

ITEM NO.	I T E M	QUANTITY	STATUS OF EQUIPMENT	REMARKS
172	Box Feeder	1	Installed in Brick and Tile Pilot Plant for pilot plant studies	Inspected and temporarily placed in Stock Room.
24-1	Pug Mill, Double Shaft	1	Installed in Brick and Tile Pilot Plant for pilot plant studies.	
C. TEST PRODUCTION UNIT POTTERY				
DRY PROCESS				
1	Jaw Crusher	1	Installed in Brick and Tile Pilot Plant (temporarily)	
3	Hammer Mill	1	Inspected and temporarily placed in Staff Room	
3-A	Conveyor Belt	1	Inspected and temporarily placed in corridor near Chemical Analysis Room	
40-1	Roll Crusher Porcelain	1	Installed in Brick and Tile Unit for pilot plant operation.	
40-3	Conveyor Belt	1	Inspected and temporarily placed beside Chemical Analysis Room	
4	Stamp Mill	1	Inspected and temporarily placed in Staff Room.	
196	Dust Collector	1	Inspected and temporarily placed in Staff Room	
WET PROCESS				
5-1	Ball Mill with stone Lining (300 kg.)	1	Installed in Pottery Building	
5-2	Ball Mill with Rubber Lining (300 kg.)	1	Installed in Pottery Building	
7	Ball Mill (100 kg.)	1	Installed in Pottery Building	
8	Ball Mill (50 kg.)	1	Installed in Pottery Building	
13	Pot Mill with Pots (various sizes)	3	Two (2) units temporarily placed installed in Kiln Room opp. (1)	

ITEM NO.	I T E M	QUANTITY	STATUS OF EQUIPMENT	REMARKS
16	Rotary Sieve (100 mesh)	1	Still in wooden crate at Inner Garden	
2	Ferro Filter with rectifier	1	Temporarily placed/installed in Laboratory 2 for studies.	
13	Stirrer	1	Installed in Pottery Unit but not yet test operated.	
21	De-Airing Extruder	1	Temporarily installed and operated in laboratory 2 for studies.	
27	Kneading Machine, 150 kg./cycle	1		
31	Platform Scale, 250 kg.	1	Presently used in the different laboratory rooms.	At the pier
CLAY WASHING --				
40-2	Roll Crusher, Managanese Steel Roll	1	Kept in wooden crates at Inner Garden	
23	Filter Press with Pump	1	Installed in Pottery Unit but not yet test operated.	
17	Vibrating Sieve 150 mesh	1	Kept in Inner Garden	
13	Agitator with tank, double	1	Installed in Pottery Unit but not yet test operated.	
191	Bucket Conveyor	1	Installed in Pottery Unit but not yet test operated.	
195	Drag Conveyor	1	Installed in Pottery Unit but not yet test operated.	
FORMING SECTION --				
46	Potter's Wheel, Mechanized	8	Inspected and temporarily placed in Kiln Room	

ITEM NO.	I T E M S	QUANTITY	STATUS OF EQUIPMENT	REMARKS
29	Jigger and Jolly	8	6 units inspected and placed in Staff Room; 2 units still in crate at Inner Garden.	
47	Vacuum Stirrer with bucket (124)	1	Inspected and tested, temporarily placed in Laboratory 2.	
45	Semi-Automatic Jigger	2	Inspected and tested, temporarily placed in Sample Preparation Room.	
48	Pressure Casting Outfit	1 set	Inspected and tested, temporarily placed in Sample Preparation Room.	
147-4	Pushing Cart	4	Routine use (Kept in Stock Room when not in use)	
PLASTER MOLD SECTION				
46-1	Potter's Wheel for Plaster Mold	2	Inspected and temporarily placed in Staff Room	
46-2	Turn Table- Belt Drive 50 cm.	1	Inspected and temporarily placed in Staff Room	
174	Boring Machine with motor	1	Inspected and placed in Staff Room	
GLAZING SECTION				
19-1	Agitator, High Speed, Portable	2	Inspected, 2 units kept in Stock Room and other kept/ placed in Staff Room	
52	Mixing and Grinding Machine #16	4 sets	Installed and operated in Laboratory 2	
53	Glazing Booth, with Fan	1	Inspected and placed in Staff Room	
54	Spray Guns, large, medium, and small	10	Inspected and kept in Stock Room	

ITEM NO.	I T E M S	QUANTITY	STATUS OF EQUIPMENT	REMARKS
55	Compressor 7.5 kg/cm ²	1	Kept in Staff Room.	
55-1	Glaze Sponging Machine	1	Inspected and placed in Staff Room.	
55-2	Glaze Container, 30L with cover	1	Used in Laboratory 2.	
	PRINTING SECTION -			
51-1	Process Camera, Vertical Type	1	Temporarily installed/operated in Head, RDD's Room.	
55-2	Film Printer	1	- do -	
51-3	Sink for Developing Temperature Regulated			
51-5	Printing Frame	1	Temporarily installed and operated in Head, RDD's Room.	
51-6	Light Source	1	- do -	
51-7	Drier for Film	1	- do -	
51-8	Light Table	1	- do -	
51-9	Hand Printing Machine	1	- do -	
51-10	Dry Rack	1	- do -	
51-11	Grinder for Squeegee	1	- do -	
51-12	Air Tension	1	- do -	
51-13	Table for Tensioner	1	- do -	
51-14	Compressor	1	- do -	
197	Intaglio Printing Machine	1 set	- do -	
	KILN SECTION			
56-1	Electric Furnace, 1300°C, 10 kw	1	Temporarily installed in Kiln Room for studies.	

ITEM NO.	I T E M S	QUANTITY	STATUS OF EQUIPMENT	REMARKS
57	Gas Furnace, 1500°C	1	Installed in Pottery Unit and test operated.	
59	Oil Furnace, 1400°C	1	Installed in Pottery Unit and test operated.	
60	Electric Furnace, 1300°C, 5 kw	1	Installed in Kiln Room for firing use.	
61	Electric Furnace, 1300°C, 20 kw	1	Installed in Kiln Room for firing use.	
62	Decorating Furnace, Electric, 900°C, 15 kw	1	Inspected and placed in Staff Room.	
65	Frit Furnace, Crucible Type	1	Installed in Kiln Room for firing use.	
	SAGGER SECTION -			
32	Friction Press	1	Installed in Sagger Section, Pottery Building and now used for pressing refractory materials.	
35	Hand Press	1	Kept in front of IRC Boiler Room	
24	Fug Mill Single Shaft	1	Inspected and installed in Sagger Section, Pottery Building, but not yet test operated.	
2	Edge Runner, 90 cm Ø	1	Installed in sagger section but not yet operated.	
	Camera, 8mm ELMO 350 SL with Projector, accessories	1 set	Routine use	
	Copying Machine, RICOH	1 set	Routine use, kept in Program Coordination Room.	
147	Drawing Instruments	1 set	Routine use, installed in Staff Room.	

ITEM NO.	I T E M S	QUANTITY	STATUS OF EQUIPMENT	REMARKS
154-53	IBM Electric Typewriter	2 sets		Clerical use in Director's Office and PCD's Room.
191-52-1	Refrigerator (small)	1		Placed in Conference Room for official use.
191-52-2	Refrigerator (big)	2		Placed one (1) each in Dark Room and Chemical Laboratory Room for official use.
176	Vacuum Cleaner	1		Kept in X-Ray Room for cleaning purposes.
154-40	Intercom	1 set		Installed in the different rooms of CRDC in IRC Building.
157	Ceramic Materials	1 lot		Part of lot kept in Stock Room other part kept in different Laboratory Room CRDC for R and D use.
191-51	Air-conditioners a. Split Type	3 sets		Installed one each in Dark Room and Technical Guidance and Microscope Room.
191-51	b. Window Type	22		12 units installed in different staff and laboratory rooms, 10 units kept in Stock Room.
29-1	Tools for jigger and Jolly	1 lot		Kept in Laboratory 2 for operation.
167-3	Tools for Plaster Mold Making	1 lot		Kept in Laboratory 2 for operation.
51-15	Miscellaneous for printing	1 lot		Inspected and temporarily placed/kept in office of R and DD
230	Spare parts for Extruder and Pug Mill	1 lot		Kept in Stock Room, some parts now used.
325	Metal Mold for Brick and Tile	1 lot		Installed in Brick and Tile Unit.

ITEM NO.	I T E M S	QUANTITY	STATUS OF EQUIPMENT	REMARKS
231	Cutter with Roller (manual)	1 set	Used in Brick and Tile.	
303	Tools for Kiln Construction	1 set	Kept in Stock Room.	
173	Disintegrator	1	Installed in Sagger Section but not yet test operated.	
308	Audio Visual Apparatus	1 set	Kept in Stock Room for routine use.	
122	Wiring Tools/Parts	1 set	Kept in Stock Room available for use.	
134	Electric Grinder	1	Engineering use.	
135	Electric Welder	1	Engineering use.	
136	Electric Drill	1	Engineering use.	
138	Electric Tools	1 set	Engineering use.	
146	Land Cruiser	1	Dispatched to Bicol areas for field survey of ceramic materials deposits (for transportation use)	
146-1	Micro-Bus Coaster	1	Routine use (transportation)	
MOLD DIES AND TOOLS				
32-A	Metal Mold for Friction Press (sagger section)	1 set	Kept in Staff Room	
35-A	Metal Mold for Hand Press (sagger section)	1 set	Kept in Head Office, RD&D	
	Tools for Decoration	1 set	Kept in Head Office, RD&D	
220	Dies for Extrusion Machine	1	Kept in Head Office, RD&D	
221	Original model for Plaster Mold	1 set	Kept in Laboratory Room 2	
222	Plaster Mold for Casting	1 set	Kept in Laboratory Room 2	
223	Tools for Forming and Finishing (sponging)	1 set	Kept in Laboratory Room 2	

TABLE 6

RECORD OF JAPANESE EXPERT SERVICE
FOR
CERAMIC RESEARCH AND DEVELOPMENT CENTER

I.1. LONG-TERM EXPERTS

N A M E	FIELD	DURATION	HOME AGENCY/COMPANY
Mr. Koze Esaki	Chief Advisor	Aug. 17, 1977- July 15, 1980	Ministry of Inter- national Trade and Industry (MITI)
Mr. Dai Ohkubo	Applied Mineralogy	Jan. 10, 1978- July 15, 1980	Self-Employment
Mr. Motoo Ueno	Production of Ceramic Products	April 17, 1978- July 15, 1980	Self-Employment
Mr. Ryuichi Yamamoto	Beneficiation of Raw Materials	Aug. 17, 1977-	Government of Industrial Research Institute, Nagoya (GIRIN), AIST, (MITI)
Mr. Minoru Maeda	Physical Property Test	Dec. 20, 1977- July 15, 1980	Government Industrial Research Institute Nagoya (GIRIN), AIST, (MITI)
Mr. Yasuo Ito	Program Analysis	Dec. 13, 1977- July 15, 1980	Japan International Cooperation Agency (JICA)

I.2. SHORT-TERM EXPERTS

N A M E	FIELD	DURATION	HOME AGENCY/COMPANY
Mr. Koze Esaki	Planning Coordination	Jan. 20, 1977- March 19, 1977	Ministry of Inter- national Trade and Industry (MITI)
Mr. Ryuichi Yamamoto	Planning Coordination	Jan. 20, 1977- March 19, 1977	Government Industrial Research Institute, Nagoya (GIRIN), AIST, (MITI)
Mr. Minoru Maeda	Planning Coordination	Jan. 20, 1977- March 19, 1977	Government Industrial Research Institute, Nagoya (GIRIN), AIST, (MITI)
Mr. Teruo Nishimura	Physical Test	Oct. 4, 1977- Dec. 3, 1977	Government Industrial Research Institute, Nagoya (GIRIN), AIST, (MITI)
Mr. Tsutomu Yamagami	Installation of X-Ray	March 8, 1978- April 1, 1978	Shimadzu Seisakusho Limited

