey, Penyelidikan dan Perencanaan Tersier	470316
3	Pembinaan dan Monitoring Pelaksanaan Irigasi	470347
4	Irigasi Sederhana Pusat	470322

Proyek Irigasi Khusus		Project Code
1	Krueng Jrue	470560
2	Krueng Baro	470579
3	Jambu Aye Langkahan	470585
4	Way Rarem-Way Abung	470730
5	Way Jepara	470718
6	Way Umpu-Way Pengubuan	470724
7	Belitang	470682
8	Teluk Lada	470410
9	Cidurian	470384
10	Cikunten	470429

Project Name		
11	Padawaras	470390
12	Kedu Selatan	470450
13	Lodoyo	470523
14	Binuang	470770
15	Samboja	470792
16	Irigasi Bali	470919
17	Kelara	470874
18	Luwu	470852
19	Pamukulu	470868
20	Wawotobi	470899
21	Batang Gadis	470605
22	Ciletuh-Cilandak	470404
23	Riam Kanan	474799
24	Sanrego	474800
25	Pasaman	474780
26	Namu Sira-Sira	477321

	Proyek Irigasi Sedang Kecil, Sederhana dan Tersier	Project Code
1	D.I Aceh	470554
2	Sumatra Utara	470591
3	Sumatra Barat	470661
4	Riau	470651
5	Jambi	470667
6	Bengkulu	470956
7	Sumatra Selatam	470673
8	Lampung	470702
9	DKI Jakarta	470331
10	Jawa Barat	470378
11	Jawa Tengah	470435
12	D.I Jogyakarta	470481
13	Jawa Timur	470517
14	Nusa Tenggara Barat	470925
15	Nusa Tenggara Timur	470931
16	Kalimantan Barat	470749
17	Kalimantan Timur	470786
18	Kalimantan Selatan	470761
19	Kalimantan Tengah	470755
20	Sulawesi Utara	470806
21	Sulawesi Tengah	470821
22	Sulawesi Selatan	470843
23	Sulawesi Tenggara	470880
24	Maluku	470900
25	Irian Jaya	470940
26	Timor Timur	474661

Organization Code

Table - XVII

1000 : DIT. BINA PROGRAM
1100 : TATA USAHA (BINA PROGRAM)
1200 : SUB.DIT PPPP (BINA PROGRAM)
1300 : SUB.DIT PPWS (BINA PROGRAM)
1400 : SUB.DIT PPAI (BINA PROGRAM)

2000 : DIT. SUNGAI
2100 : TATA USAHA SUNGAI
2200 : SUB.DIT BINLAK I (SUNGAI)
2300 : SUB.DIT BINLAK II (SUNGAI)
2400 : SUB.DIT P. TEKNIS (SUNGAI)
2500 : SUB.DIT PPEP (SUNGAI)

3000 : DIT. RAWA
3100 : TATA USAHA (RAWA)
3200 : SUB.DIT BINLAK I (RAWA)
3300 : SUB.DIT BINLAK II (RAWA)
3400 : SUB.DIT P. TEKNIS (RAWA)
3500 : SUB.DIT PEP (RAWA)
4000 : DIT. IRIGASI
4001 : PROYEK PPMPI

4100 : TATA USAHA (IRIGASI)

4200 : SUB.DIT BINLAK I (IRIGASI)
4201 : PROYEK KRUENG JREUE
4202 : PROYEK KRUENG BARO
4203 : PROYEK JARGU AYE LANGKAHAN
4204 : PROYEK WAY RAREM - ARUNG
4205 : PROYEK WAY JEPARA
4206 : PROYEK WAY UMPU PANGUBUAN
4207 : PROYEK BELITANG
4208 : PROYEK TELUK LADA
4209 : PROYEK CIDURIAN
4210 : PROYEK CIKUNTEN II
4211 : PROYEK PADAWARAS
4212 : PROYEK KEDU SELATAN
4213 : PROYEK LODOYO
4214 : PROYEK GIWANG
4215 : PROYEK SAMBUJA
4216 : PROYEK IRIGASI BALI
4217 : PROYEK KELARA
4218 : PROYEK L O N T A R
4219 : PROYEK PANUKULU
4220 : PROYEK WAWOTOBI
4221 : PROYEK BATANG GADIS
4222 : PROYEK CILETUH - CILANDAK
4223 : PROYEK RIAM KANAN
4224 : PROYEK SANREGO
4226 : PROYEK PASAMAN
4227 : PROYEK ENDUNG
4300 : SUB.DIT BINLAK II (IRIGASI)
4301 : OPUP D.I. ACEH
4302 : OPUP SUMATERA UTARA
4303 : OPUP SUMATERA BARAT
4304 : OPUP RIAU
4305 : OPUP JAMBI
4306 : OPUP SUMATERA SELATAN
4307 : OPUP BENGKULU
4308 : OPUP LAMPUNG
4309 : OPUP D.K.I. JAKARTA
4310 : OPUP JAWA BARAT
4311 : OPUP D.I. YOGYAKARTA
4312 : OPUP JAWA TENGAH
4313 : OPUP JAWA TIMUR
4314 : OPUP KALIMANTAN BARAT
4315 : OPUP KALIMANTAN TENGAH
4316 : OPUP KALIMANTAN SELATAN
4317 : OPUP KALIMANTAN TIMUR
4318 : OPUP SULAWESI UTARA
4319 : OPUP SULAWESI TENGAH
4320 : OPUP SULAWESI SELATAN
4321 : OPUP SULAWESI TENGGARA
4322 : OPUP MALUKU
4323 : OPUP BALI
4324 : OPUP NUSA TENGGARA BARAT
4325 : OPUP NUSA TENGGARA TIMUR
4326 : OPUP IRIAN JAYA
4327 : OPUP TIMOR TIMUR

4400 : SUB.DIT P. TEKNIS (IRIGASI)
4401 : PROYEK D.P.4

4500 : SUB.DIT PENGGARAN
4501 : PROYEK ACEH UTARA-BARAT
4502 : PROYEK SIMALUNGU
4503 : PROYEK SERAYU
4504 : PROYEK GANRANSARI PASANGGRAHAN
4505 : PROYEK MARUJAYENG TURI TUNGGO
4506 : PROYEK SEMARANG BARAT
4507 : PROYEK DELTA BRANTAS
4508 : PROYEK TUKAD AYUNG YEH NO.
4509 : PROYEK SUMBA ROTE SABU
4510 : PROYEK KALIMANTONG
4511 : PROYEK LOMBOK SELATAN
4512 : PROYEK JENEBERANG
4513 : PROYEK TABO-TABO
4514 : PROYEK MBAY LEMBOR
4515 : PROYEK SOLANGO ELONGA
4516 : PROYEK ENDUNG N.T.T.
4517 : PROYEK IRIGASI JAWA TIMUR

4600 : SUB.DIT ESP. (IRIGASI)
4601 : PROYEK SURVEY P.2 TERSIER
4602 : PROYEK CITAGUMPOK

5000 : DIT PERALATAN
5100 : TATA USAHA (PERALATAN)
5200 : SUB.DIT PENGINAPAN PERALATAN
5300 : SUB.DIT PEMBEKALAN

6000 : B.P.N.A.
6100 : TATA USAHA (B.P.N.A.)
6200 : SUB.DIT HIDROLOGIE
6300 : SUB.DIT AGROLIKA
6400 : SUB.DIT BANGUNAN AIR
6500 : SUB.DIT PENYULUHAN TEKNOLOGI

7000 : SEK.DIT.JEN.
7100 : BAGIAN PERINTAL
7200 : BAGIAN KEUANGAN
7300 : BAGIAN KEPEGAWAIAN
7400 : BAGIAN HUKUM
7500 : A.B.L.N.
7600 : BAGIAN UMUM

8100 : PROSIDA PUSAT
8101 : SUB PROYEK CIUJUNG
8102 : SUB PROYEK CISADANE
8103 : SUB PROYEK RENTANG
8104 : SUB PROYEK CIREBON
8105 : SUB PROYEK PEMALI COMAL
8106 : SUB PROYEK SEDEKU
8107 : SUB PROYEK JRATUN SELUNA
8108 : SUB PROYEK MADIUN
8109 : SUB PROYEK PEKALEN SAMPEAN
8110 : SUB PROYEK SADANG

8200 : P.I.E.D. PUSAT
8201 : IRG. AIR GELITI
8202 : IRG. SUNGAI DARENSIYUNG
8203 : IRG. WAY SEPUTIH-SEKAMPUNG
8204 : IRG. CILETUH CILANDAK
8205 : IRG.KEDUNG KANCIL KETRO BAPANG
8206 : IRG. KALI PROGO
8207 : IRG. DUMOGA
8208 : IRG. GUMBASA, PARIGI, POSO

8300 : PENDUNGAN JATILUHUR

8400 : PENDUNGAN SERBA GUNA BRANTAS

8500 : PENDUNGAN BANJIR JAYA

8600 : BENDUNGAN TIMOR TIMUR

9000 : LAIN-LAIN DI DEP.PU
9101 : P.T. ADHI KARYA
9102 : P.T. AMARTA KARYA
9103 : P.T. BINA KARYA
9104 : P.T. HUTAMA KARYA
9105 : P.T. INDAH KARYA
9106 : P.T. INDRA KARYA
9107 : P.T. YODYA KARYA
9108 : P.T. VIRAMA KARYA
9109 : P.T. WASKITA KARYA
9110 : P.T. WIDYA KARYA
9111 : P.T. PERSANGUNAN PERUMAHAN
9112 : PEPUSAHAAN ASPAL NEGARA
9113 : P.T. BUKAKA KARYA
9114 : PERUM OTORITA JATILUHUR
9115 : P.T. WIJAYA KARYA
9116 : P.T. JASA MARGA
9117 : P.T. BRANTAS ABIPRAYA
9118 : PERUM PERUMNAS

Code of stage of project and kind of data Table - XVIII

(Sample)

Code Number 1	Stage of project and kind of data	Code number 2	Content of data
0	Letter	1	Letter
1	Fundamental data concerned with project	1	Agricultural Survey
		2	Soil Survey
		3	Geolgical Survey
		4	Hydraulic Model
		5	Others
2	The Data concerned with master plan and design works (Including the data concerned with tender and contract)	1	Master Plan Report
		2	Feasibility Study Report
		3	Detailed Design Report
		4	General and Technical Specification
		5	Tender Document and Drawings
		6	Contract Document and Drawings
		7	Others
3	The data concerned with execution of construction	1	Monthly Report
		2	Quarterly Report
		3	Annual Report
		4	Engineering Report
		5	Inspection Report
		6	As built Drawings and Document
		7	Completion Report
		8	Others
4	The data concerned with operation and maintence manual	1	Operation and Maintenance Manual
5	Others		

Code of Irrigation Works

Table - IXX
(Sample)

Code Number 1	Kind of works	Code number 2	Detailed kind
1	Dam works	1	Concrete dam
		2	Fill dam
		3	Others
2	Head works	1	
		2	
		3	
3	Canal works	1	Open canal
		2	Tunnel
		3	Syphon
		4	Culvert
		5	Aquaduct
		6	Others
4	Reclamation works	1	
		2	
5	P u m p	1	
		2	
6	G a t e	1	
		2	
7	Architecture	1	
		2	
8	Other construction works	1	
		2	
9	Standard	1	
		2	

6 Data flow of the system

6.1 Data flow of the system is shown in Figure - IV, V

6.2 Management of the technical data in DOI and projects

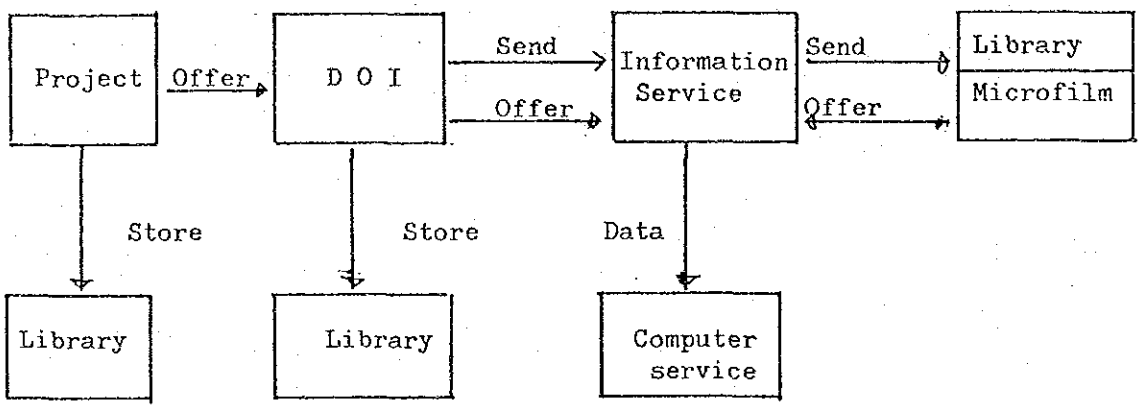
(1) DOI should make a regulation of management of the technical data which are stored in DOI and projects.

(2) DOI and projects should store the technical data appointed on the regulation and send key information for retrieval to CGSC.