N A M E	FIELD	DURATION	HOME AGENCY/COMPANY
Mr. Sadahiko Sumiya	Installation of Brick and Tile Production	March 8, 1978- May 7, 1978	Ishikawa Toki Iron Works Company, Limited
Mr. Kazuo Kato	Installation of Brick and Tile Production	March 8, 1978- May 7, 1978	Ishikawa Toki Iron Works Company, Limited
Mr. Jyuzo Maekawa	Installation of Universal Testing Machine	March 27, 1978- March 31, 1978	Maekawa Testing Machine Manufacturing Company, Limited
Mr. Takeshi Aoshima	Installation of Load Test and Dilatometer	April 16, 1978- April 21, 1978	EKO Instruments Trading Company, Ltd.
Mr. Hideo Kurosawa	Piping of Atomic Absorption Spectrophotometer	June 12, 1978- June 18, 1978	Kurosawa Asanki Industry Company, Ltd.
Mr. Kiyoshi Ito	Installation of TG-DTA	June 16, 1978- June 29, 1978	Shimadzu Seisakusho Limited
Mr. Nobuhiro Takeda	Installation of Scanning Electron Microscope	Feb. 16, 1979- March 15, 1979	J E O L
Mr. Takashi Kusano	Installation of Infrared Spectrophotometer	March 25, 1979- April 7, 1979	HITACHI
Mr. Hiroo Takashima	Chemical Analysis	July 1, 1979- Aug. 31, 1979	Government Industrial Research Institute, Nagoya (GIRIN), AIST, (MITI)
Mr. Masao Sano	Kiln Construction and Installation of Production Machines	October 15, 1979- Dec. 28, 1979	Takasago Industry Company, Limited
Mr. Kazuhisa Niwano	Brick and Tile Production	Jan. 22, 1980- March 21, 1980	Industrial Research Institute, Hyogo Prefecture
Mr. Hideyasu Horibe	Installation of Screen Printing Outfit	March 25, 1980- April 11, 1980	Mishima Company, Limited

I.3. OTHERS

- Technical Follow-Up Team in the ceramic field
Headed by Mr. Sakichi Yoshikawa
Executive Director, Japan International Cooperation Agency (JICA), Composed of four (4) members, July 7, 1978 to July 23, 1978
- Maintenance and Repair Team for CRDC Equipments
Headed by Mr. Eiichi Ishi, GIRIN, MITI,
Composed of four (4) members
February 19, 1980 - March 10, 1980

Table 7

LIST OF COUNTERPART TRAINEES IN JAPAN

1976 (Japanese Fiscal Year) - - Total 5 (Technical Training-5)

N A M E	DURATION	SUBJECT
Miss Virgilia Villarete	February 4, 1977 - December 20, 1977	Physical Test
Miss Nenetete Cilindro	February 4, 1977 - December 20, 1977	Chemical Analysis
Mr. Tamerlane Badoy	February 4, 1977 - December 20, 1977	Kiln, Firing
Mr. Cesar Martinez	February 4, 1977 - December 20, 1977	Kiln, Firing
Mr. Augusto Caraig	February 4, 1977 - December 20, 1977	Product Development

1977 (Japanese Fiscal Year) - - Total 6 (Technical Training-5)
(Management -1)

N A M E	DURATION	SUBJECT
Mr. Angelo	December 5, 1977 - October 10, 1978	Physical Test
Miss Esmeralda Rivera	December 5, 1977 - October 10, 1978	Physical Test
Mr. Christopher C. Salegumba	October 24, 1977 - November 23, 1977	Management
Mr. Christopher C. Salegumba	November 24, 1977 - September 9, 1978	Kiln, Firing
Miss Juanita Banal	December 5, 1977 - October 10, 1978	Production Technology (Porcelain)
Miss Corazon Retugal	December 5, 1977 - October 10, 1978	Production Technology (Earthenware)

1978 (Japanese Fiscal Year) - - Total 5 (Technical Training-4)
 (Management -1)

N A M E	DURATION	SUBJECT
Mr. Vicente Villegas	April 30, 1978 - March 30, 1979	Glaze and Decoration (Screen Printing)
Mr. Nestor Anicte	November 21, 1978 - September 3, 1978	Ceramic Machinery
Mr. Ruben Vidallo	November 21, 1978 - September 3, 1978	Beneficiation of Raw Materials
Mr. Fernando Sison	November 21, 1978 - March 31, 1980	Mold Making and Forming
Mrs. Guillermina C. Mañalac	February 15, 1979 - March 6, 1979	Management

1979 (Japanese Fiscal Year) - - Total 6 (Technical Training-5)
 (Management -1)

N A M E	DURATION	SUBJECT
Mrs. Adelaida Elvinia	April 5, 1979 - March 31, 1980	Low Temperature Glaze
Mrs. Natividad Villostas	April 5, 1979 - March 31, 1980	High Temperature Glaze
Mr. Severino Bernardo	June 28, 1979 - July 30, 1979	Ceramic Seminar
Miss Sofia Cavales	September 27, 1979 August 31, 1980	Physical Analysis
Mr. Luis Rivera	September 27, 1979 August 31, 1980	Physical Test
Mr. Apolo Canayon	September 27, 1979	Refractories

Table 8

PROGRAM FOR MANPOWER TRAINING
 (Training in Japan for CRDC Staff)
 Note: Based on Japanese Fiscal Year

Figures represents number of persons
 Phase III-Self Reliance

Phase II

Phase I

Preparation

Area of Training	1976		1977		1978		1979		1980		1981		1982		Totals (over)	
	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual		
I. Technique for Raw Materials	2	2	2	1	1	1	1	2	1	1	1	1	1	1	6	7
II. Technique of Kiln	1	2	1	1	1	1	1	-	1	1	1	1	1	1	4	4
III. Technique of Production	2	1	2	3	2	2	3	3	2	2	1	1	1	1	10	8
IV. Management	2	0	0	1	2	1	0	1	2	2	0	2	2	2	4	3
TOTALS Target	5		5	7	7	5	5								24	
Actual	5		6	5	5	6	6									22

AREA/SUBJECT	NO. OF PERSONS	YEAR
I. TECHNIQUE FOR RAW MATERIALS		
1. Materials Tests and Analysis (Atomic Absorption)	1	1976
2. Materials Tests and Analysis (X-Ray Analysis)	1	1976
3. Materials Test and Analysis (SEM)	1	1977
4. Materials Test and Analysis (Infra-red)	1	1977
5. Processing of Raw Materials	1	1978
6. Materials Test and Analysis (Sedimentograph, Rheometer, Color Difference Meter)	1	1979
7. Materials Tests and Analysis (Infra-red Analysis)	1	1979
II. TECHNIQUE OF KILN		
1. Kiln Design and Fabrication	2	1976
2. Kiln Design and Construction	1	1977
3. Operation and Maintenance of Equipment	1	1978
III. TECHNIQUE OF PRODUCTION		
1. Production Techniques (General)	1	1976
2. Production Techniques (General Pottery)	1	1977
3. Production Techniques (Earthenware) Stoneware Glazes	1	1977
4. Production Techniques (Glaze Decoration) Decal and Screen Printing	1	1978
5. Production Techniques (Mould Making: Forming Techniques)	1	1979
6. Production Techniques (Sagger & Kiln Furniture Prod.)	1	1979
7. Production Techniques (Fritted Glaze and Pigments)	1	1979
8. Production Techniques (Raw Glazes)	1	1979

AREA/SUBJECT	NO. OF PERSON/S	YEAR
IV. MANAGEMENT		
1. Management	1	1978
2. Management	1	1977
3. Management (Ceramic Seminar)	1	1979

Table 9

BUDGET APPROPRIATION AND ACTUAL EXPENDITURES OF CERAMIC PROJECTS

	1977		1978		1979		1980	
	Appropriation	Exps.	Approp.	Exps.	Approp.	Exps.	Approp.	Exps.
General Fund Project	₱ 360,812	₱ 180,684	₱ 229,337	₱ 401,432	₱ 783,588	₱ 385,842	₱ 308,484**	-
G.I.A. Projects	855,974	810,715	890,491	820,856	611,795	611,795	219,378**	-
Equipment	-	57,870*	-	-	-	-	-	-
Counterpart fund Maintenance and Operating Expenses.	-	-	-	-	-	-	1,312,000	₱ 1,101,000***
Capital Outlay	-	276,500*	900,000	-	900,000	512,101	-	-
TOTAL	₱ 1,216,785	₱ 1,325,769	₱ 2,219,828	₱ 1,222,288	₱ 2,295,353	₱ 1,509,738	₱ 1,839,862	-

* Realigned from Maintenance and Operating Expenses

** Personal Services only

*** Released in April, 1980.

TABLE 10

EVALUATION ON ACHIEVEMENT
BY FUNCTION AND ACTIVITIES

FUNCTION	CATEGORY IN CRDC PROGRAM OF ACTIVITIES	ACHIEVEMENT	EVALUATION	REMARKS/NOTE
I. TRANSFER AND ADAPTATION OF CERAMIC TECHNOLOGIES	1. Technology on Survey and Evaluation of Raw Material Deposits	(111) Establishment of Standard manual is not yet finalized due to lack of personnel. Personnel are under training. (2111) almost achieved (2112) partly implemented		1) Technologies are not yet sufficiently transferred to the self-reliant stage. 2) Field surveys can be guided/ conducted by Japanese experts on typical areas only or till capabilities are built up - no need to cover the entire country. Joint survey recently being undertaken with Bureau of Mines and Geo-science is deemed useful.
	2. Laboratory Test and Analysis Technology	40 technologies for test and analysis, many have been transferred and adapted in spite of lack of manpower. But some of them, particularly sophisticated technologies, are not yet well transferred, since these are essentially very hard to transfer within short time.		1) Approximately two (2) years will be needed for transfer and adaptation of some technologies, for example rheological property. 2) Simple testing/analysis method to be also incorporated.

3. Evaluation Technology on Material and Products
- Still at initial stage for lack of personnel and late start of activities.
- This category plays important role in promotion of cottage and small scale industries.
- Though establishment of capability in this field requires wide and deep knowledges and long experience, considerable improvement will be expected from today's condition, if personnel concerned in this project have sufficient zeal and recognition about them.
4. Production Technology A (Construction Materials)
- (122) Operational technology is almost transferred and adapted.
- (Others) Due to lack of personnel and delay of building construction, the schedule were very delayed.
- Transfer and Adaptation of technologies under Categories 4 and 5 are one of most important for CRDC's functions; continuing cooperation efforts are necessary to the maximum extent.
5. Production Technology B (Other Products and Common Technology)
- (2241) Almost achieved
- (Others) Schedules were very delayed by same reasons as Category 4 (others).
6. Production Technology C (Refractory)
- (125) Started from February, 1979, Now introduction step, because of lack of personnel and delay of building constructions.
- (2251) Not yet started.

7. Ceramic Equipment

This Category also delayed from original schedule, but it is recognized that more time than original schedule is needed.

These technologies are basically important to develop the cottage and small-scale ceramic industries.

II TRAINING
OF
MANPOWER

8. Staff Training (2511) almost achieved as planned

9. Instructor Training

Implementation is limited due to availability of facilities and instructing personnel. In 1979, 25 trainees were accommodated by CRDC.

10. Technical Service

Several technical services are requested from ministries and private companies. These are also useful to improve Center's technical potentialities and public relations, but also to be implemented with then available capacity and capability.

Services have been rendered with available resources and capability from time to time. In 1979, following services were rendered.

- test and analysis (request) 133
- information/consultancy service 116
- field assistance 49

III PROMOTION
OF
LOCAL
CERAMIC
INDUSTRIES

Self-reliant assistance by CRDC Staff without Japanese experts' assistance - at earliest possible time is of essential importance for CRDC's self-reliant operation in future.

11. Local Facilities (2213-1,2,3,4) Targets are being achieved
(131,2312) Activities are in initial stage only.

01. Management System (See section III.2 & 3 of this report)

02. Physical Facilities (See Section III.1 of this report)

FIGURE A

PLANNED FUNCTIONAL CHART
 CERAMIC RESEARCH AND DEVELOPMENT CENTER

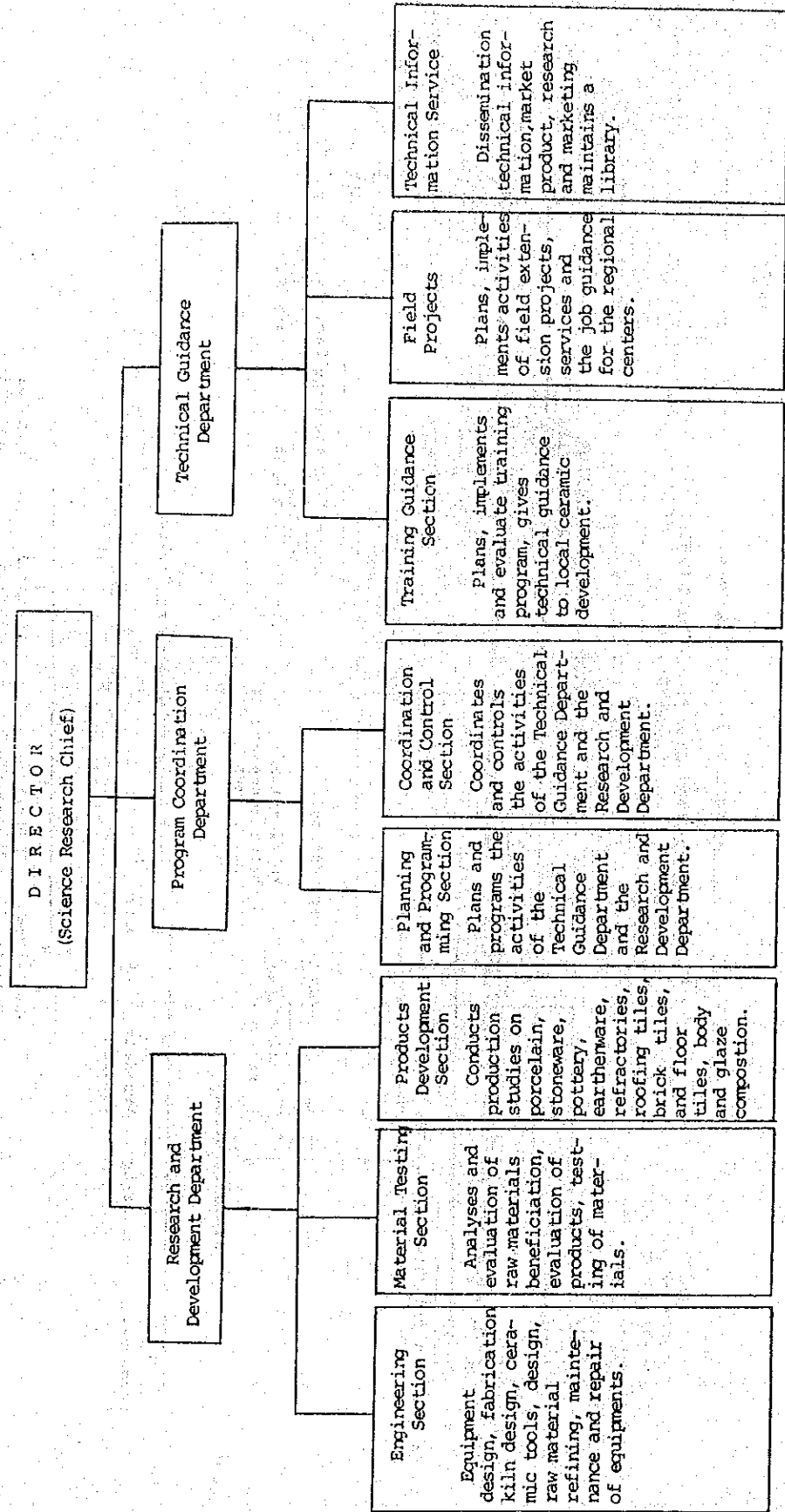


Figure B

INTERNAL ORGANIZATIONAL CHART
of
CERAMIC RESEARCH & DEVELOPMENT CENTER
(Actual)

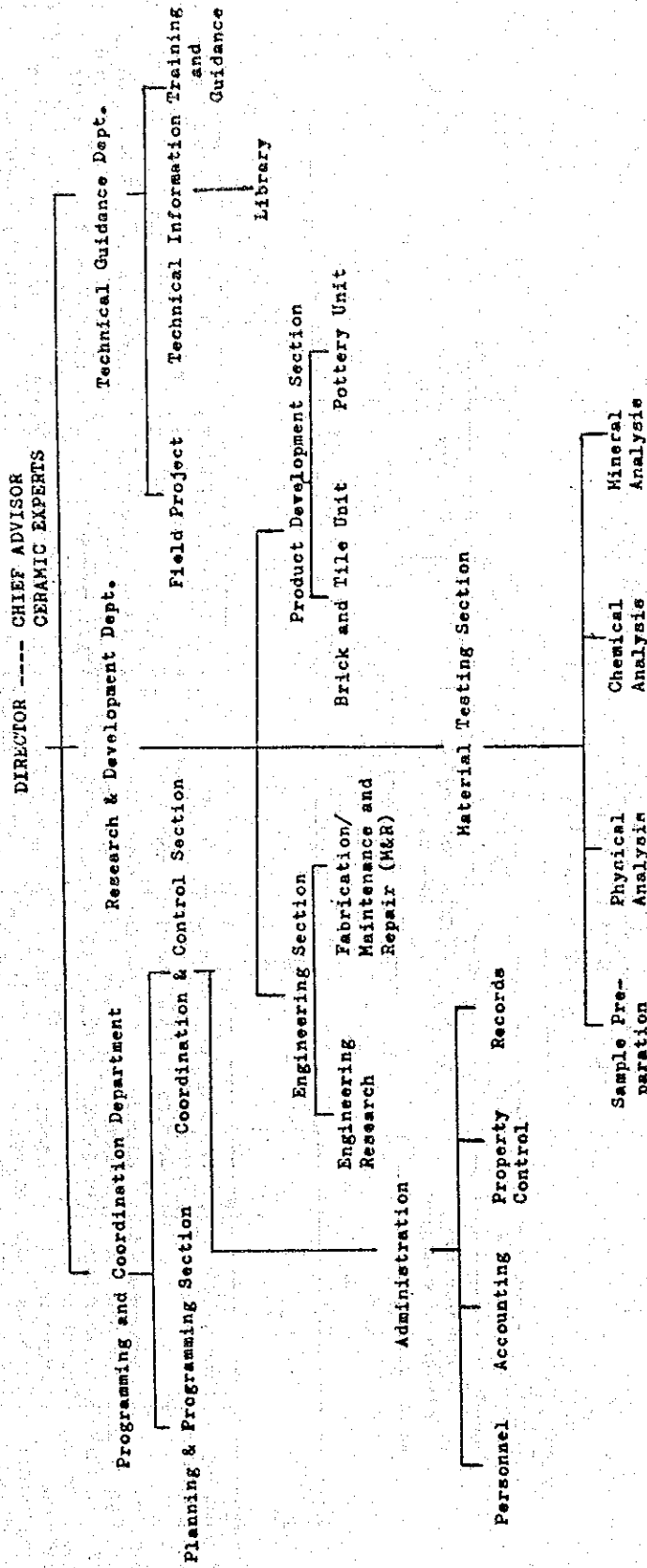
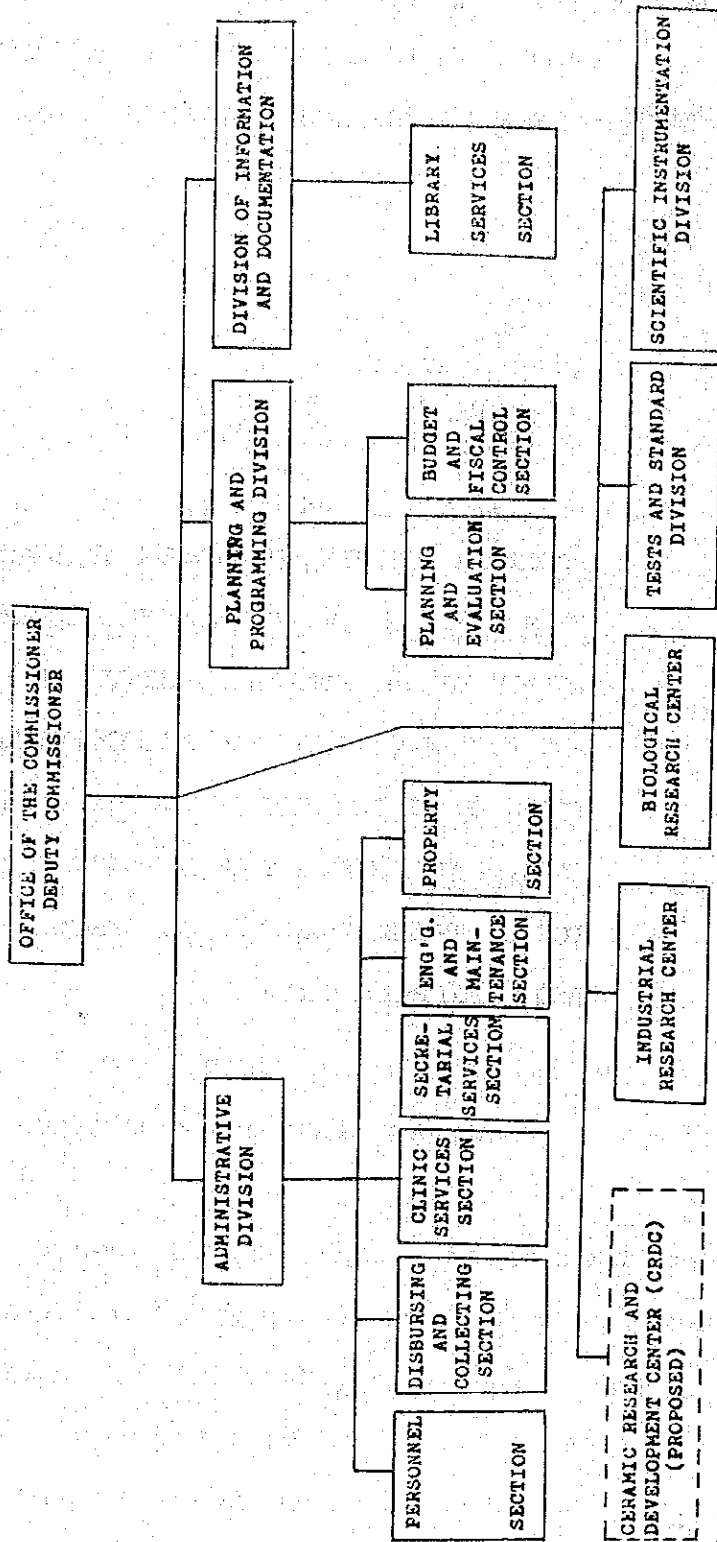


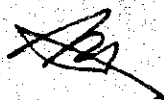
Figure C

ORGANIZATIONAL CHART
(Projected)
NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY



V. 討 議 議 事 録 (R/D)

RECORD OF DISCUSSIONS BETWEEN THE EVALUATION
TEAM OF THE JAPAN INTERNATIONAL COOPERATION
AGENCY AND THE NATIONAL INSTITUTE OF SCIENCE
AND TECHNOLOGY, NATIONAL SCIENCE DEVELOPMENT
BOARD OF THE REPUBLIC OF THE PHILIPPINES CON-
CERNING THE EXTENSION OF TECHNICAL COOPERATION
FOR THE ESTABLISHMENT OF THE CERAMIC RESEARCH
AND DEVELOPMENT CENTER.



THE RECORD OF DISCUSSIONS
CONCERNING THE TECHNICAL COOPERATION
FOR THE ESTABLISHMENT OF CERAMIC RESEARCH AND DEVELOPMENT CENTER
IN THE PHILIPPINES

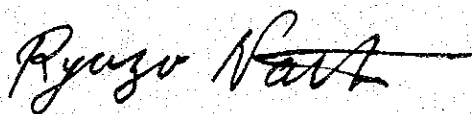
The Evaluation Team sent to assess the Japanese Technical Cooperation Program to establish the Ceramics Research and Development Center (hereinafter referred to as the CRDC) organized by the Japan International Cooperation Agency (hereinafter referred to as JICA) headed by Dr. Ryuzoh Naitoh, Senior Technical Adviser of JICA, visited the Republic of the Philippines from 1-15 May 1980. They exchanged views and had a series of discussions with Philippine representatives for the purpose of evaluating the achievements of the Technical Cooperation for the CRDC.

As a result of their discussions, both parties agreed to make the following recommendations to their respective governments:

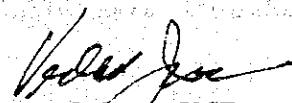
1. Further Japanese Technical Cooperation is still needed in order to attain the objectives of the Program. It was found that the Technical Cooperation so far, has achieved the projected results to a considerable extent in the transfer and adaptation of ceramic technologies, training of manpower and promotion of local ceramic industries.

2. In view of this evaluation, it is recommended that the period of Technical Cooperation as defined in the Record of Discussions, signed in Manila on 16 July 1976, between the Japanese Implementation Survey Team of the Japan International Cooperation Agency, the National Institute of Science and Technology and the National Science Development Board of the Republic of the Philippines, on the establishment of the CRDC, is to be further extended until 15 July 1982.