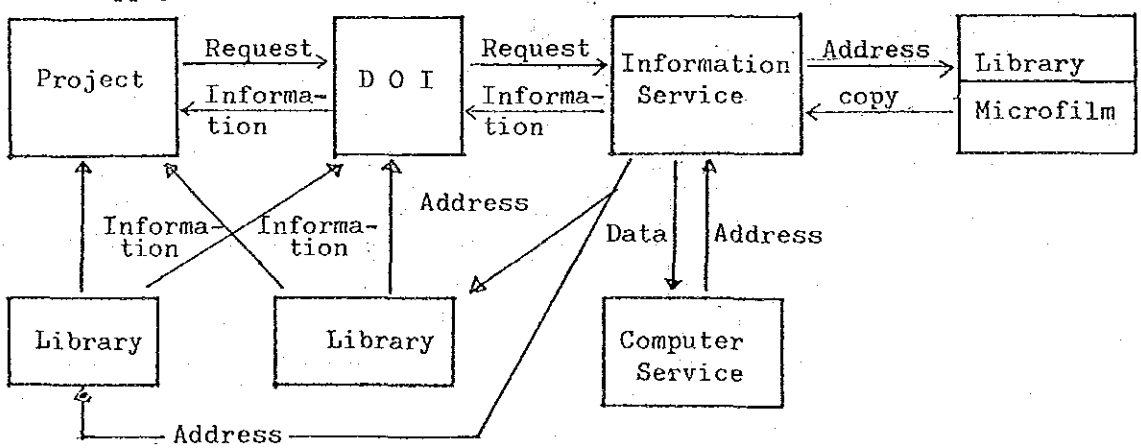
(3) If required, DOI and project provide user with data.

Data flow of the System-I Figure-IV

(1) Depository

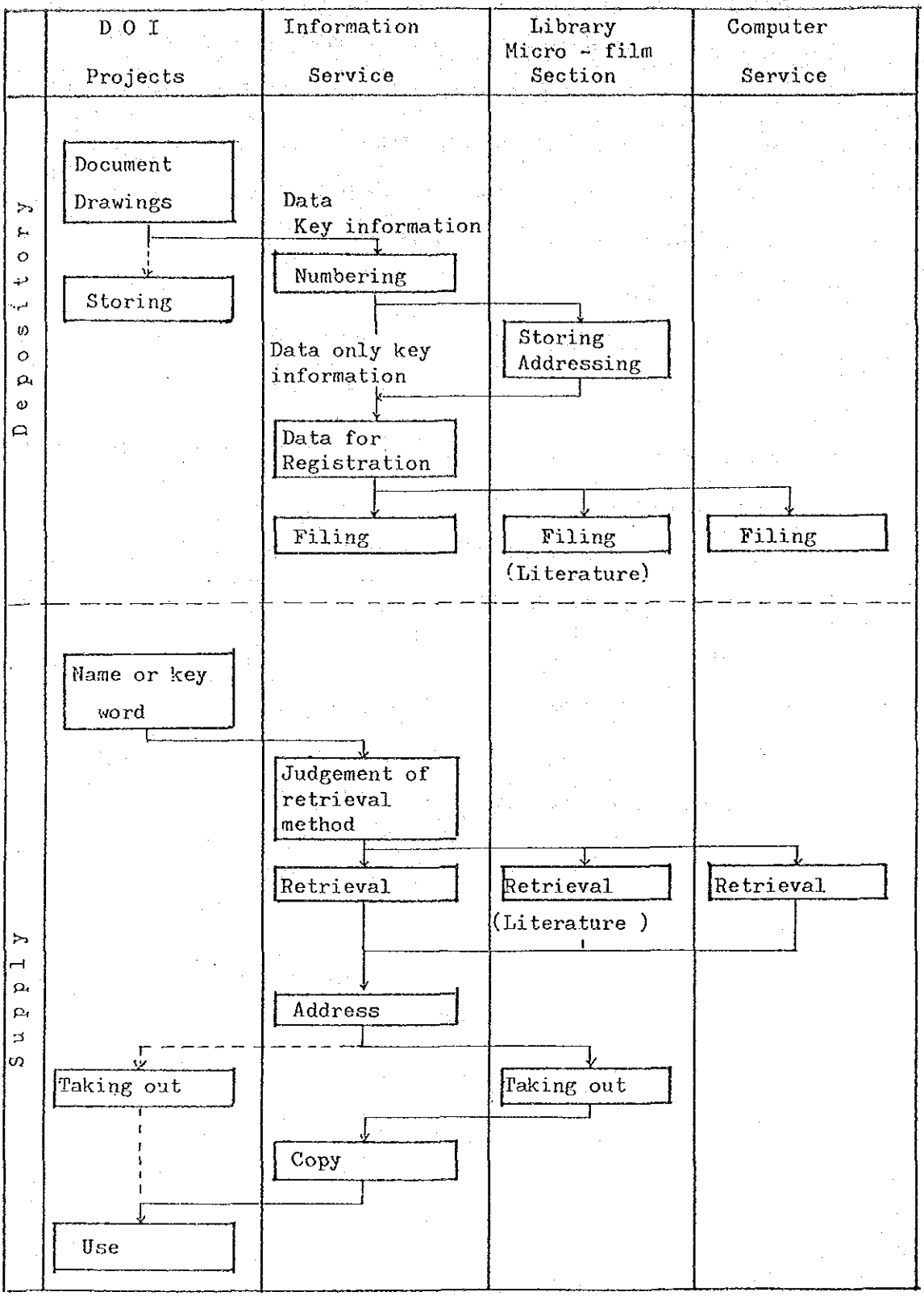


(2) Supply



Data flow of the System II

Figure - V



7. Procedure of System Development

7.1 Procedure of system development is shown in Figure - VI

7.2 Activities of system development which has been done up to the present are as following items :

1) Basic Training for Micro-filming

2) System Design of Micro-filming

3) Master Plan

4) Design of Code System

5) Rough System Design of Retrieval System

7.3 To develop the system, some activities will have to be carried out as following items:

1) Detailed system design of Retrieval System

2) Development of Retrieval System

3) Data collection

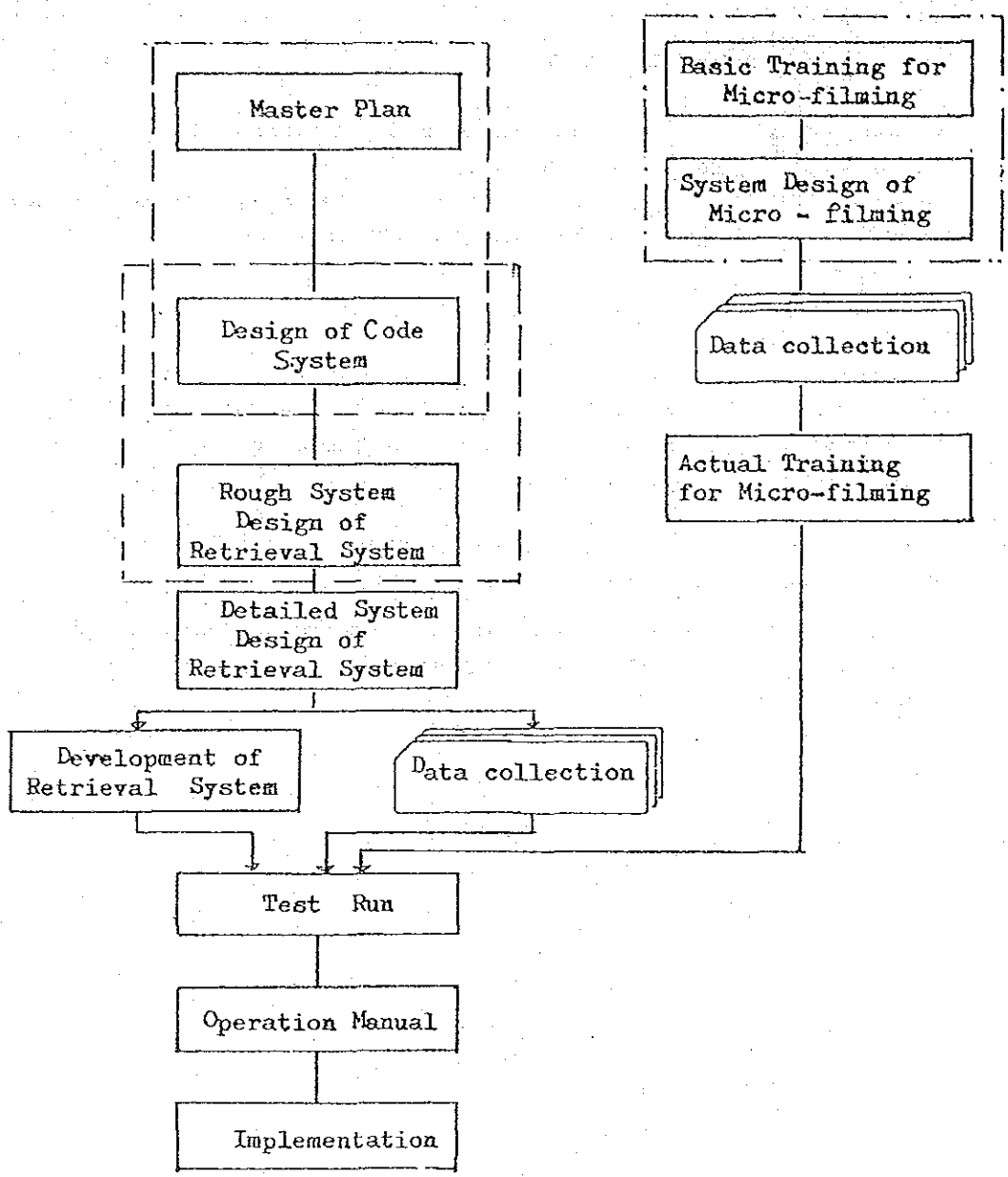
4) Actual Training for Micro-filming

5) Test Run

6) Making Operation Manual

Figure - VI

Development Flowchart of Technical Information Service System



Attached Paper I

Inquiry of the Sub - Directorate of Planning & Design

MINUTES OF HEARING I

Topic of hearing	: *Technical Information Service System.*
D a t e	: 21 February, 1984
P l a c e	: The Sub-Directorate of Planning & Design in Bandung
T i m e	: From 1:00 PM to 3:30 PM
Attendants	:

The Sub-Directorate of		C G S C
Planning & Design	Experts	Counterparts
Mr. M. Matsui	Mr. Y. Tsuda	Ir. Kunhari Hadiyati Dip H.E
Mr. T. Kato	Mr. H. Sekioka	Dra. Sukarni
Ir. Fritz Hutasoit	Mr. M. Mizoguchi	

1. Explanation of the organization of DOI and DGWRD
   the organization is shown in attached paper 1,2
2. Explanation of the organization of the Sub-Directorate of Planning & Design
   the organization is shown in attached paper 3
3. Flow of the projects.

Stage of the project	The data concerned with the stage of project	Period of the stage	Organization deals with the project	
			Special Irrigation project	Other Irrigation project
Master plan Feasibility study	Master plan report Feasibility study report	Not constant (about 2 yaers)	The Directorate of Planning & Programming	The Sub-Directorate of Planning & Design
Detailed design	Detailed design report Fundamental data for detailed design * Agricuture survey report * Soil survey report * Soil mechanics & geology report * Hydraulic model test report	not constant (about 2 years)	The Sub-Directorate of Planning & Design	The Sub-Directorate of Planning & Design
Tender & contract	Tender document and drawings Contract document and drawings		The Sub-Directorate of Construction Guidance I	The Sub-Directorate of Construction Guidance II The Sub-Directorate of Rehabilitation The Sub-Directorate of Operation & Maintenance

Stage of the project	The data concerned with the stage of project	Period of the project	Organization deals with the project	
			Special Irrigation project	Other Irrigation project
Construction	(Periodical) - Monthly report - Engineering report - Quarterly report - Annual report (project office --> D O I) Daily report (Contractor --> project office)	About 5 years ～7 years	Project office under DOI	Project office under DOI or Province Goverment
(Completion of construction)	As built drawings and documents Completion report			

ATTACHMENT

1) The data concerning the project are not managed with unified rule of the DOI, so some of the data are lost.
The other data that are stored are not arranged except mainly master plan reports, F/S reports, detailed design reports in the Sub-Directorate of Planning & Design. So users can not get and utilize the data.

EXAMPLE

Mr. Matsui thinks it's necessary that staff of the Sub-Directorate of Planning & Design should compare "the detailed design drawings" with "the as built drawings" for the better detailed design.
But the as built drawings have not been collected at the Sub-Directorate of Planning & Design, and Mr. Matsui wishes CGSC will collect the data concerning project under construction stage.

2) Irrigation projects have been also executed by PIBD, Prosida and the Directorate of River and so on except the DOI.

3) The data are not always correct. For example, the as built drawings have not been drawn sometimes on the basis of the result of completion measurement.

4) Consultants concern with the each stage of the projects.