Manila, 14 May 1980



DR. RYUZOH NAITOH
Leader
Evaluation Team
Japan International Cooperation
Agency

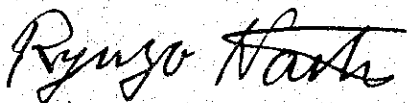


DR. VEDASTO B. JOSE
Commissioner
National Institute of Science
and Technology
National Science Development
Board

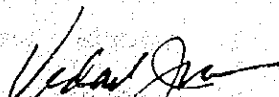
AGREED FRAME-WORK ON FURTHER TECHNICAL COOPERATION PROGRAM
July 16, 1980 to July 15, 1982

- I. Pursuant to the findings embodied in the Evaluation Report, the provisions of the attached Implementation Program of Activities described in the succeeding pages are deemed adequate to attain the objectives of R/D on the establishment of Ceramic Research and Development Center.
- II. It is understood that the implementation of this program is subject to availability of funds, manpower and other necessary resources. Both parties however, are enjoined to make the necessary contributions in furtherance of the objectives of the Program.

Manila, May 14, 1980



DR. RYUZOH NAITOH
Leader
Evaluation Team
Japan International Cooperation
Agency



DR. VEDASTO R. JOSE
Commissioner
National Institute of Science
and Technology
National Science Development
Board

COOPERATION TO BE PROVIDED BY THE
GOVERNMENT OF JAPAN

I. Dispatch of Japanese Experts

The number and fields of specialization of long-term experts will be approximately the same as in the past.

In addition, short-term experts will be assigned particularly for guidance and training on the following areas:

1. Maintenance and repair
2. In specific fields and other aspects to be identified from time to time

II. Japan's Provision of Equipment

Almost all of equipment which have been scheduled for provision to CRDC have already been provided. Hereafter, mainly supplemental equipment, devices, special expendables and sundry for the optimum operation of CRDC will be provided.

III. Training of Philippine Counterparts in Japan.

Japan will accept CRDC counterparts for training in Japan with emphasis on advanced training on the following areas:

1. Material Research
2. Production Technology
3. Management - will be conducted when necessary

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COOPERATION TO BE PROVIDED BY THE GOVERNMENT
OF THE REPUBLIC OF THE PHILIPPINES

- I. Creation of an Inter-Agency Task Force composed of the NSDB/NIST/CRDC to support the latter in coordinating and implementing the necessary programs designed to make CRDC reach a self-reliant stage.
- II. Official institutionalization of CRDC within the NIST organization for which request is already submitted to budget authority
- III. Budget appropriation for the full and stable operation of the Ceramic Research and Development Center.
- IV. Staff recruitment and development to insure full and sustained operation of CRDC.
- V. Improvement of building facilities and utilities as cited in the Evaluation Report at the earliest time possible within this year.
- VI. Incentive plan for CRDC staff to maximize contribution, up-grade performance, and insure stability of the CRDC.

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Implementation Program of Activities
July 16, 1980 - July 15, 1982

Subject Area	Estimated Achievement by July 15, 1980	Expected Achievement during July 16, 1980-July 15, 1982	Corresponding CRXC Program of Activities
<p>• Test and Research on Raw Materials</p>	<p>Survey of important areas</p> <p>Training of examination technique</p> <p>Test of raw materials in Luzon, Visayas, Mindanao etc.</p> <p>Mapping of raw materials for distribution, characteristics, etc</p> <p>Establishment of ability in examination and determination</p> <p>Training of ability in testing of application of raw materials and auxiliary materials</p> <p>Understanding of properties and application of raw materials</p> <p>Arrangement and use of experimental data</p> <p>Understanding of knowledge concerning technique and result of the test</p>		<p>Category 1,2,3,4,5,6,7</p>

1) Transfer and
Adaptation of
Ceramic
Technologies

Subject Area	Estimated Achievement by July 15, 1980	Expected Achievement During July 16, 1980~July 15, 1982	Corresponding CRXC Program of Activities
<ul style="list-style-type: none"> Production Techniques 	<ul style="list-style-type: none"> Mastering of handling processing equipment and machine for materials Mastering of production technique of body, glazed, pigment Technical training of moulding and forming needed for ceramic production, studying of forming technique and related basic knowledge Upgrading of technique by arranging research system Understanding of raw materials effectiveness of works Promotion of consciousness of conducting research 	<ul style="list-style-type: none"> Mastering of handling processing equipment and machine for materials Mastering of production technique of body, glazed, pigment Technical training of moulding and forming needed for ceramic production, studying of forming technique and related basic knowledge Upgrading of technique by arranging research system Understanding of raw materials effectiveness of works Promotion of consciousness of conducting research 	Category 3,4,5,6
<ul style="list-style-type: none"> Kiln and Firing Techniques 	<ul style="list-style-type: none"> Studying of basic knowledge about fuels and firing Basic training in processing of kiln materials Treatment of raw and processed materials for kiln fabrication and its quality test Making of kiln accessories and application test 	<ul style="list-style-type: none"> Studying of basic knowledge about fuels and firing Basic training in processing of kiln materials Treatment of raw and processed materials for kiln fabrication and its quality test Making of kiln accessories and application test 	Category 3,4,5,6,7

Subject Area	Estimated Achievement by July 15, 1980	Expected Achievement During July 16, 1980-July 15, 1982	
Market Research and Development of Products	Training of firing kinds of ceramics	technique for different	
	Technical advance and establishment by means of fabricating trial kiln	Basic study of sejer's cone and its trial production	
	Stock control of related materials and establishment of their regulating system	Technical advance and research on firing for different materials and shapes	
	Full arrangement of facilities and production	Statistical research on ceramic products by items	
	Scientific quality test of products and research on actual situation of production	Research on trend of consumption patterns of commoner and research on available materials	
	Mastering of knowledge about ceramics in its context Research on national character and environ- ment	Investigation of standard of articles and their data collection	

Corresponding CRDC
Program of Activities

Category 3, 4, 5, 6, 8, 9,
10, 11

Subject Area	Estimated Achievement by July 15, 1980	Expected Achievement During July 16, 1980-July 15, 1982	Corresponding CRDC Program of Activities
	<p>Judgment of analyzed data and its services for diffusion</p> <p>Technical care for articles partially defected</p> <p>Trial production</p> <p>Designing and trial production of daily goods based on basic knowledge and data</p> <p>Research work and implementation for establishment of standardization system</p>		
Technical Staff	Training in Japan	*Emphasis on advanced training	
Local Staff	Training in the Center		
Management Staff	Training in the Center		
	Training in Japan		
	Training in the Center		

(2) Training of Manpower

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Subject Area	Estimated Achievement by July 15, 1980.	Expected Achievement During July 16, 1980-July 15, 1982	Corresponding CRDC Program of Activities
<ul style="list-style-type: none"> Training, Guidance and diffusion of Production Techniques 	<ul style="list-style-type: none"> Technical Services Information Services Training ... Courses, Seminars Extension guidance ... guidance and propagation of products 		Category 8,9,10,11
<ul style="list-style-type: none"> Training, Guidance and Diffusion of Management Techniques 	<ul style="list-style-type: none"> Training ... Course, Seminars Extension guidance ... diagnosis of business management 		
<ul style="list-style-type: none"> Training, Guidance and Diffusion of Marketing Technique Information Services 	<ul style="list-style-type: none"> Training, Extension guidance, Cooperative works, Organization, Ceramic contest, etc. Mediation of testing at request Technical consultation Management Consultation Public relations, etc. 		

(3) Promotion of Local Ceramic Industries

参 考 資 料

I. 討 議 議 事 錄 (前)

1. 英 文

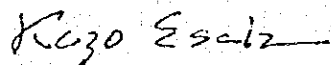
RECORD OF DISCUSSIONS BETWEEN THE
JAPANESE IMPLEMENTATION SURVEY TEAM OF
THE JAPAN INTERNATIONAL COOPERATION AGENCY
AND THE NATIONAL SCIENCE DEVELOPMENT BOARD
OF THE REPUBLIC OF THE PHILIPPINES ON THE
ESTABLISHMENT OF THE CERAMIC RESEARCH
AND DEVELOPMENT CENTER

The Government of the Republic of the Philippines intends to establish the Ceramic Research and Development Center (CRDC) for the purpose of promotion and development of ceramic industries in the Philippines.

On the basis of the reports and recommendations of the Japanese Preliminary Survey Team dispatched by the Japan International Cooperation Agency (JICA) in October, 1975, the Japanese Implementation Survey Team organized by the JICA, headed by Mr. Kozo Esaki visited the Republic of the Philippines on June 28, 1976, for the purpose of working out the details of the technical cooperation program to establish the CRDC between the government of Japan and the Government of the Republic of the Philippines. The Team has discussed and studied with the Philippine counterparts a number of points in question with respect to the establishment of the Center for its effective implementation and management.

As a result of careful studies and discussions, the Japanese Implementation Survey Team and the National Science Development Board will recommend to their respective Governments the immediate implementation of the technical cooperation for the establishment of the Ceramic Research and Development Center as specified in the Record of Discussions and its Annexes attached hereto.

July 16, 1976

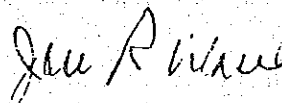


KOZO ESAKI

Head

Japanese Implementation Survey Team

Japan International Cooperation Agency



JOSE R. VELASCO

Commissioner

National Institute of Science and Technology

National Science Development Board

RECORD OF DISCUSSIONS

I. The Establishment of the Center

- (1) The two Governments through their authorities concerned will cooperate in implementing the establishment of the Ceramic Research and Development Center (hereinafter referred to as "The Center") in the Republic of the Philippines.
- (2) The Center is outlined as follows:
 - i. The Ceramic Research and Development Center has three major functions:
 - a. Transfer and Adaptation of Ceramic Technologies
 - b. Training of Manpower
 - c. Promotion of Local Ceramic Industries
 - ii. The establishment of the Center consists of four phases, while the term before the actual operation is called Preparation:
 - a. Phase 0 : Preparation
 - b. Phase I : Basic Establishment
 - c. Phase II : Development
 - d. Phase III : Self-Reliance
 - iii. Activities of the Center are mainly carried out by the Philippine staff members with assistance of Japanese experts.
 - iv. The Center will enter into operation at the earliest possible date in 1978.

II. Japanese Experts

- (1) In accordance with laws and regulations in force in Japan, the Japanese authorities concerned will take necessary measures to provide at their own expense the services of Japanese experts as listed in Annex 1 through the normal procedures under the Colombo Plan Technical Cooperation Scheme.
- (2) In accordance with laws and regulations in force in the Philippines, the Japanese experts mentioned above and their dependents will be granted in the Philippines, privileges, exemptions and benefits including customs duties and taxes on personal and household effects of reasonable amount as well as one motor car for each expert to be re-exported on termination of tour of duty, unless resold and necessary taxes therefore paid, and exemption from income tax within the framework of the Colombo Plan Technical Cooperation Scheme.

III. Japan's Provision of Equipment

- (1) In accordance with laws and regulations in force in Japan, the Japanese authorities concerned will take necessary measures to provide at their own expense such equipment, machinery, instruments, vehicles, and other materials as listed in Annex 2, which are required for the Center, through the normal procedures under the Colombo Plan Technical Cooperation Scheme.

- (2) The articles referred to the above III:(1) will become the property of the Government of the Republic of the Philippines upon being delivered c.i.f. to the Philippine authorities concerned at the ports and/or airports of disembarkation, and will be utilized exclusively for the establishment of the Center.

IV. Philippine Counterparts

- (1) In accordance with laws and regulations in force in Japan, the Japanese authorities concerned will take necessary measures to receive the Philippine personnel engaged in the activities of the Center for technical training, management study, or observational study in Japan through the normal procedures under the Colombo Plan Technical Cooperation Scheme.
- (2) The Government of the Republic of the Philippines through the authorities concerned will take necessary measures to ensure that the knowledge and experience acquired by the Philippine personnel from technical training and studies in Japan will be utilized for the effective implementation of the program and management of the Center.

V. Arrangement of the Government of the Republic of the Philippines

- (1) In accordance with laws and regulations in force in the Philippines, the Government of the Republic of the Philippines through the authorities concerned will take necessary measures to provide at their own expense:
 - a. Acquisition of land and buildings as shown in Annex 3 as well as other incidental utilities required therefore;
 - b. Supply or replacement of equipment, machinery, instruments, vehicles, tools, spare parts, office equipment and stationaries, etc. and other materials necessary for the establishment of the Center other than those provided by the Japanese authorities concerned referred to in Article III-(1);
 - c. Staffing of the Center as shown in Annex 4;
 - d. Office rooms for Japanese experts;
 - e. Services of the Philippine secretaries and chauffeurs to the Japanese experts while engaged in the activities of the Center;
 - f. Board & lodging allowances for the Japanese experts within the framework of the Colombo Plan Technical Cooperation Scheme.
- (2) In accordance with laws and regulations in force in the Philippines, the Government of the Republic of the Philippines through the authorities concerned will take necessary measures to meet:
 - a. Expenses necessary for transportation within the Philippines of the articles as listed in Annex 2 as well as for the installation, operation, and maintenance thereof;
 - b. Customs duties, internal taxes and any other charges, if any, imposed in the Philippines upon the articles to be brought in from Japan as listed in Annex 2 for the establishment of the Center;

- c. All running expenses necessary for the establishment and activities of the Center;
- d. Cost of internal travel of the Japanese experts on official business within the framework of the Colombo Plan Technical Cooperation Scheme;
- e. Medical services and facilities for the Japanese experts and their dependents within the framework of the Colombo Plan Technical Cooperation Scheme.

VI. Administration of the Center

The Chairman of the National Science Development Board, through the Commissioner of the National Institute of Science and Technology of the Government of the Republic of the Philippines will bear the overall responsibility for the establishment of the Center. The Head of the Center, under the supervision and direction of the Commissioner will be responsible for the administration of the establishment and activities of the Center. Japanese Chief Advisor with the support of the Japanese experts will take appropriate care on technical matters and will provide necessary technical and managerial advices for the Center in close coordination with Philippine counterparts concerned.

VII. Claims against Japanese Experts

The Government of the Republic of the Philippines through the authorities concerned will undertake to bear claims for damages by third parties against Japanese experts engaged in the activities of the Center, resulting from any accidents or unforeseen events while discharging their official functions in the Philippines, except for those claims arising from willful misconduct or gross negligence of the Japanese experts.

VIII. Mutual Consultation

There will be close consultation between both authorities concerned for the successful implementation of the establishment of the Center.

IX. Terms of Cooperation

- (1) The period of technical cooperation mentioned in this record of discussions will be four years.
- (2) This record of discussions will serve as a basis for the implementation of the project. A work plan for each year will be developed and agreed upon by both authorities concerned.

Annex 1. Japanese Experts

In order to implement the technical cooperation program the following Japanese experts who are expected to render such technical services as conducting field surveys and on-the-job manpower training and providing advices and guidances with respect to the programming of the Center's activities, basic techniques for testing and analysis of raw materials, production techniques of ceramic products, latest knowledge on ceramic technologies and other actions for the promotion and development of local ceramic industries in the Philippines, will be sent to the Center:

Chief Advisor

Experts in the fields of:

- Applied Mineralogy
- Beneficiation of Raw Materials
- Chemical Analysis
- Physical Property Test
- Construction of Furnace (Kiln)
- Production of Ceramic Products
- Marketing
- Industrial Management
- Program Analysis

Japanese experts are also expected to keep close liaison and coordination with those concerned for the Center.

If necessary, short term experts will be sent to the Center.

At any time, not more than ten experts will be assigned to the Center including short term experts.

Annex 2. Japan's Provision of Equipment

(1) Criteria

The equipment to be provided by the Japanese authorities concerned will be selected on the following criteria:

- i. To exclude the equipment which is locally available in the Philippines
- ii. To exclude those equipment which requires extremely high level of technologies
- iii. To reduce accessories of lesser importance which are not vital to the functions of the equipment

(2) List of Equipment

The main articles to be provided by the Japanese authorities concerned will be as follows:

- i. Test and Research
 - Pyrometer
 - X-ray Diffractometer
 - Atomic Absorption Spectrophotometer
 - Flame Photometer
 - Scanning Electron Microscope

Distiller
Electric Drying Oven
Balance
Sedimentograph
Universal Testing Machine
TG and DTA
Dilatometer
Microscope
Viscometer
Tools for Field Work
Data Cards
Autoclave
Tester
Calculator
Copying Apparatus
Impact Strength Apparatus
Whiteness Meter
Color Standards

ii. Test Production Unit: Construction Materials

Crusher
Edge Runner
Brick Cutter
Box Feeder
Screen
Pug Mill
Mixer
Oil Furnace

iii. Test Production Unit: Pottery

Stamp Mill
Ball Mill
Pot Mill
Stirrer
Ferro-Filter
Filter Press
Deairing Pug Mill
Kneading Machine
Jigger
Grinding Machine
Press
Vacuum Casting Outfit
Screen Transfer Outfit

- Glazing Outfit
- Gas Furnace
- Electric Furnace
- Disintegrator
- Boring Machine
- Intaglio Printing Machine
- Small Articles for Ceramic Production

iv. Others:

- Audio-Visual Apparatus
- Land Cruiser
- Tools for Repair and Maintenance

Annex 3. Land and Buildings

The space of land and buildings necessary for effective implementation of activities of the Center will be prepared in the Science Development Community Complex. The detailed layout Plan of the Center will be made up, on which the interior arrangement including partition, rooming, installation of utilities, air conditioning, ventilation, security measures against X-ray and fires, etc. will be completed by the third quarter in 1977.

The following rooms will be provided in the building:

- Offices for the Staff
- Offices for Japanese Experts
- Training Rooms
- Laboratories (Testing and Analysis)
- Laboratories (Product Development)
- Rooms for Test Production Unit for Construction Materials
- Rooms for Test Production Unit for Pottery
- Library
- Conference Room
- Others

Annex 4. Philippine Staff Required at the Ceramic Research and Development Center

Director

Technical Staff

- a. Senior Researchers
- b. Junior Researchers
- c. Technologists
- d. Skilled Workers

Administrative Staff

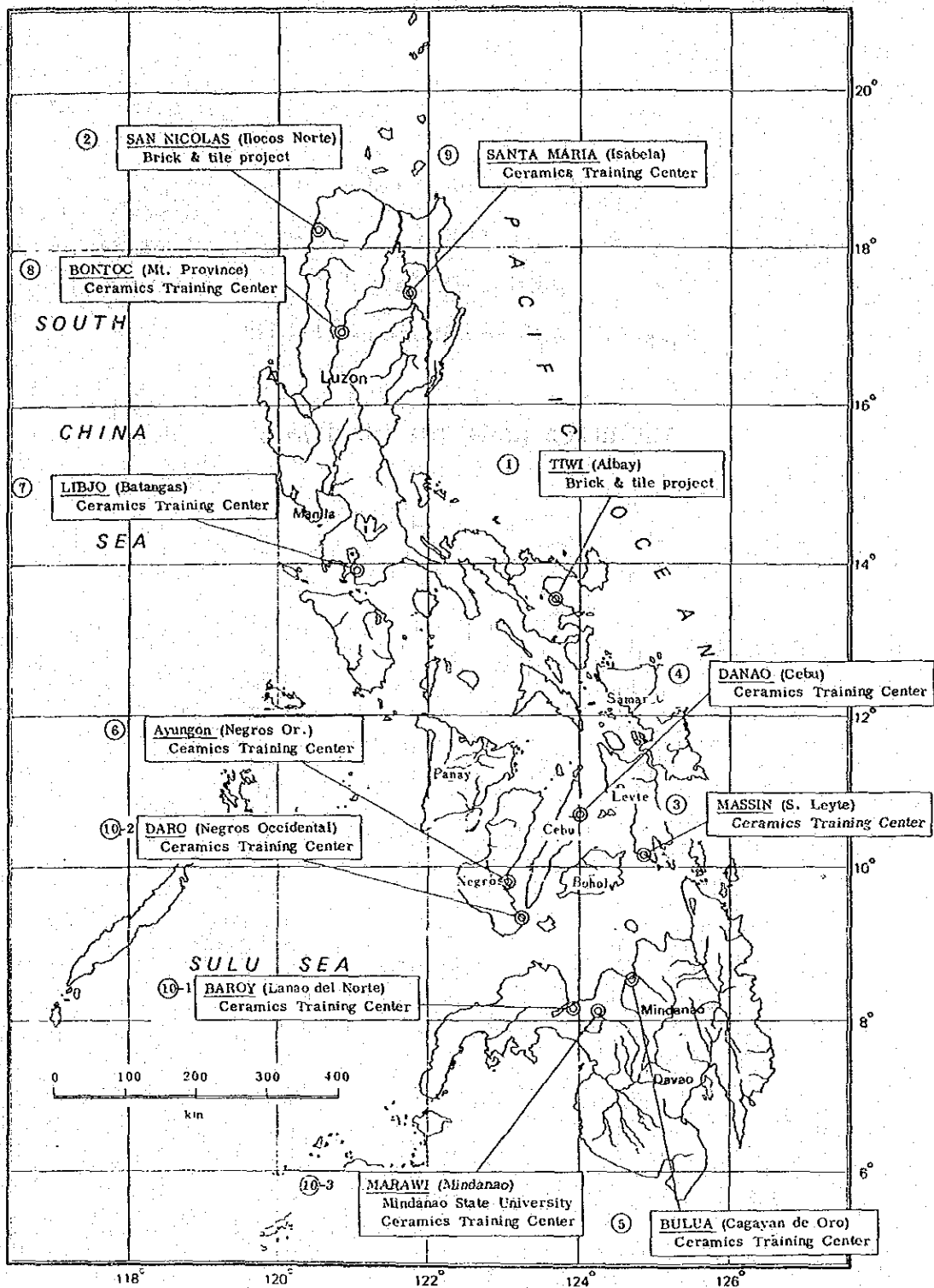
- a. Administrative Officers
- b. Clerical Staff
- c. Utility Staff

II. ディスカッションペーパー

DISCUSSION PAPER
FOR
NATIONAL CERAMICS
RESEARCH AND DEVELOPMENT CENTER
IN
THE REPUBLIC OF THE PHILIPPINES

June, 1976

Japanese Implementation Survey Team sent by JICA



1. Objective and the Scope of Work of the Japanese Implementation Survey Team

The Japanese Implementation Survey Team sent by the Japan International Cooperation Agency is expected to complete the following scope of work assigned in the Philippines in order to realize Japan's technical cooperation in the establishment of the proposed National Ceramics Research and Development Center:

- (1) To clarify and make up the basic plan of the National Ceramics Research and Development Center;
- (2) To determine the methods for the implementation of the technical cooperation program and confirm the schedules thereof;
- (3) To identify the responsibility of each party concerned for the implementation of the said program;
- (4) To study on local conditions of ceramic industries, prospective demand for ceramic products, conditions of the related industries to ceramics, and the working conditions of Japanese experts when implemented, which are required for the effective implementation of the establishment of the NCRDC.

Upon the mutual consent on the technical cooperation program for the establishment of the NCRDC, the discussions between the two parties will be summarized in the form of the Record of Discussions, which will be signed by both parties as the basis of the implementation of the technical cooperation program.

2. Procedures of Discussions

Part One Preliminary Session

1. Objective and the scope of work of the Japanese Implementation Survey Team
2. Procedures of Discussions
3. Scheduling of the Japanese Team in the Philippines
4. Orientation about the Present IRC by the IRC Staff for the Japanese Team (Activities and staffing, etc.)