4. Desirable classification of irrigation works in Indonesia

1. Dam
2. Diversion weir (including head works)
3. Pump station
4. Canal
   - Open canal
     - Main canal — Earth / Lining
     - Secondary canal — Earth / Lining
     - Tertiary canal — Earth / Lining
   - Tunnel
   - Syphon
   - Aquaduct
   - Check & drop structure
5. Road
6. Road bridge
7. Architecture
8. Others

MINUTES OF HEARING II

Topic of hearing	Arrangement system of the data
Date	22 February, 1984
Place	The Sub-Directorate of Planning & Design
Time	From 8:30 am to 10:00 am

The Sub-Directorate

Of Planning & Design	CGSC	
	Experts	Counterparts
Mr. M. Matsui		
Mr. T. Kato	Mr. M. Mizoguchi	Ir. Kunhari Hadiyati Dip H.E
Mr. Bachtiar	Mr. Y. Tsuda	Dra. Sukarni
Mr. Busro BIE	Mr. H. Sekioka	

1. Classification of the data

(1) Kind of the documents

(1) Original registered document

The form of document is shown in Form - 1.

(2) Library catalogue in the Sub-Directorate of Planning & Design

This catalogue has been already sent to CGSC.

(3) Check list for borrowing

The form of check is shown in Form - 2.

(2) Method of classification

(1) Language (foreign language/Indonesian)

(2) Province (27 provinces)

(3) General kinds

(4) Form of data (project report/drawings)

(3) How to make classification label

AS ——— Language

25/KS ——— Province code

└——— Sequential number

2. Kind of stored data

1. Master plan report
2. Feasibility study report
3. Agricutural survey report
4. Soil survey report
5. Soil mechanics & Geology report
6. Hydraulic model test report
7. Detailed design report
8. Map only
9. Technical proposal
10. Tender document
11. Inspection and Investigation Recommendation report by Colombo plan experts
12. Construction progess report
13. Engineering report

A Brief explanation about Veerkeer & Waterstaat archives

At Gedung Sate
Jl. Diponegoro 22
Bandung

I. GENERAL

1. The V & W archives are managed by Division of Archives & Library, Department of Communication until 1972
2. 1973 - now
   Department of Public works handed over the management of V & W archives
3. The V & W archives consist of :

No	Subject	Remark
1.	Landgebouwen (state building)	Code - A still complete
2.	Wegen en bruggen (road & bridge)	Code - B - " -
3.	Irrigatie (Irrigation & water resources)	Code - C - " -
4.	Waterkracht/elektriciteit (water power & electricity	Was overred to State Electricity Enterprise in 1964 (4139 exp + 233 vols of registration books)
5.	Havenwezen (port/harbor)	Has been overed to Directorate of Sea Communication (2.084exp) - 50%
6.	Mijnwezen (Division of Mining)	Has been taken over
7.	Staatspoor wegen (train)	- " -
8.	Pos, Telegraph dan Telefoon Dienst (Post, Telegraph & Telephone)	- " -
9.	Luchtvaart (air communication)	Still complete
10.	Weg verken (road traffic)	- " -
11.	Others (personnal & financial administration)	

4. Arrangement system

1914 - 1924 - registration book system

1925 - 1942 - card system (Kaulbach)

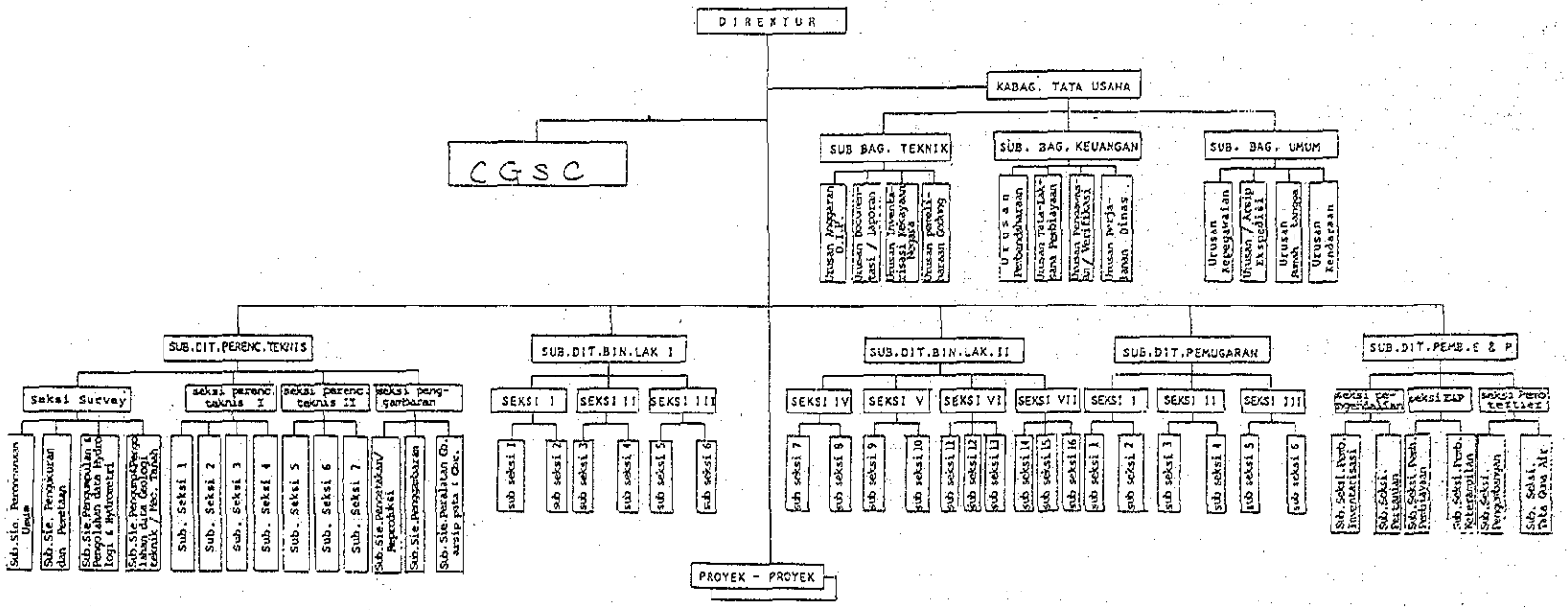
II. FEATURES & USEFULNESS

The biggest part of the A & V archives are statis archives, the rest are dynamis but inactive. Sometimes used for information material or historical survey.

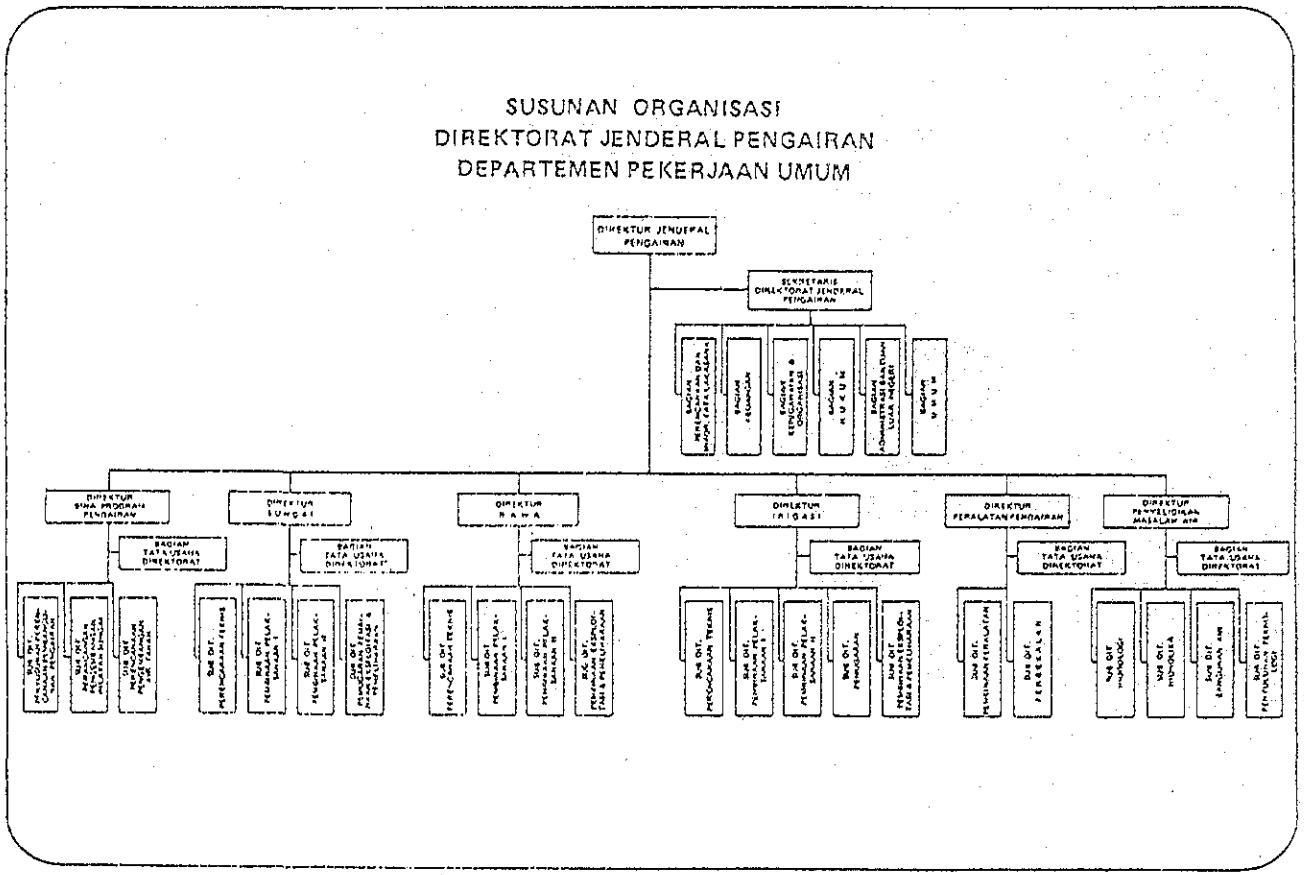
III. MANAGEMENT

The Sub-Directorate of Planning & Design are responsible to A & V archives management

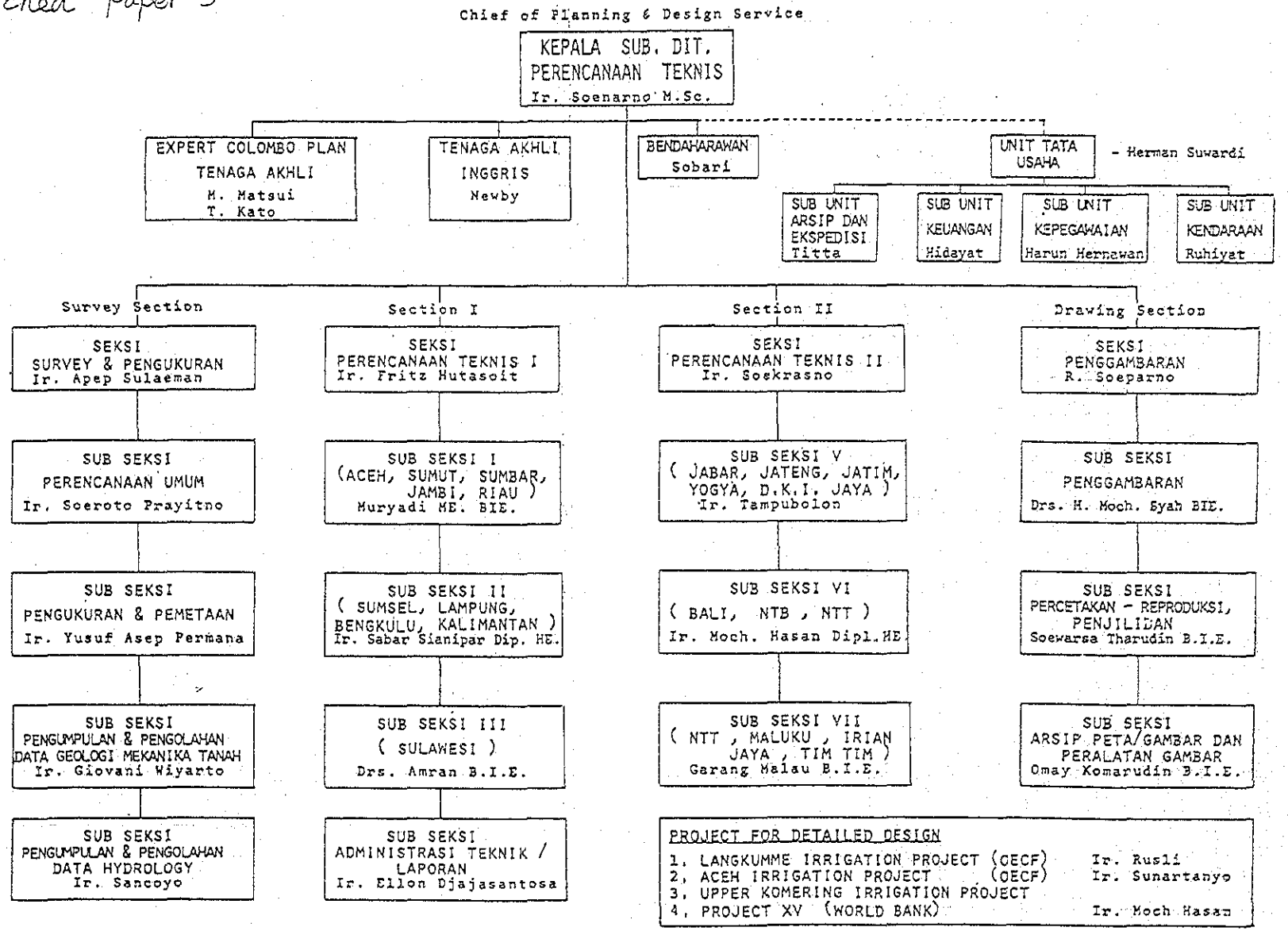
STRUCTURE ORGANISASI
DIREKTORAT IRIGASI



attached Paper 2



Attached Paper 3



Form-1

DEPARTEMEN PEKERJAAN UMUM
DIREKTORAT JENDERAL PENGAIRAN
DIREKTORAT IRIGASI
SUB DIREKTORAT PERENCANAAN TEKNIS
Jalan Braga No. 137 – Tilpon 56015 - 56016 Bandung

– PERPUSTAKAAN –

PROPINSI : .....