Part Two Discussion Session

- I. The Establishment of the Center
 1. Objectives of the establishment
 2. Administrative status of the Center
- II. Functions and Activities of the Center
 1. Functions
 2. Programs of the activities
 - (1) Phases and schedules
 - (2) Activities

- III. Organization of the Center
 - 1. Organization
 - 2. Staffing
- IV. Equipment
 - 1. Equipment for the activities
 - 2. Office equipment and furnitures
- V. Land and Buildings
 - 1. Land
 - 2. Buildings and facilities
 - 3. Utilities
- VI. Japan's Technical Cooperation
 - 1. Japanese experts
 - 2. Japan's provision of equipment
 - 3. Philippine counterparts for training and study in Japan
- VII. Philippine's Preparation
 - 1. Layout plan
 - 2. Partition and arrangement of the buildings and facilities
 - 3. Procurement of equipment and goods
 - 4. Staffing
 - 5. Cost estimates and budgeting
 - 6. Arrangement of Philippine counterparts to be trained in Japan for 1976/77

Part Three Conclusive Session

- 1. Objectives of the "Record of Discussions"
- 2. Contents of the "Record of Discussions"

Re. Field Studies

Candidate places to visit:

Tuguegarro, Tiwi, One place in Mindanao or elsewhere

3. Scheduling of the Japanese Team in the Philippines (Proposed by the Team)

Dates	w	AM	PM
June 28	M	Tokyo-Manila	To discuss with Embassy of Japan and JICA Manila Office
29	T	Part One, 1-3	Part One, 4
30	W	Part Two, I-1, 2, II	Part Two, II & III
July 1	Th	Part Two, IV & V	Part Two, IV & V
2	F	Part Two, VI	Part Two, VII
3	Sa	Preparation Day	
4	S		Departure for the field study
5	M	Field Study	Field Study
6	T	Field Study	Back from the Field Study
7	W	Specific Discussions	- do -
8	Th	- do -	- do -
9	F	Preparation	RD - first drafting
10	Sa	Departure for the Field Study	Field Study
11	S	Field Study	- do -
12	M	- do -	Back from the Field Study
13	T	Discussions for the contents of the Record of Discussions	
14	W	- do -	
15	Th	- do -	
16	F	Final Session	To discuss with Embassy of Japan and JICA Manila Office
17	Sa	The Team's Work for Summarizing the Surveys	
18	S	Departure for Tokyo by JL748 at 10:20	

I-1. Objective of the Establishment

The Government of the Republic of the Philippines intends to establish the National Ceramics Research and Development Center (NCRDC) for the purpose of promoting and developing ceramic industries in the Philippines.

The NCRDC is going to be established by renewing the present capacity of the Department of Ceramics in the Industrial Research Center with the technical cooperation from a foreign country (Japan).

I-2. Administrative Status of the Center

The NCRDC (hereinafter referred to as the "Center") will be given an independent administrative status, equivalent to the IRC, under the supervision of the National Institute of Science and Technology and the National Science Development Board of the Government of the Republic of the Philippines, upon the completion of the establishment.

Chairman of the National Science Development Board of the Government of the Republic of the Philippines will bear overall responsibility for the establishment of the Center. Director of the Center under the supervision and direction of the Chairman will be responsible for the administrative matters of the establishment and activities of the Center.

II-1. Functions of the Center

Functions of the Center are largely three: (1) Transfer and Adaptation of Ceramic Technologies, (2) Training of Manpower, and (3) Promotion of the Local Ceramic Industries. Hereinafter, "ceramics" is meant by those products such as porcelain, earthenware, stoneware, and clayware.

(1) Transfer and Adaptation of Ceramic Technologies

A. Test and research for raw materials

- a. Geological survey and development of raw materials
- b. Analysis of raw materials
 - Chemical analysis
 - Mineralogical analysis
 - Thermal character test
- c. Test of raw materials
 - Grain size distribution, plasticity, viscosity and etc.
- d. Application test of raw materials
 - Refining, mixing, and firing
- e. Examination and research on
 - Auxiliary materials
- f. Checking of quality of raw materials

B. Production techniques

- a. Technique of grinding, mixing and kneading for materials
- b. Production of body, glaze and pigment
- c. Technique of moulding and forming

C. Kiln and firing techniques

- a. Design and fabrication of kiln
- b. Kiln materials, furniture and accessories
- c. Firing technique
- d. Manufacturing of Seger's cone

D. Marketing and development of new products

- a. Market research for ceramic products
- b. Improvement of existing products
- c. Development of new products
- d. Studying of design
- e. Standardization of finished products
- f. Institutional set up of those standards
- g. Improvement of packaging for transportation

(2) Training of Manpower

- A. Training of technical staff in the Center
 - a. Researchers
 - b. Instructors
 - c. Workers
- B. Training of local technical staff
 - a. Technical guidance staff
- C. Training of instructors in technical schools
 - a. Retraining of instructors
- D. Training of management of the Center
 - a. Training of the management staff

(3) Promotion of Local Ceramic Industries

- A. Training, guidance and diffusion of production techniques
 - a. Preparation techniques
 - b. Production techniques
 - c. Kiln and firing techniques
- B. Training guidance and diffusion of management techniques
 - a. Training
 - b. Extension guidance
- C. Training guidance and diffusion of marketing techniques
 - a. Training
 - b. Extension guidance
 - c. Cooperative works
 - d. Organization
 - e. Ceramic contests, etc.
- D. Information services
 - a. Mediation of testing at request
 - b. Technical consultation
 - c. Management consultation
 - d. Public relations, etc.

(4) Others Necessary for the Development of Ceramic Industries

II-2. Programs of the Activities

(1) Programs of the National Ceramic Research and Development Center are expected to be divided into four phases including the initial term of Preparation:

Phase 0	: Preparation	(one and half year)
Phase I	: Basic Establishment	(two years)
Phase II	: Development	(one year)
Phase III	: Self Reliance	(the fourth year onward)

Detailed programs of the activities are shown in the attached sheets.

Functions and responsibilities of the Headquarter and Regional Training Centers

The Headquarter retains all the technologies about ceramics necessary in the Philippines as the ceramic center of the country. It undertakes research, development, and technical guidance in the field of ceramics. It also assists regional centers in training personnels and providing manpower, technologies, and information necessary for the activities of those regional centers.

Regional Training Centers are, with the assistance of the Headquarter, responsible for executing training, guidance, and diffusion of technologies necessary for the promotion of local ceramic industries. At the same time, it provides local ceramic industrialists with the information required.

Activities of the Center

Activities of the Center are mainly carried out by the Philippine staff members with assistance of Japanese experts. The Center will enter into operation at the earliest possible date in 1978.

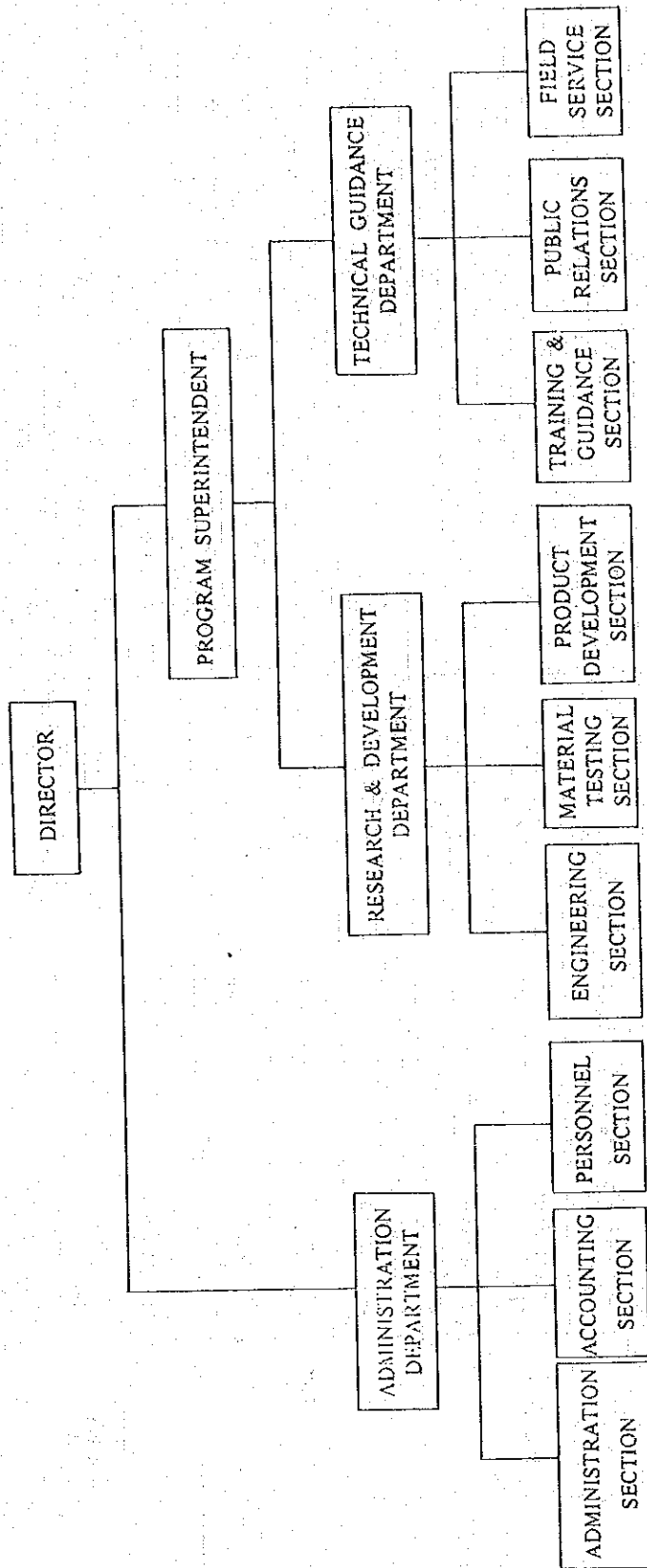
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(1) PROGRAMS FOR TRANSFER AND ADAPTATION OF CERAMIC TECHNOLOGIES

(3) PROGRAMS FOR PROMOTION OF LOCAL CERAMIC INDUSTRIES

Subject	Phase Year	Phase I			Phase II	Phase III			
		Basic Establishment			Development	Self-Reliance			
		1978	1979		1980	1981	1982	1983---	
(1) Transfer & Adaptation of Ceramic Technologies	Test & Research on Raw Materials * Geological survey & beneficiation of raw materials * Analysis of raw materials (chemical, mineralogical, thermal, etc) * Test of raw materials * Checking of quality of raw materials * Refining of raw materials * Examination and research on auxiliary materials * Application test of raw materials	Research on Actual Situation & Preparatory Works	* Survey of important areas * Training of examination technique	* Test of raw materials in Luzon, Visayas, Mindanao, etc.	* Mapping of raw materials for distribution, characteristics, etc.	* Continued (in depth)	Self-Reliant Operation * Additional improvement and upgrading of equipment & facilities for examination and analysis of raw materials * Establishment of researching system		
	Production Techniques * Technique of grinding, mixing & kneading * Production of body, glaze & pigment * Technique of moulding & forming		* Establishment of ability in examination & determination * Training of ability in testing of application of raw materials & auxiliary materials * Understanding of properties & application of raw materials	* Arrangement & use of experimental data * Understanding of Knowledge concerning technique & result of the test	* Upgrading of technique by arranging research system * Understanding of raw materials & effectiveness of works * Promotion of consciousness of conducting research	Self-Reliant Operation * Evaluation of activity * Exhibitions & contest of trial products * Annual plan of research policy & themes			
	Kiln & Firing Techniques * Kiln design & fabrication * Kiln materials, furniture & accessories * Firing technique * Manufacturing of Seger's cone		* Studying of basic knowledge about fuels & firing Basic training in processing of kiln materials * Treatment of raw & processed materials for kiln fabrication & its quality test * Making of kiln accessories & application test * Training of firing technique for different kinds of ceramics * Basic study of Seger's cone & its trial production	* Technical advance & establishment by means of fabricating trial kiln * Stock control of related materials & establishment of their regulating system * Technical advance & research on firing for different materials & shapes * Full arrangement of facilities & Production	Self-Reliant Operation * Guidance for improvement of kiln * Practical guidance for firing * Production & sales of Seger's cone				
	Market Research & Development of Products * Market research for ceramic products * Improvement of existing products * Development of new products * Studying of design * Standardization of finished products * Institutionization of those standards * Improvement of packaging		* Statistical research on ceramic products by items * Scientific quality test of products & research on actual situation of production * Research on trend of consumption patterns of commoners & research on available materials * Mastering of knowledge about ceramics in its context Research on national character & environment * Investigation of standard of articles & their data collection	* Judgement of analysed data & its services for diffusion * Technical care for articles partially diffeeted * Trial production * Designing & trial production of daily goods based on basic knowledge & data * Research work & implementation for establishment of standardization system	Self-Reliant Operation * Exhibition of products & its reference, seminars, etc. * Collection of data for design & its related materials Research & trial production of design * Institutional establishment of standards by kind of products				
(3) Promotion of Local Ceramic Industries	Training, Guidance & Diffusion of Production Techniques * Preparation Techniques * Production Techniques * Kiln & Firing Techniques	Technical services Information services	* Training ... courses seminars * Extension guidance... guidance & proper-gation of products			Self-Reliant Operation * Establishment of guidance system * Annual plan for seminars, etc. * Extension service for guidance			
	Training, Guidance & Diffusion of Management Techniques		* Training...course, seminars * Extension guidance...diagnosis of business management						
	Training, Guidance & Diffusion of Marketing Technique		* Training: Extension guidance: Cooperative works: Organization: Ceramic contest: etc.						
	Information Services		* Mediation of testing at request * Technical consultation * Management consultation * Public relations: etc.						

III-1. TENTATIVE ORGANIZATION CHART OF NATIONAL CERAMIC RESEARCH AND DEVELOPMENT CENTER



IV-1. Equipment for the Activities

The equipment which is to be installed in the Center consists of two parts, namely one for the office use and the other for technical use. The former will be prepared by the Philippine side, while the latter will be provided by the Japanese side within the limited amount of the budget available. A list of the necessary equipment will be made by the discussions of both sides.

V-1, 2, 3. Land, Buildings, and Utilities

The space of land not less than m^2 will be prepared in the National Science Development Community Complex. The detailed Layout Plan of the Center will be made up, on which the interior arrangement including partition, rooming, installation of utilities, air conditioning, security measures against X-ray and fire, etc., are prepared and completed by the Government of the Republic of the Philippines by the third quarter in 1977.

The proposed draft Layout Plan is attached hereto.

V-2. List of Rooms and Facilities (Proposed Draft)

<u>Name of Rooms</u>	<u>Number of persons</u>	<u>Room area (M²)</u>	<u>Number of rooms</u>	<u>Total floor area (M²)</u>
Director's Office	4	40	1	40
Program Superintendent Office	4	40	1	40
Administration Department				
Head Office	2	20	1	20
Administration Section Office	4	40	1	40
Telephone Operation Office	2	20	1	20
Electrician Room	1	40	1	40
Chauffeurs & Roomcleaners RM	5	40	1	40
Accounting Section Office	3	40	1	40
Personnel Section Office	2	40	1	40
Research & Development Department				
Head Office	2	20	1	20
Engineering Section				
Head Office	2	20	1	20
Rest Room	15	40	2	80
Locker RM (Male)		20	1	20
Locker RM (Female)		20	1	20

<u>Name of Rooms</u>	<u>Number of persons</u>	<u>Room area (M²)</u>	<u>Number of rooms</u>	<u>Total floor area (M²)</u>
Material Testing Section				
Head Office	2	20	1	20
Rest Room	16	40	2	80
Locker RM (Male)		20	1	20
Locker RM (Female)		20	1	20
Elutriation Lab		40	1	40
Product Development Section				
Head Office	2	20	1	20
Laboratories	12	40	5	200
Locker RM (Male)		20	1	20
Locker RM (Female)		20	1	20
Technical Guidance Department				
Head Office	2	20	1	20
Training & Guidance Section O.	5	40	1	40
Public Relations Section Office	5	40	1	40
Field Service Section Office	13	40	1	40
Trainees Rest Room		40	2	80
Trainees Locker Room (Male)		20	1	20
Trainees Locker Room (Female)		20	1	20
Library		80	1	80
Reading Room		40	1	40
Class Room		80	1	80
Class Room		40	1	40
Experts Room		40	2	80
Experts Room		20	10	200
Stock RM		40	2	80
Lounge		80	2	160
Conference RM		80	1	80
Conference RM		40	1	40
Auditorium		120	1	120
Exhibition RM		40	1	40
Reception RM		40	1	40
Hot Water Service RM		20	2	40
Toilet RM (Male)		20	4	80
Toilet RM (Female)		20	4	80

<u>Name of Rooms</u>	<u>Number of persons</u>	<u>Room area (M²)</u>	<u>Number of rooms</u>	<u>Total floor area (M²)</u>
Shower RM (Male)		35	2	70
Shower RM (Female)		35	2	70
Chemical Lab		40	3	120
Balance RM		20	2	40
Dark RM		20	1	20
Dark RM		10	1	10
Copy RM		20	2	40
X-ray RM		30	1	30
SEM RM		30	1	30
Microscope RM		40	1	40
Thermal Test RM		40	1	40
Material Testing RM		40	3	120
Preparation RM		40	1	40
Grand Total	103			3130 M ²

VI-1. Japanese Experts

The two Governments through their authorities concerned will cooperate in implementing the establishment of the National Ceramics Research and Development Center in the Republic of the Philippines.

- (1) In accordance with laws and regulations in force in Japan, the Japanese authorities concerned will take necessary measures to provide at their own expense the services of Japanese experts as listed below through the normal procedures under the Colombo Plan Technical Cooperation Scheme.
- (2) In accordance with laws and regulations in force in the Philippines, the Japanese experts mentioned above (II-(1)) and their families will be granted in the Philippines, privileges, exemptions, and benefits including custom duties and taxes on personal and household effects of reasonable amount as well as one motor car for each expert to be re-exported on termination of tour of duty unless resold and necessary taxes therefore paid, and exemption from income tax within the framework of the Colombo Plan Technical Cooperation Scheme.
- (3) In order to implement the technical cooperation program the following Japanese experts will be sent to the Center, who are expected to render such technical services as conducting field surveys and on-the-job manpower training and providing advices and guidances with respect to the programming of the Center's activities, basic techniques for testing and analysis of raw materials, production techniques of ceramic products, latest knowledge on ceramic technologies, and other actions for the promotion and development of local ceramic industries in the Philippines. Japanese experts are also expected to keep close liaison and coordination with those concerned with the Center.

Japanese Experts

Chief Advisor

Coordinator

Experts in the fields of:

Applied Mineralogy

Beneficiation of Raw Materials

Chemical Analysis

Physical Property Test

Construction of Furnace (Kiln)

Production of Ceramic Products

Marketing

Industrial Management

- (4) The Government of the Republic of the Philippines through the authorities concerned will undertake to bear claims, if any accident or unforeseen events arise against the Japanese experts engaged in the activities of the Center resulting from, occurring in the course of, or otherwise connected with, the discharge of their official functions in the Philippines, except for these claims arising from willful misconduct, or gross negligence of the Japanese experts.
- (5) There will be close consultation between both authorities concerned for the successful implementation of the establishment of the Center.

VI-2. Japan's Provision of Equipment

- (1) In accordance with laws and regulations in force in Japan, the Japanese authorities concerned will take necessary measures to provide at their own expense and within the limit of the budget available, such equipment, machinery, instruments, vehicles, and other materials as listed below, which are required for the Center, through the normal procedures under the Colombo Plan Technical Cooperation Scheme.
- (2) The articles referred to the above (III-(1)) will become the property of the Government of the Republic of the Philippines upon being delivered c.i.f. to the Philippine authorities concerned at the ports and/or airports of disembarkation, and will be utilized exclusively for the establishment of the Center.
- (3) The equipment to be provided by the Japanese authorities concerned will be selected on the following criteria:
 - i. To exclude the equipment which is locally available in the Philippines
 - ii. To exclude those equipment which requires extremely high level of technologies
 - iii. To reduce accessories of lesser importance which are not vital to the function of equipment
- (4) The main articles of equipment to be provided by the Japanese authorities concerned are as follows:

VI-3. Philippine Counterparts for Training and Study in Japan

- (1) In accordance with laws and regulations in force in Japan, the Japanese authorities concerned will take necessary measures to receive the Philippine personnel engaged in the activities of the Center for technical training, management study, or observational study in Japan through the normal procedures under the Colombo Plan Technical Cooperation Scheme.
- (2) The Government of the Republic of the Philippines through the authorities concerned will take necessary measures to ensure that the knowledge and experience acquired by the Philippine personnel from technical training and studies in Japan will be utilized for the effective implementation of the program and management of the Center.

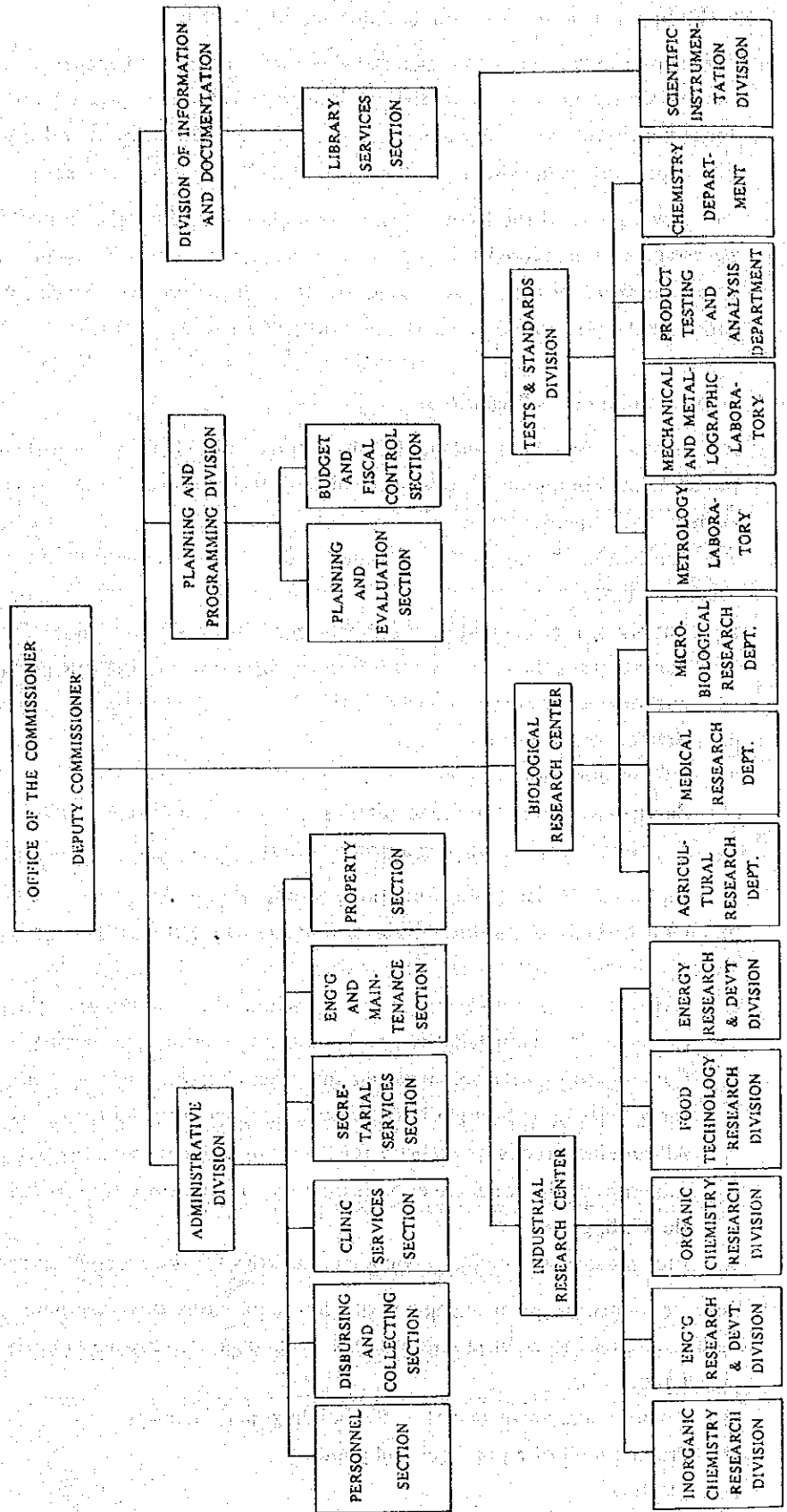
VII-1 to 6. Philippine's Preparation

- (1) In accordance with laws and regulations in force in the Philippines, the Government of the Republic of the Philippines through the authorities concerned will take necessary measures to provide at their own expense:
 - a. Acquisition of land (m²) and buildings as well as other incidental utilities required for the Center;
 - b. Supply or replacement of equipment, machinery, instruments, etc., and other materials necessary for the establishment of the Center other than those provided by the Japanese authorities concerned referred to IV-2;
 - c. Staffing of the Center;
 - d. Office rooms for Japanese experts;
 - e. Services of the Philippine secretaries and chauffeurs to the Japanese experts while on duty;
 - f. Suitably furnished housing accommodations for the Japanese experts and their families.
- (2) In accordance with laws and regulations in force in the Philippines, the Government of the Republic of the Philippines through the authorities concerned will take necessary measures to meet:
 - a. Expenses necessary for transportation within the Philippines of the articles as listed in VI-2 as well as for the installation, operation and maintenance thereof;
 - b. Custom duties, internal taxes and any other charges, if any, imposed in the Philippines upon the articles to be brought in from Japan as listed in VI-2 for the establishment of the Center;
 - c. All running expenses necessary for the establishment and activities of the Center;
 - d. Expenses of the Japanese experts on duty for transportation facilities and internal travel in the Philippines;
 - e. Free medical and dental services and facilities for the Japanese experts and their families.
- (3) Specific points for the arrangement which is required by the Government of the Republic of the Philippines need to be discussed with the Team on the following subjects:
 - i. Layout Plan
 - ii. Partition and arrangement of the buildings and facilities
 - iii. Procurement of equipment and goods
 - iv. Staffing
 - v. Cost estimates and budgeting
 - vi. Arrangement of Philippine counterparts to be trained in Japan for 1976/77