PROYEK : .....

Nomor Urut	Nomor Agenda	Judul Buku	Pengarang / Penerbit	Banyak Buku	Keterangan

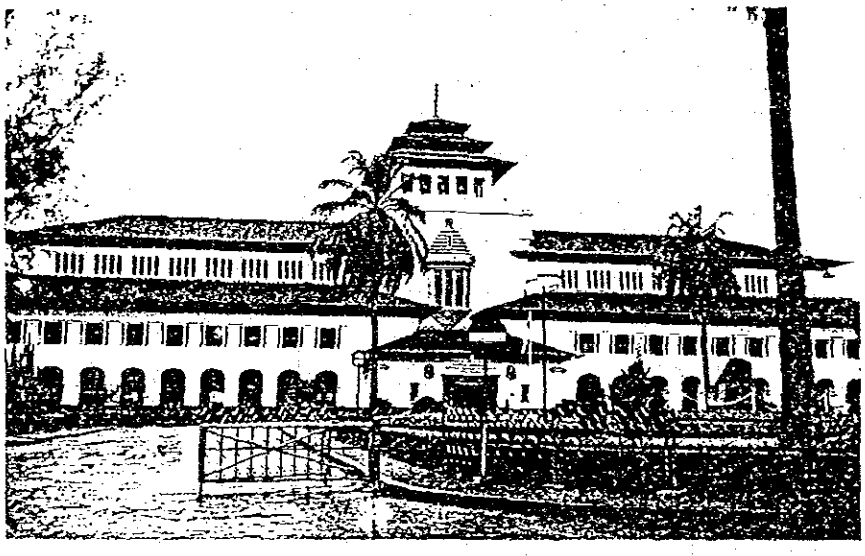
Form-2

PROPINSI Asing/Indonesia

KARTU – KONTROL

No. Urut	Tanggal Pinjam	Tanggal Kembali	No. Buku	No. Bon	Nama Peminjam
1	2	3	4	5	6

Library of the Sub. Directorate of Planning & Design.



Veerkeer & Waterstaat Archive Stored at the basement of this building (Governor Office of West Java Province)

Attached Paper II

LIBRARY ACTIVITIES

1. LIBRARY ADMINISTRATION.
2. ACQUISITION/SELECTION.
3. TECHNICAL SERVICES.
4. READER SERVICES.
5. MAINTENANCE OF LIBRARY MATERIALS.

1. LIBRARY ADMINISTRATION.
   - 1.1. Inter Library communication.
   - 1.2. Correspondence, financials and other clerical works.
   - 1.3. Etc.

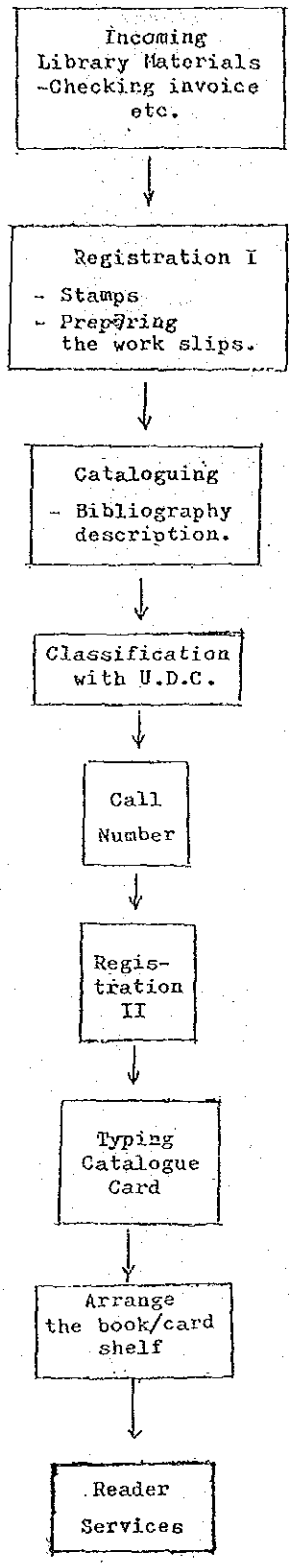
2. ACQUISITION/SELECTION.
   - 2.1. Book selection.
   - 2.2. Etc.

3. TECHNICAL SERVICES.
   - 3.1. Registration.
   - 3.2. Cataloging.
   - 3.3. Classification/call number.
   - 3.4. Indexing.
   - 3.5. Arrange book/card shelf.

4. READER SERVICES.
   - 4.1. Guide to Library users.
   - 4.2. Statistics.
   - 4.3. Etc.

5. MAINTENANCE OF LIBRARY MATERIALS.
   - 5.1. Laminating.
   - 5.2. Binding.
   - 5.3. Repairing.
   - 5.4. Etc.

FLOW OF BOOKS OR LIBRARY MATERIALS



The U.D.C.

The U.D.C. (Universal Decimal Classification) is a scheme for classifying the whole field of knowledge, It can be applied both to the literature which records knowledge and to the catalogues, indexs, etc. which refer to the literature.

It enables these to be arranged in such a way that all references to information on a particular subject can be brought together and the information located with the minimum of searching

The whole field of human knowledge regarded as unity is divided into ten main branches denoted by decimal fraction as follows.

0. GENERALITIES :
   Methodology. Documentation. Script, recoding, collection and dissemination of information.
1. PHILOSOPHY METAPHYSICS, LOGIC, ETHICS. PHYCHOLOGY.
2. RELIGION. THEOLOGY.
3. SOCIAL SCIENCES. INCLUDING STATISTICS. LAW. EDUCATION.
4. PHILOLOGY. LANGUAGES.
5. PURE SCIENCES. MATHEMATICAL. NATURAL SCIENCES.
6. APPLIED SCIENCES. Medicine. TECHNOLOGY.
7. The ART, including architecture, photography, entertainment sport.
8. LITERATURE.
9. GEOGRAPHY. BIOGRAPHY. HISTORY.

The 10 main branches then split into 10 secondary sections and so on.

The 10 secondary sections (corresponding to the second decimal number) of group 6, which is particular interest here, are

6. APPLIED SCIENCES. MEDICINE. TECHNOLOGY.

60. General considerations. Invention.

61. Medicine.

62. Engineering Sciences.

63. Agriculture. Forestry. Stock breeding. Animal produce. Hunting Fishing.

64. Domestic Economy.

65. Commercial Sciences. Communication. Management. Publicity.

66. Chemical technology. Metallurgy.

67. Various industries based on processable materials.

68. Various industry for manufacturing complex objects.

69. Building industry.

Each main subject is progressively sub divided, as required.

The following examples are taken to illustrate a few of the subjects within our working range.

The 10 secondary sections (corresponding to the second decimal number) of group 6, which is particular interest here, are:

6. APPLIED SCIENCES. MEDICINE. TECHNOLOGY.

60. General considerations. Invention.

61. Medicine.

62. Engineering Sciences.

63. Agriculture. Forestry. Stock breeding. Animal produce. Hunting Fishing.

64. Domestic Economy.

65. Commercial Sciences. Communication. Management. Publicity.

66. Chemical technology. Metallurgy.

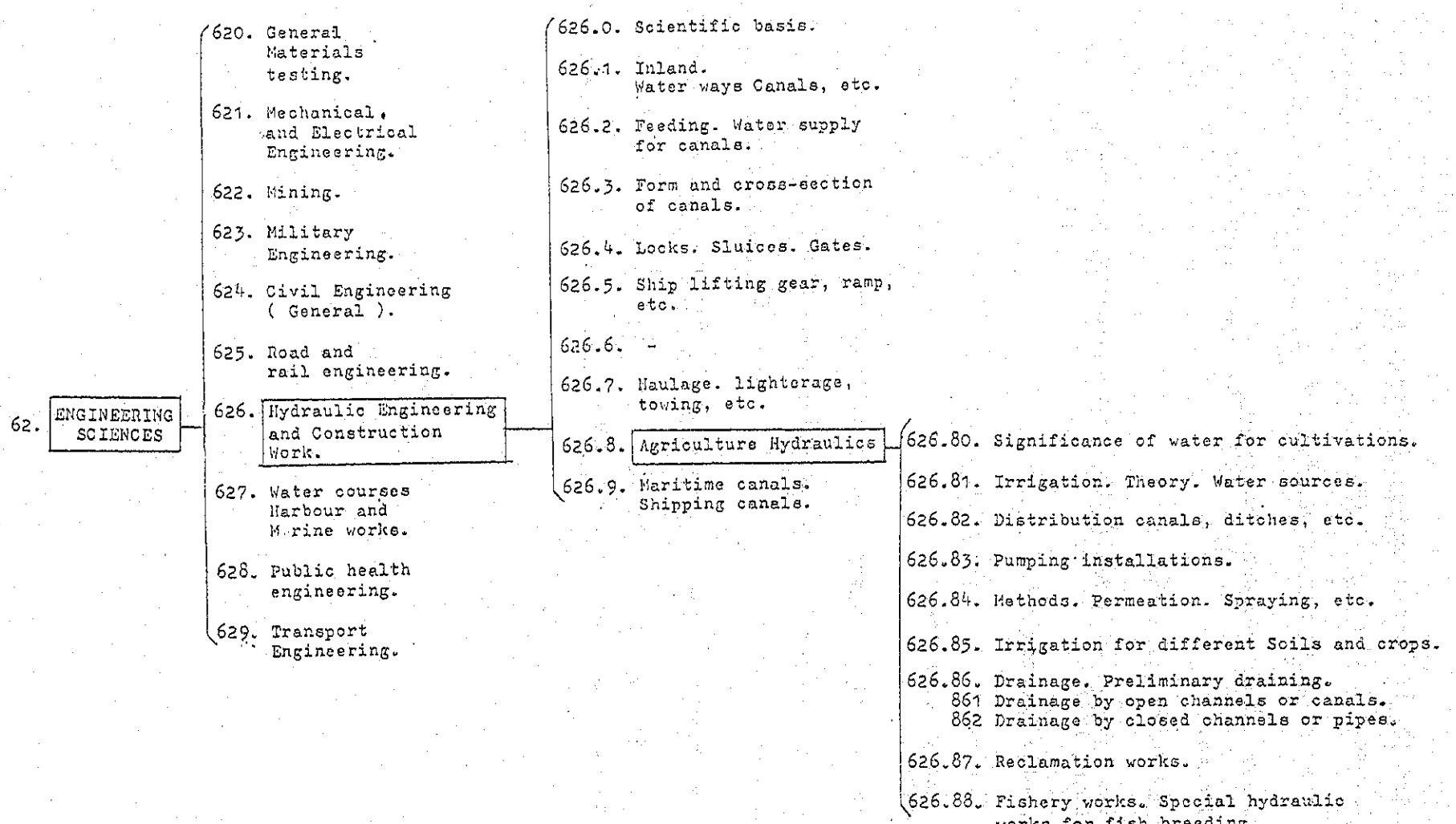
67. Various industries based on processable materials.

68. Various industry for manufacturing complex objects.

69. Building industry.

Each main subject is progressively sub divided, as required.

The following examples are taken to illustrate a few of the subjects within our working range.


62. ENGINEERING SCIENCES
620. General Materials testing.
621. Mechanical, and Electrical Engineering.
622. Mining.
623. Military Engineering.
624. Civil Engineering (General).
625. Road and rail engineering.
626. Hydraulic Engineering and Construction Work.
627. Water courses Harbour and Marine works.
628. Public health engineering.
629. Transport Engineering.
626.0. Scientific basis.
626.1. Inland. Water ways Canals, etc.
626.2. Feeding. Water supply for canals.
626.3. Form and cross-section of canals.
626.4. Locks. Sluices. Gates.
626.5. Ship lifting gear, ramp, etc.
626.6. -
626.7. Haulage. lighterage, towing, etc.
626.8. Agriculture Hydraulics
626.9. Maritime canals. Shipping canals.
626.80. Significance of water for cultivations.
626.81. Irrigation. Theory. Water sources.
626.82. Distribution canals, ditches, etc.
626.83. Pumping installations.
626.84. Methods. Permeation. Spraying, etc.
626.85. Irrigation for different Soils and crops.
626.86. Drainage. Preliminary draining.
861 Drainage by open channels or canals.
862 Drainage by closed channels or pipes.
626.87. Reclamation works.
626.88. Fishery works. Special hydraulic works for fish breeding.

Attached Paper III

A BRIEF EXPLANATION
ABOUT LIBRARY CATALOGUE

I. INTRODUCTION.

The following common question or request may be asked to a library staff.

- "Is there any book here which is compiled by Sutami ?".
- "Does your library have a book entitled Fill Type Dam ?".
- "We need a book about irrigation in Japan or in Indonesia".

The card catalogue are able to answer all question mentioned above, even more detailed description about the meant book may be given, such as, its total page, the size of the book, edition, provided with maps or not, etc.

And the way to search a book needed on the library shelf will be assisted by call number or location symbol which is sticked on the back of book.

The card catalogue is functioned as a key for retrieval system on a library.

One of several ways to give a good library services is depends on the catalogue system.

II. CATALOGUE & CARD.

A catalogue card usually made from card board. The size of this card according to international standard is 12,5 cm in length and 7,5 cm in width.

This card should have a hole on the center of the bottom side which is used for a hold-stick in the card's shelf (as shown on fig 1).

Information or description about book which should be recorded on the card are :

- author (s).
- title.
- impresum (consist of : the name of publisher; place and year of publication).
- collation (the length or width of book; its total page, etc).
- other information if any, such as bibliography, index, figure & table which may be included on the book.
- It is also possible to register a short summary of the content of the book or article.

A complete description about a book is called main entry A card which is mentioned main entry is named main card. Usually main card also used as author card (fig 2).

An author card is able to assist library user who only knows about the author (May be some one just want to know about the author. He doesn't care about the title nor the subject).

Beside the main card there are also three kinds of card. All of other linds card also recorded information about book, in a simple way, not as complete as the main card. A matter which should be appeared on these card - is depended uppon the usage of the card, suck as :

Title card.

The title card of book is shown on first line. (fig 3). A title card will help library user to find a title of the book they need.

Subject card.

The subject of book is shown on the first line (fig 4). A subject card will help library user to know which book is consisting of a definite subyect.

Shelf card.

An important thing shown on this card is a classification number.

This classification number used for call number or location symbol.

The arrangement of catalogue card on it's shelf almost the same with the arrangement of books on the book shelf.

III. HOW TO MAKE CATALOGUE.

The size of catalogue card according to an interna - tional standard is :

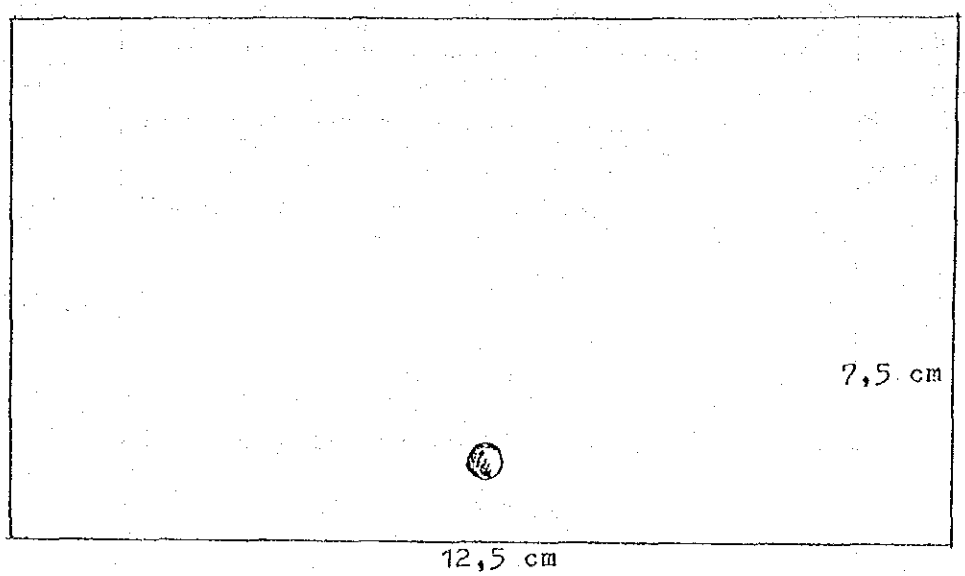


fig : 1

The sources of information about book is, the whole book itself. But for the basic idea to make catalogue you could see on the title-page in the front-side of the book.
An information such as: author, title, impresum are usually mentioned on the title page, but if you couldn't find there you could search on the front flap or on the back flap.
All information about the book are compiled on the card according to a definite manner. This manner are usually used for manual in every library, namely " Standard bibliographical description ". One of the design is shown on the fig 2 below.

In this design you could find a description which is used to identify the book :

main card.

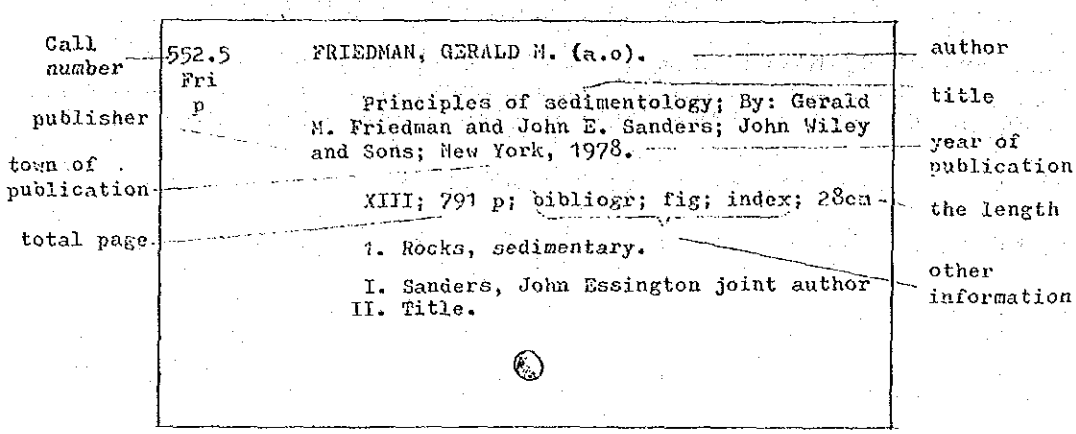


fig : 2.

The main card is followed by additional card as shown below :

Title card.

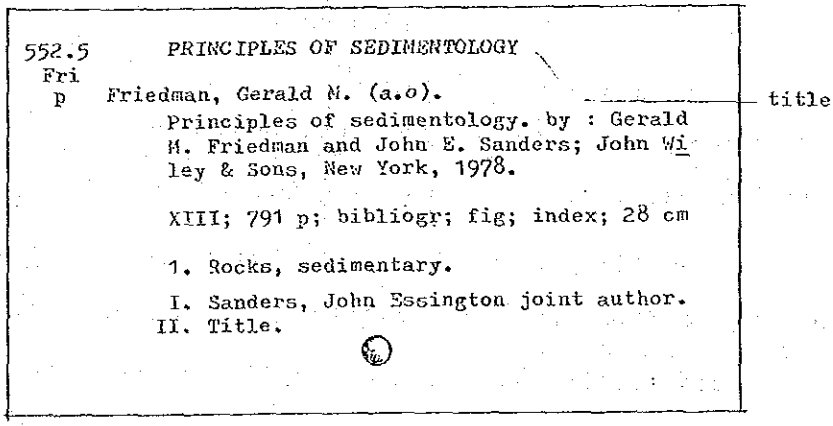


fig : 3.

Subject card.

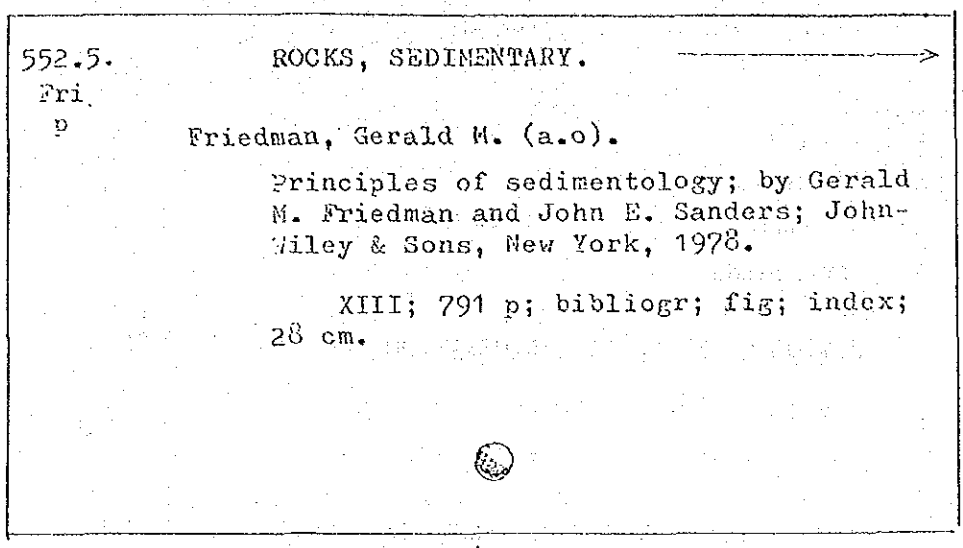


fig.4.

shelf card.

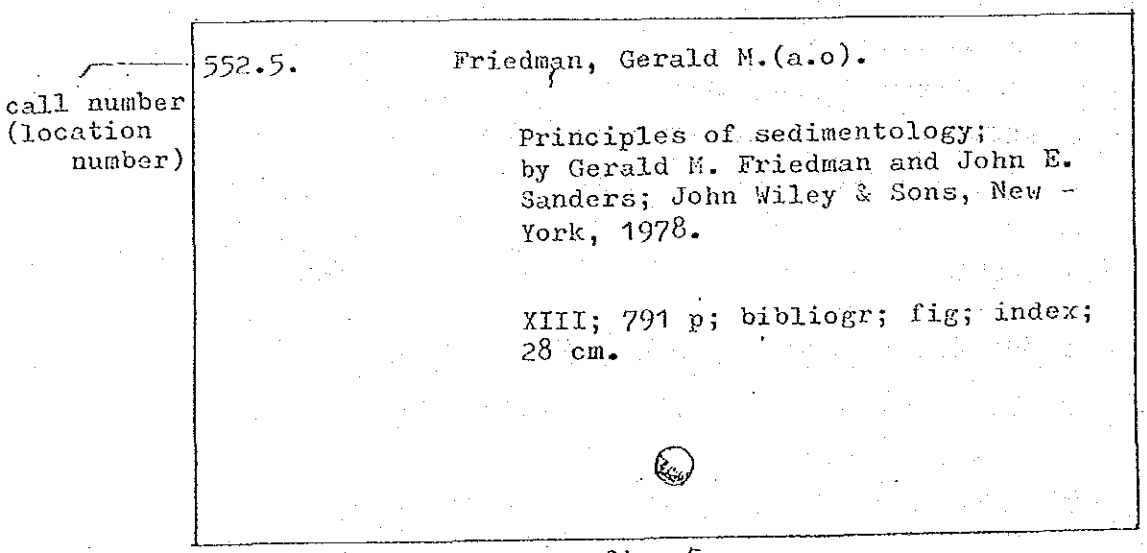


fig. 5.

The call number is obtained from UDC. (Universal Decimal Classification) system.

II. Technical Information Retrieval System

CONTENTS

II-0 OUTLINE

1. Purpose
2. Schedule
3. Recommendation

II-1 DEFINITION OF TECHNICAL INFORMATION RETRIEVAL SYSTEM

1. Purpose
2. Composition of the Retrieval System

II-2 RETRIEVAL SYSTEM FOR DATA CONCERNING IRRIGATION PROJECT

1. Retrieval Method
2. Scope of data
3. Data flow
4. Retrieval Card
5. Sheet for offering data
6. Label attached data and index card
7. Request sheet
8. Supply sheet
9. Others

II-3 RETRIEVAL SYSTEM FOR LITERATURE INFORMATION

1. Retrieval Method
2. Scope of Data
3. Data flow

II-0 OUTLINE

1. Purpose: Development of Technical Information Retrieval System in the Construction Guidance Service Center.

2. Schedule

Feb. 8, 1984	Tokyo - Jakarta
10 to 14	Preparation
15 to 20	Making of outline of retrieval system
21, 22	Observation of the Sub-Directorate of Planning & Design in Bandung for collecting project data.
23 to Mar 10	Making data flowchart and retrieval card
Mar. 11 to 17	Making of code system
18 to 25	Preparation of report
26	Jakarta -- Tokyo

3. Recommendation

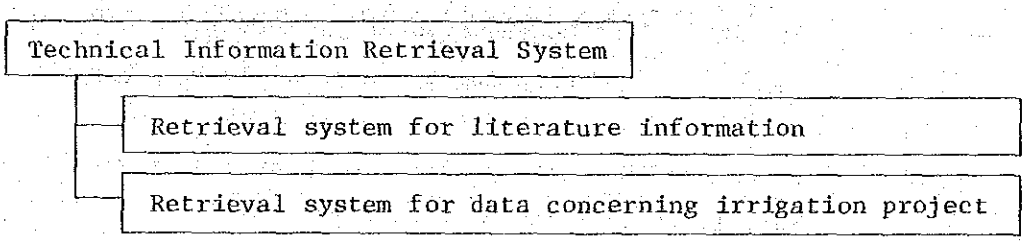
It is desirable that technical information retrieval system mentioned above will be applied in all of the organization concerned with irrigation projects in the future.
Accordingly, it is necessary to hold further discussions for the smooth execution of this system among the persons concerned.
Since the master plan for the technical information retrieval system is being studied at this time, it is necessary in succession to prepare the manual for retrieval card and the detailed classification standard of data, and to developed the retrieval programme.