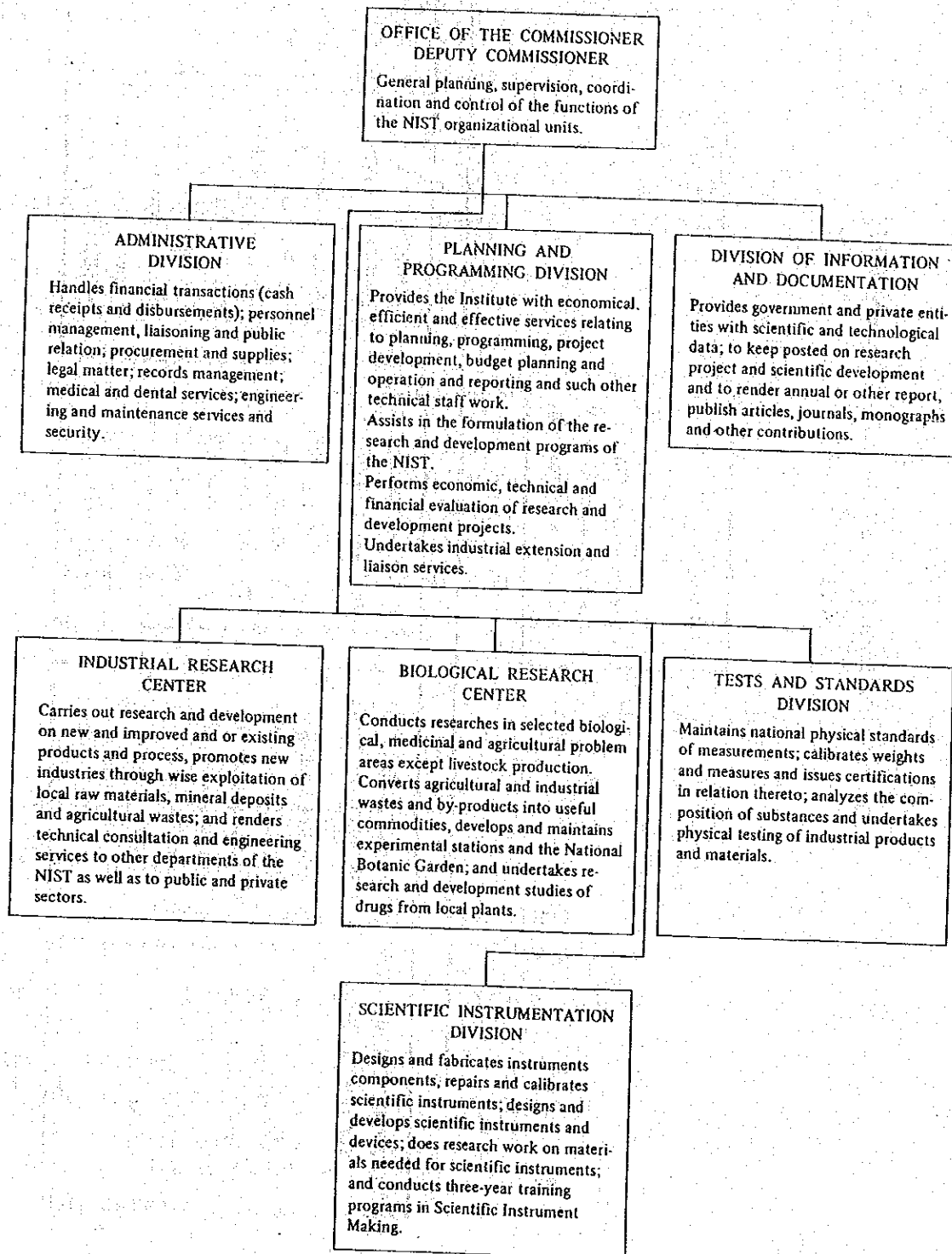
2. NIST 機構圖

2 - A 機構圖

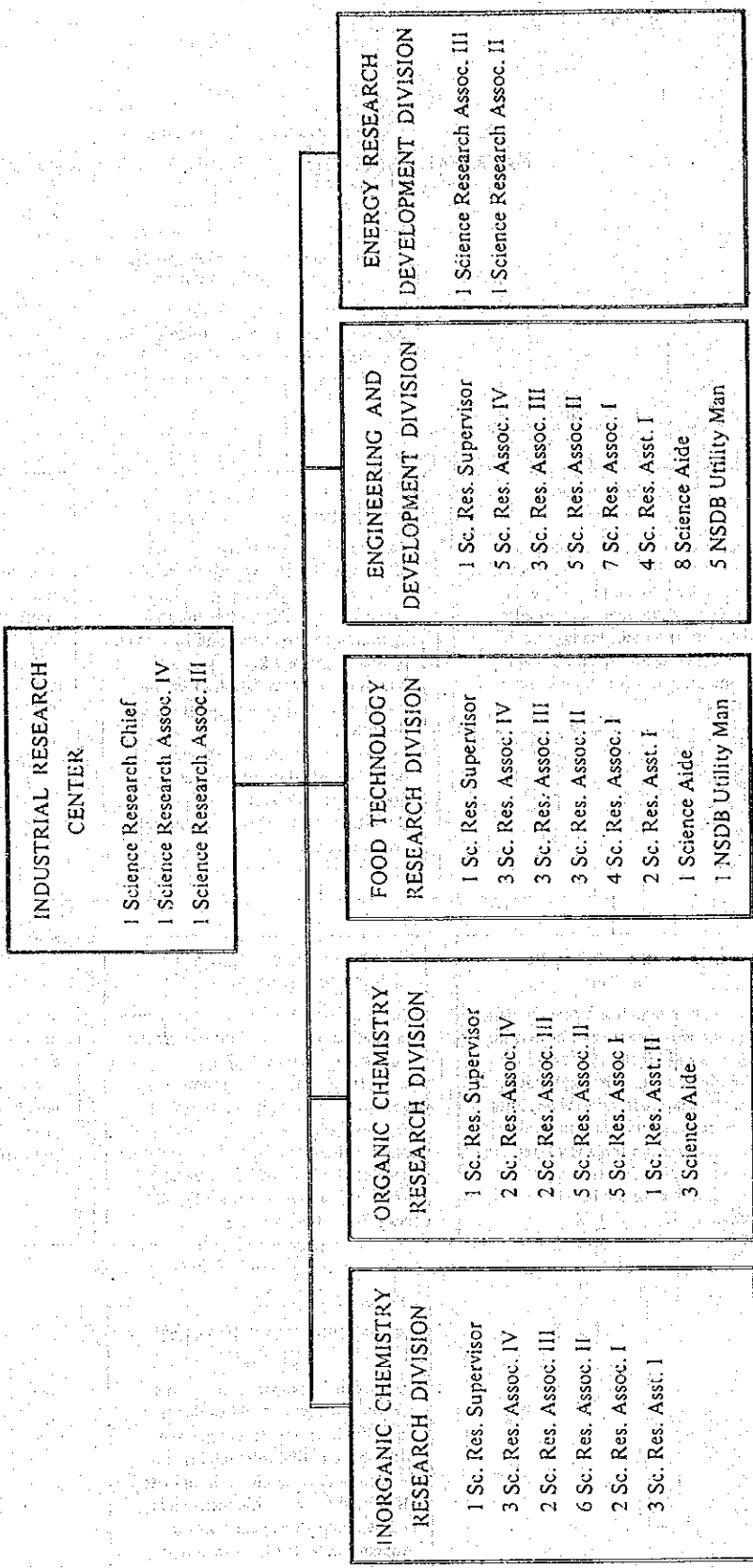
ORGANIZATIONAL CHART
NATIONAL INSTITUTE OF SCIENCE & TECHNOLOGY



FUNCTIONAL CHART
NATIONAL INSTITUTE OF SCIENCE & TECHNOLOGY



NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY
POSITION CHART



3. NISTの予算(1970~1976年)

Past Trend of NIST Budget

単位 : Peso

<u>FY</u>	<u>General Fund</u>	<u>Expenditures</u>	<u>Grants-in-aid</u>	<u>Expenditures</u>
1976	6,064,000	3,798,174.16	3,388,000	
1975	5,590,000	3,798,174.16	3,215,000	2,495,964.12
1974	3,950,000	2,488,521.23	3,100,000	2,550,643.00
1973	3,195,145	3,270,109.57	5,320,000	
1972	4,485,383	2,909,431.67	5,320,000	
1971	4,807,480	2,568,089.83	6,650,000	
1970	3,539,000	2,731,147.59	6,648,000	

Total Budget of NIST for the Fiscal Year 1976

<u>Items</u>	<u>General Fund</u>	<u>Grants-in-Aid</u>	<u>Total</u>
01 Personal Services	3,664,656.00	—	3,664,656.00
02 Traveling Expenses	509,000.00	—	509,000.00
06 Other Services	532,344.00	3,388,000	3,920,344.00
07 Supplies & Materials	1,058,000.00	—	1,058,000.00
21 Equipment Outlay	300,000.00	—	300,000.00
TOTAL	6,064,000.00	3,388,000	9,452,000.00

General Fund: Breakdown of ₱6,064,000

* Project I (Research & Development Activities)

01 Personal Services	2,035,472
02 Maintenance & Other	
Operating Expenses	1,050,000
03 Equipment Outlay	150,000

Total Project I 3,235,472 3,235,472

Project II (Testing & Standardization)

01 Personal Services	503,684
02 Maintenance & Other	
Operating Expenses	379,344
03 Equipment Outlay	75,000

Total Project II 958,028 958,028

Project III (Administrative Services)		
01	Personal Services	905,500
02	Maintenance & Other	
	Operating Expenses	607,000
03	Equipment Outlay	<u>75,000</u>
	Total Project III	1,650,500
	Fixed Expenditures	<u>220,000</u>
		Total
		6,064,000
	Additional Appropriation for Capital Outlay	<u>500,000</u>
	Total General Fund Appropriation	<u>₱6,564,000</u>

NOTE* In general, IRC is given an allotment of the total appropriation for Project No. 1 from which allotment Ceramics expenditures from the general fund may be charged. To give an idea of the trend of expenditures of different center covered by Project I allotment, a statement of the total allotment and expenditures of the General Fund for Fiscal Year 1975 and 1976 is herein given:

1976 Grants-in-Aid Appropriation and Actual Expenditures for Ceramics Projects

(I.B.2.a) Beneficiation of Ceramic Materials

	<u>ITEMS</u>	<u>APPROPRIATION</u>	<u>*ACTUAL EXPENDITURES</u>
1.	Personal Services	₱38,500	₱9,700
2.	Maintenance & Other		
	Operating Expenses		
	a. Traveling Expenses	1,000	.40
	b. Supplies & Materials	5,000	31.00
	c. Sundry Expenses	1,000	18.50
	Total	7,000	49.90
3.	Equipment	<u>21,500</u>	<u>248.00</u>
	Total	₱67,000	₱9,997.90

(I.B.2.e.) Improvement & Development of Philippine Pottery Industry

<u>ITEMS</u>	<u>APPROPRIATION</u>	<u>*ACTUAL EXPENDITURES</u>
1. Personal Services	327,840	216,272.07
2. Maintenance & Other		
Operating Expenses		
a. Traveling Expenses	16,000	11,140.10
b. Supplies and Materials	64,160	10,949.46
c. Sundry Expenses	33,000	29,275.31
Total	113,160	51,364.87
3. Equipment	10,000	10,134
Total	451,000	277,770.94

NOTE: * Actual Expenses are as of May 31, 1976 only. More expenses are expected to be incurred this month (June)

Project I (Research & Development Activities)

	1975		1976	
	<u>Allotment</u>	<u>Expenditures</u>	<u>Allotment</u>	<u>Expenditures</u>
	₱1,840,443.00		3,238,472.00	
Industrial Research (-IRC)				
(including Ceramics)		₱632,393.85		612,069.30
Agricultural Research Center (ARC)		122,566.48		240,761.87
Biological Research Center (BRC)		232,837.56		315,070.10
Medical Research Center (MRC)		185,669.04		279,272.78
Documentation Division				87,372.63
Scientific Instrumentation				
Division (SID)		263,333.04		273,288.47

JICA