II-1 Definition of Technical Information Setrieval System

1. Purpose: This system is intended to manage information concerning irrigation project under construction stage by mean of effective retrieval.

2. *Composition of the Retrieval system:*

Technical Information Retrieval System is composed of two system, namely, Retrieval system for literature information and Retrieval system for data concerning irrigation project.



II-2 Retrieval system for data concerning irrigation project

1. Retrieval Method

Retrieval of data in this system is carried out by means of a retrieval card.

2. Scope of data

The kinds of data as the object of this system are as follows:

(1) Letter
(2) Fundamental data on project plan
(3) The data concerned with master plan and design works
(4) The data concerned with general and technical specification
(5) The data concerned with contract
(6) The data concerned with execution of construction
(7) The data concerned with completion of construction
(8) The data concerned with operation and maintenance
(9) Others

3. Data flow

(1) Flow of depository system of data (Figure-1)

a. Offer of information

a-1 Project

- Fill the sheet for offering data (Sample-1)
- Fill the Retrieval card (I) (Sample-2)
- When the information itself is stored in the project office
  Fill out and attach label on the information
  Fill and store Index-card (Sample-3)
- Send to D.O.I. or C.G.S.C.

Case-1 -Sheet for offering information

(A') (B) -Information (Report, Drawings, etc)

-Retrieval Card (I)

Case-2 -Sheet for offering information

(D) -Retrieval Card (I)

a-2 D. O. I.

- When information is produced in D.O.I., sheet for offering information and Retrieval card (I) should be made in D.O.I.
- When information is produced in project and sent to D.O.I., the content of information should be entered into Retrieval card (I) prepared by the project office.
- When information (sent from Project or produced in D.O.I.) is stored in D.O.I., fill out a label on that information and store the Index-card (sample-3)
- Send to CGSC

Case-1 -Sheet for offering information

(A) (A') -Information (Report, Drawings, etc)

-Retrieval card (I)

Case-2 -Sheet for offering data

[Ⓒ➡] -Retrieval card (I)

b. Management and Storing of Information (CGSC)

b-1 Monitoring Unit

- Determine the management and storing method
- Send information and Retrieval card (I) to Library Unit or Micro-film section.
- Fill out address of data in Library Unit or micro-film section, and return Retrieval Card (I) to monitoring unit.
- Write data sheet for computer and send it to computer unit.
- Store Retrieval and (I) in Monitoring Unit.
- Store sheet for offering information in Monitoring Unit
- Compile Technical Information List.

b-2 Library Unit

- Make lable on the information and fill out and store index-card. (Sample-3)
- Write address of data on Retrieval card (I) and return it to monitoring unit.
- Store information

b-3 Micro-film section

- Write address of data on Retrieval card (I) and return it to monitoring unit.
- Make micro-film on data and store.

b-4 Computer Unit

- Make master file of Retrieval card (I)

(2) Flow of supply system of data (Figure-2)

a. Request of Information

a-1 Project (A ⇒ B ⇨)

Case-1 When required information is found in the Technical Information List.
Write necessary matters on Request sheet (Sample-4) and send it to D.O.I. or C.G.S.C.

Case 2 When required information is not found in Technical Information List.
Write the content of information required on Request sheet and Retrieval card (II) (Sample-2), and send them to DOI or CGSC.

a-2 D.O.I.

Case-1 [(A) ⇨] When D.O.I. requires information, follow procedures described in a-1 mentioned above.

Case-2 [(A') ⇒] When the request sheet is sent from project, examine the request sheet and send it to CGSC.

b. Supply system in CGSC

b-1 Monitoring Unit

- Determine retrieval method by request sheet and Retrieval card (II), and if necessary, send data to computer unit.
- Look for the objective Retrieval card (I), and store in monitoring unit.
- Copy the Retrieval card (I)
- Determine storing place of required information
- When required information is stored in CGSG, monitoring Unit requires the library Unit or micro-film Section to prepare the information or its copy.
- Send supply sheet (Sample-5), copy of information and Retrieval card (I) and its copy to D.O.I. or preject.

b-2 Computer Unit

- Retrieve and print data of Retrieval card (I) by computer, and send output data to monitoring unit.

b-3 Library Unit

- Retrieve by Library system and send required information and its copy to monitoring unit.

b-4 Micro-film section

- Retrieve by Microfilm system and make copy of required information and send it to monitoring unit.

c. Process in D.O.I. or Project

c-1 When required information is not found anywhere process is ended.

c-2 When required information does not exist in CGSC but exists in D.O.I. or project, based on the information in the copy of Retrieval card (I) DOI or the Project requests for the information from the office that has it.

c-3 After using the literature or its copy the user should them either return it to the owner or heep it or destroy it according to the provision as stated in the supply sheet of the data owner.

4. Retrieval Card

Retrieval card shall be made by a unit of data generated (such as each report), and the representative information, such as the kind of data, the address of data stored and the major contents of data shall be expressed in retrieval card (Refer to sample-2).

(1) Classification of Retrieval Card

According to the kinds of data, the retrieval card is classified as in table-1:

Table - 1

Card Number	Kind of Card	
10	Fundamental data concerned with project	
20	The data concerned with master plan and design works	
31	Dam works	The data concerned with execution of construction
32	Head Works	
33	Canal Works	
34	Reclamation Works	
35	Pump	
36	Gate	
37	Architecture	
38	Other Construction Works	
39	Standard	
40	The data concerned with operation and maintenance	
50	Others	

(2) Standadization of Retrieval Card

a. To make size as small as possible that can be read.

b. To use suitable card for writing using ball point pen or fountain pen.

c. To use suitable thickness for easy handling of the cards.

d. To make suitable size for the box.

e. To adjust the size of the sheet for offering data, etc.

(3) Method of filling out Retrieval card

(Entry according to priority of importance)

a. *Common Items on* All Retrieval Card

- Left columns of retrieval card should be composed to understand the classifications and others of all reports (each report)
  In case of sample-2, these are shown on columns 1 - 18 and value of columns 1 - 18 of stored retrieval card are not all the same.
- [Type of data] and [No. of copies to be stored] should be filed up next to above mentioned.
  In case of sample-2, these are shown on columns 19 - 22.
- Right columns of retrieval card should be composed so as to understand the storage condition of the reports in CGSC (each report)
- In case of sample-2, these are shown on columns 70 - 80.
- In case of storage by library system, columns 70 - 76 will be expressed by UDC code.
- In case of storage by micro-film system, columns 70 - 80 will be expressed by micro-film code.

b. Items concerning classified retrieval card

It is classified into two parts, such as large and small classifications.

b-1

Large number is expressed by 10 digits of retrieval card number.

Item and position of [-data-] in retrieval card with No. of the same 10 digits are all the same.

In case of sample-2, these are shown on columns 61 - 69.

b-2

Small classification is expressed by 1 digit of retrieval card.

- It will be used, if it is necessary, to change retrieval card (columns, except above mentioned a, and b-1, are columns in retrieval card) according to objective structure.

In case of samples -2 - 1 -2 - 2 , these are shown on columns 23 - 60

- If it is not necessary to classify retrieval card, the first digit of small classification is zero.

(4) Filling out method of Retrieval card

a. Offer of information

Retrieval card will be filled out by the maker of a report or his organization except [address of data (CGSC)].

- Name of data:
  Filling out a name of a report, etc.

- Name of responsible person of data storing:
  Fill out the name of a person who is responsible for storing place of report etc.
  (Fill out the next column: [No. of copies to be stored])

- Identification produced data:
  Make a circle on corresponding no, (one column - one place). But in case the report is made by a project, make circles on all zero columns of [organization code].

- Type of data:
  Make a circle on corresponding item
  (one column - one place or more than one place)

- No. of copies to be stored:
  Make a circle on number of copies to be stored in a library.
  Make a circle on no of copies to be stored in a library.
  (one column - one place)

- Type construction (accessory structure):
  Make circles on items concerning objective structure of report etc. (one column - one place or more than one place) and accurate value will be filled out in lowest column of [actural figure].

- Data:
  Make circles on items concerning expressed content of a report, etc. Ione column - one place or more than one place)

- Address of data (CGSC):
  Make a circle on no. of storing condition of report, etc. in CGSC by a staff who is responsible for library or by a staff who is responsible for micro-film
  (one column - one place)

- Comment:
  Fill out additional items, if necessary.

b. Request for information

Make a circle on the necessary item of a column by the requesting staff.

c. Sample entry on retrieval card when information is offered:

Sample - 2, - 3 is sample entry on retrieval card in case of following content of report.

- Name of data : Engineering report
- Office where data produced:
  Mr. ABCD is a staff who is in charge of the library in Serayu Irrigation Project where two of the reports are stored.
  Mr. XYD is a staff who is in charge of the library in DOI where one of the reports is stored in the First Construction Department.
- Project code:
  Objective project of the report is Serayu (470109)
- Card number :
  (kind of data)
  This report is Head works.
- Number of data:
  The report is the second report consisting of four volumes
- Date of produed data:
  This report was made in March, 1985.
- Organization code:
  This report was made by Serayu Project.
- Type of data:
  This report is written in English document.
- Type:
  Flood way : Fixed
  Gate : ?
  Intake method : One side

- Topography & Geology:

Topography	: Mountainous area
Geology	: Rock
N -- value	: 43

- Representative value concerning design:

Length of weir crest	: 62.6 m
Weir crest	: 5.9 m
Foundation of intake wall	: ?
Intake volume	: 124 m^3/sec

—— Data —— ;

Geology	: Boring
Hydrology	: Discharge
Experiment	: Not stored
Design work	: Hydraulic, Structure and Soil
Construction management	: Scheme of excution

- Address of data :

(CGSC) This report is stored in the library of CGSC and UDC code is 324,23.

(5) Others (utilization for other purposes)

It may be used for other information, if the contents of the retrieval card are changed.
(Except literature)

5. Sheet for offering data

(sample - 1)

6. Label attached data and index card

(sample - 3)

7. Request sheet

(sample - 4)

8. Supply sheet

(sample - 5)

9. Others

(1) Retrieval card should be prepare by taking into consideration detailed examination of the contents of stored reports, etc. Especially, item or - data - in retrieval card should express the contents of any kind of reports, etc.

(2) It is suggested that it is impossible to store all data in CGSC, therefore DOI and the project concerned the same code number of retrieval system as that of CGSC.

II-3 Retrieval System for Literature Information

1. Retrieval Method

Retrieval of data in this system is carried out by means of Technical Information List

2. Scope of Data

The kinds of data to be the object of this system are as follows:

(According to U.D.C.)

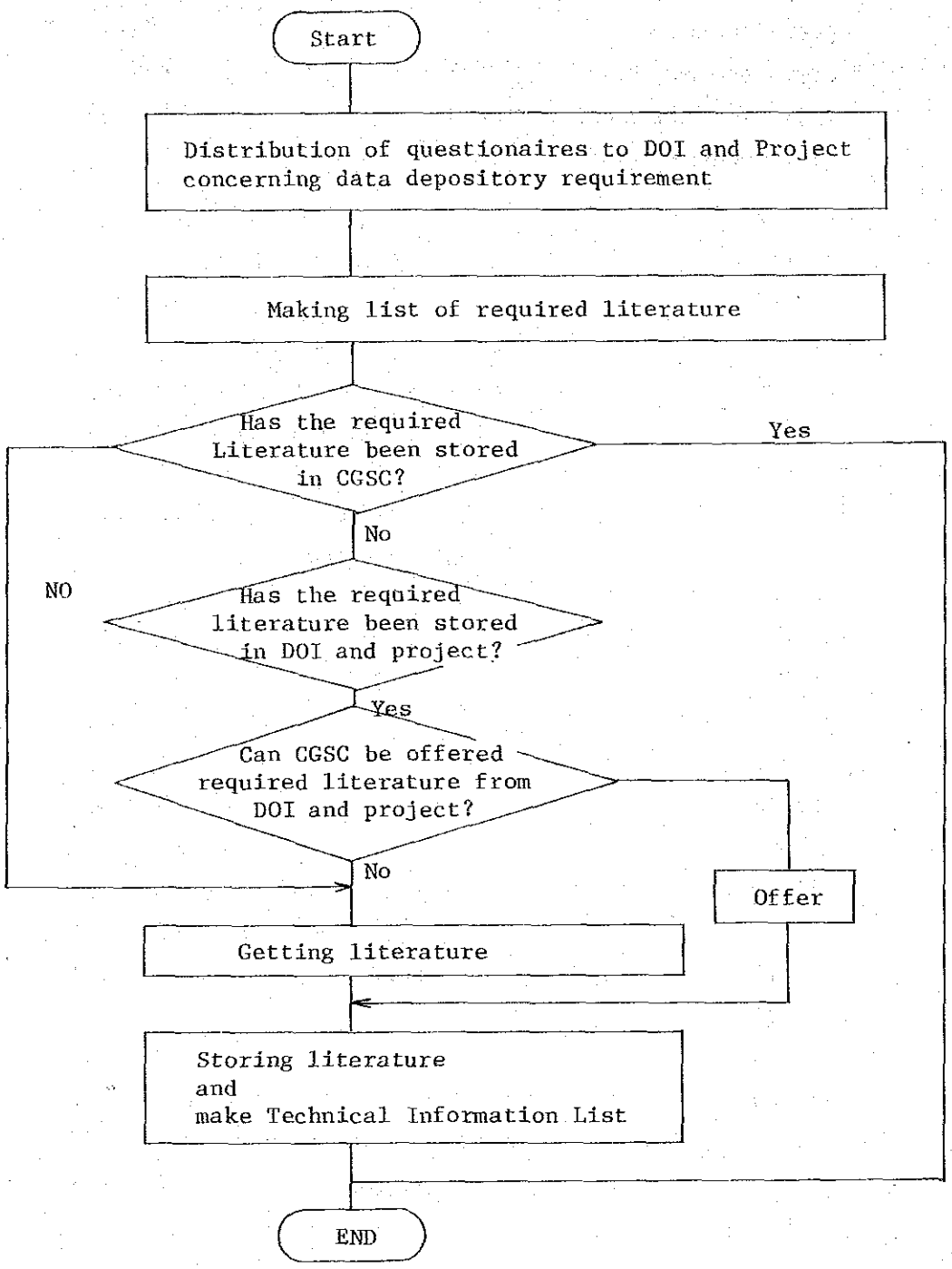
(1)	Economics, social science	3
(2)	Soil mechanics	624.13
(3)	Structural mechanics	624
(4)	Hydraulics	532 or 626
(5)	Hydrology	551.48
(6)	Planning of civil engineering works	624.00.1
(7)	Civil engineering	624
(8)	Computer	518.5 or 681.14
(9)	Mathematics and statistics	51 + 31
(10)	City water and sewerage	628
(11)	Canal works	626 or 627
(12)	Tunnel	624.19
(13)	Dam and Head works	627.8
(14)	Land slide	551.244
(15)	Road	625.71
(16)	Bridge	624.21
(17)	Foundation	624.15
(18)	Sheating hurdle	624.1
(19)	Special works	624.1
(20)	Temporary construction	624.1
(21)	Labor rate	624.008.2
(22)	Construction management	624.008.2
(23)	Concrete	691 or 693
(24)	Materials (expert concrete)	691
(25)	Construction equipment	621
(26)	Oil and fuel	662.765
(27)	Electric	621
(28)	Architecture	72

(29)	Pump and gate	621.65 +
(30)	Surveying	550.81 or 631.47 or 624.131.47 or 308 or 528.4
(31)	River	626.13
(32)	Laws	34
(33)	Standard	389.6
(34)	Information	659.2
(35)	Environmental pollution	628.51
(36)	Others	

3. Data Flow

(1) Flow of depository system of literature data

Literature concerned with irrigation project should be collected and stored in CGSC according to plan.



(2) Flow of supply system of Literature data (Figure-3)

a. Request of Information

a-1 Project (A' B)

When required information is found in the Technical Information List, write necessary matters on Request sheet (Sample-4) and send it to DOI or CGSC.

a-2 DOI

A Case-1 When DOI requires information, take procedures described in a-1 mentioned above.

Case-2 When the request sheet is sent from project,

A' Examine the request sheet and send it to CGSC.

b. Supply System in CGSC

b-1 Monitoring Unit

- Require information or its copy to Library Unit by means of content of Request sheet.
- Send supply sheet (Sample-5) and information and its copy to DOI or Project.

b-2 Library Unit

Retrieve by Library system and send require information and its copy to monitoring unit.

c. Process in DOI or Project

After using the overed literature or, its copy, the user should then either return it to the owner keep it or destroy it according to the provision stated in the supply sheet of the data owner.

FIGURE - 1.

FLOW OF DEPOSITORY SYSTEM OF DATA

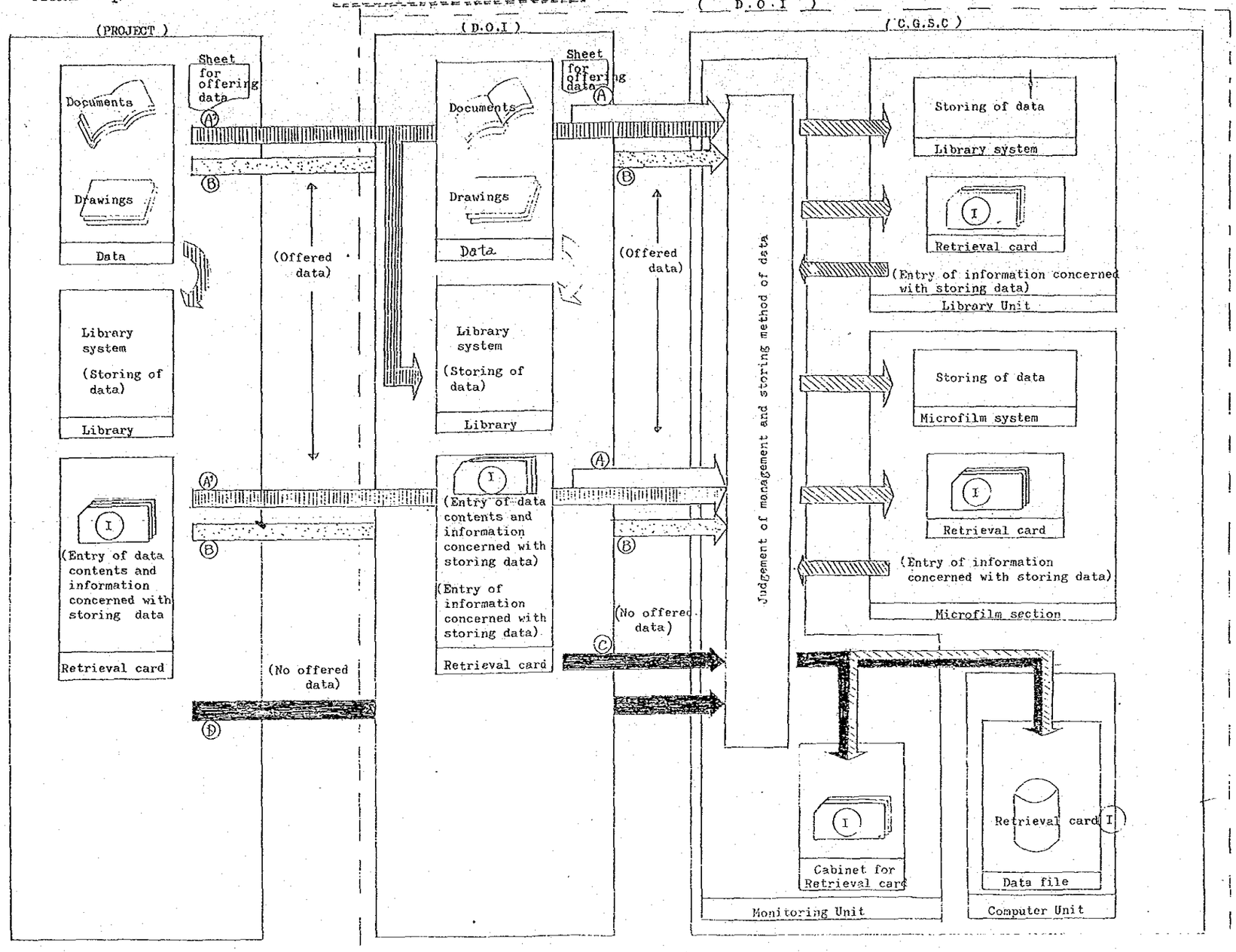


FIGURE - 2

FLOW OF SUPPLY SYSTEM OF DATA

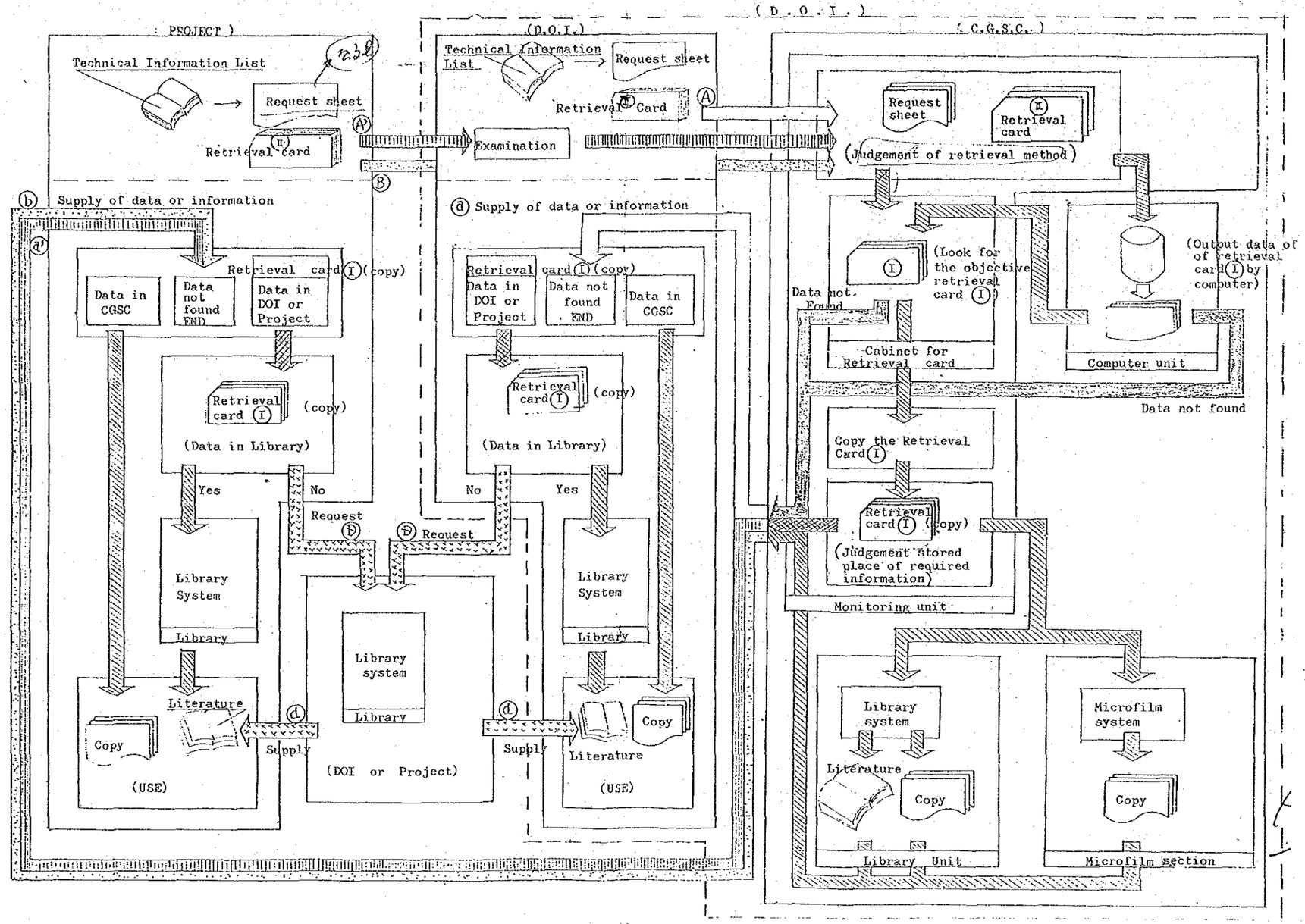
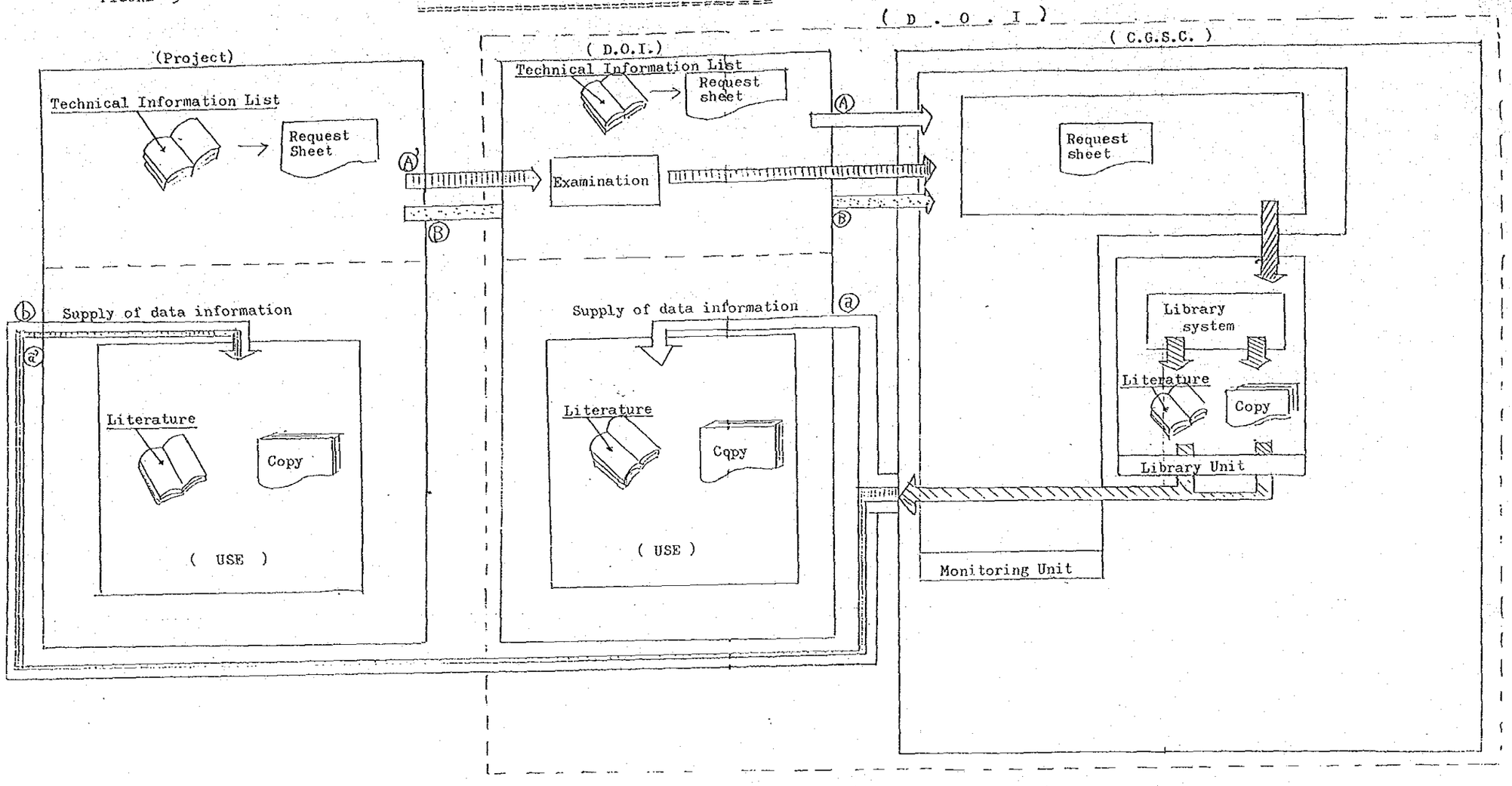


FIGURE -3

FLOW OF SUPPLY SYSTEM OF LITERATURE DATA



Sample - 1

SHEET FOR OFFERING DATA

To:

CCSC
(Name of a staff who is charge)

DOI
(Name of a staff who is charge)

Receiving No: _____

Receiving Date: _____

I would like to offer following data:

Offered No.: _____

Offered Date : _____

Offering Data

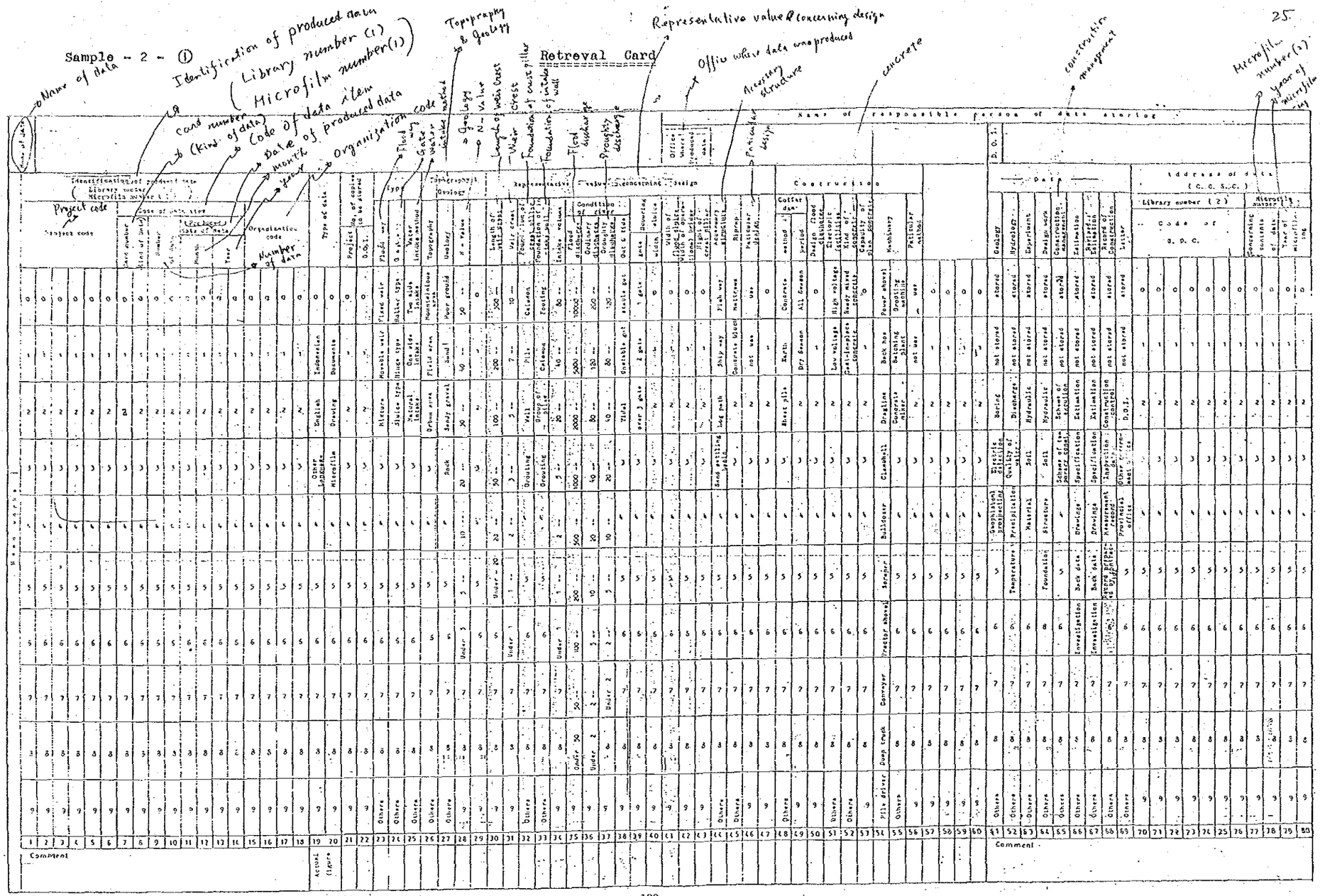
Name of DATA or Card number of retrieval Card	Volume of Data	Treatment of after using	(returning period)
	No of Sheet or No of book or No of Retrieval Card	keep, destroy. or Return	

Data owner _____

Name of organization _____

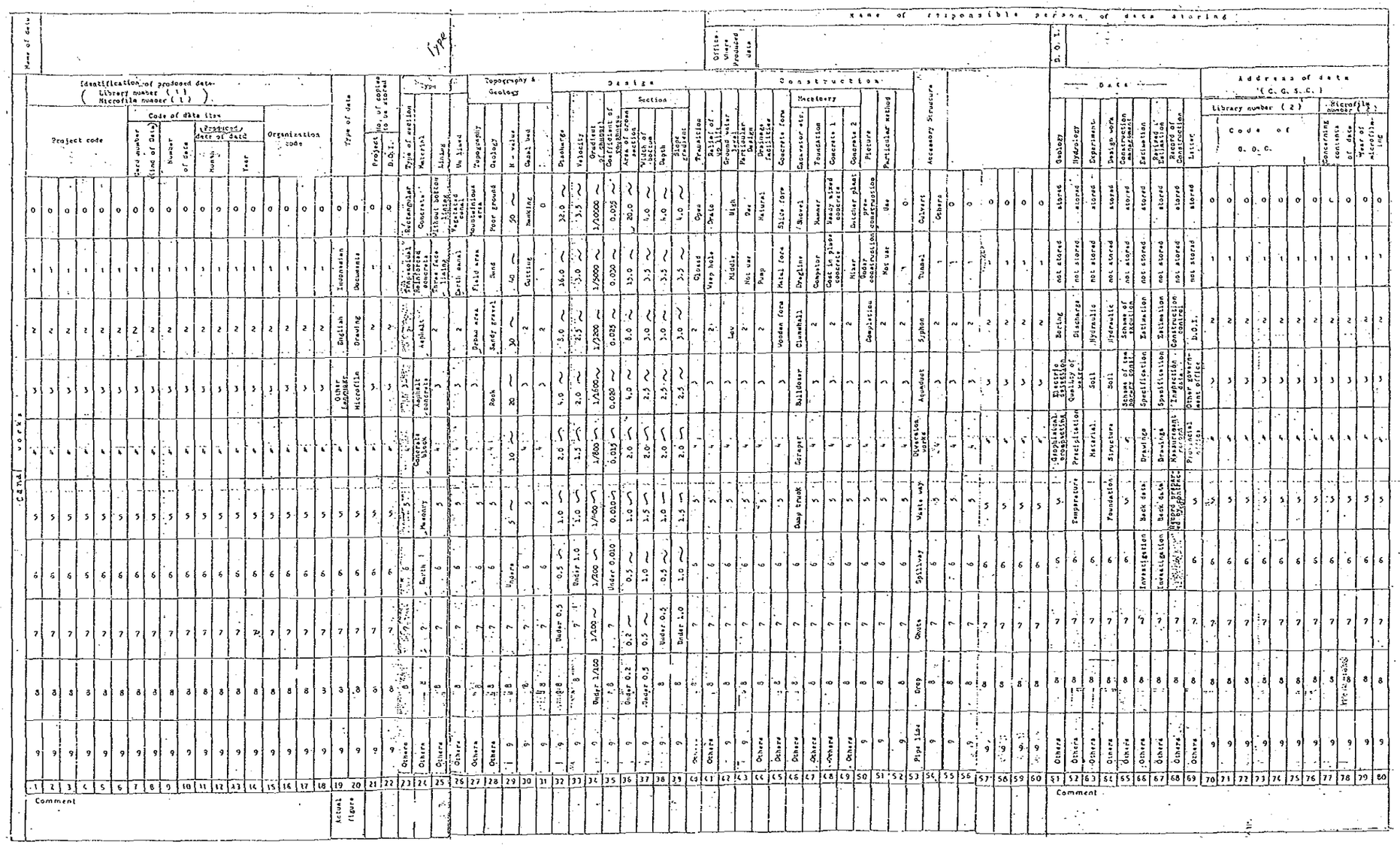
Sample – 2 – ①

Retreval Card



Sample - 2 - ②

Retrieval Card



Sample - 2 -③

Retrieval Card

Engineering report

Name of responsible person of data storing: Mr. ABCD (Sign)

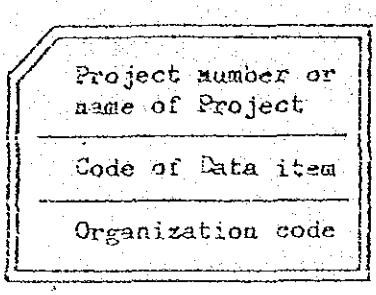
D.O.I.: Mr. XYD (Sign)

Comment: UDC code : 824.23

Sample - 3

LABEL ATTACHED DATA AND INDEX CARD

-Label attached data



Entry number is shown on retrieval card

-Index card

In principal , index card will be made just the same as the content of retrieval card (1)

If there is a library system, same content of Label attached data will be added into index card

Sample - 4

REQUEST SHEET

To:

(Name of a staff who in charge)

Receiving No.:_____

Receiving Date :_____

(Name of Organization)

I would like to ask of you to offer following data

Requesting No.:_____

Requesting data

Requesting Date :_____

Name of DATA or card number of retrieval Card	Volume of Data	Type of Data	Offering Period	Others
	No. of sheet or No of Retrieval Card	Literature or Copy		

Name of requester _____

Name of Organization _____

Sample - 5

SUPPLY SHEET

To:

Receiving No.: _____

Receiving Date : _____

_____
(Name of Staff who in Charge)

(Name of organization)

Please accept the following data which is requested by you

Offering No.: _____

Offering Date : _____

Offered data

Name of data or card number of retrieval Card	Type of Data	Volume of Data	Treatment of after using	Returning period
	(Literature or copy, or Retrieval card)	No. of Book Or No. of Sheet or No. of Retrieval Card	keep, destroy or Return	

Name of Data Owner _____

Name of Organization _____