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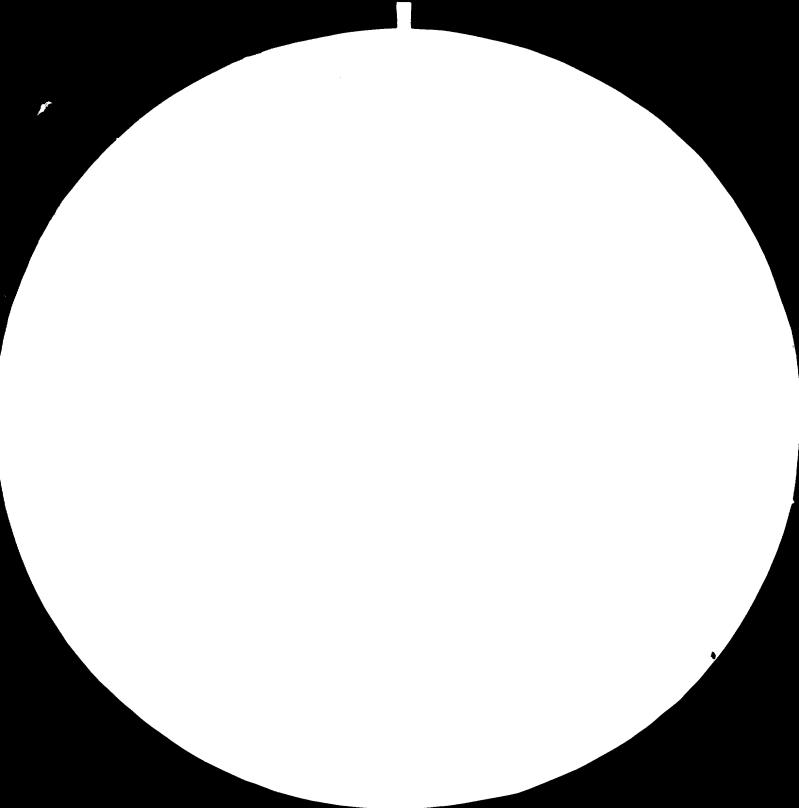
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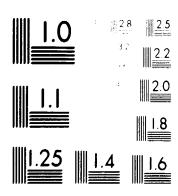
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REPORT

on

Mission to Indonesia (Building malerials).

1,2

DP/INS/81/006

carried out by

Emanuel Csorba

Senior Industrial Development Officer

ACKNOWLEDGEMENT

The author is indebted to Mr. Sucipto Umar, Secretary BPPI, Mr. Pratopo Sumitro, Director of the Ceramic Research and Development Institute, Mr. Suyata, Mr. Hartono, Mr. Widad Baraba, Mr. Sumardi Kartomidjojo of the Ceramic Research and Development Institute, who gave all possible support to the mission. To the responsible officials of the Ministries, Institutes and Directorates the author wishes to express his appreciation for the many useful discussions and exchanges of views related to the forthcoming project and to UNIDO's technical co-operation with them. The advice and assistance of all officials are hereby gratefully acknowledged. Thanks are also due to Mr. G.M. Hamdy, UNDP Resident Representative, for his most valuable guidance given during the two discussions and to Mr. F. Iqbal, UNIDO Sidfa, for his permanent support and to Mr. Nurjo, UNDP staff member, for rendering assistance to the work of the mission.

Summary of the discussions in Jakarta (11-14 January 1983)

In the Jakarta discussions which were all attended by Mr. Iqbal, UNIDO Sidfa, the importance was stressed of speeding action by the Government with respect of the nomination of full-time National Project Director and project counterpart staff. From Government side the information was given that the first meeting of the National Steering Committee will be held on 24 January 1983 and will be chaired by the State Minister for Housing. It is also expected that the Ministerial Decree on the National Project Director and Steering Committee will be signed within few days.

A booklet containing information for members of the National Steering Committee was compiled by the Agency for Industrial Research and Development, Ministry of Industry and is attached as Annex III to this report.

It was agreed that since - due to some delay in the starting date of the implementation of the project - funds under budget line 11 (international experts) allocated for 1983 will be only partly spent, equipment funds under budget line 49 should be brought forward to 1983.

It was noted with satisfaction that the highest Government officials of the National Housing Corporation (PERUMNAS), Directorate General of Transmigration and the Ministry of Industry, Directorate of Small-Scale Industries expressed their keen interest in the project and their preparedness to support its activities with all possible means.

It was also understood that the Steering Committee at its first meeting will make decisions with respect to the selection of the project sites as well as the international experts.

Purpose of the mission

The Project Document of DP/INS/81/006/A/01/37 - Assistance in the Development of Building Materials and Supplies Industry for Low-Cost Housing - was signed on 6 September 1982 in Jakarta representatives of the Government, UNIDO and UNDP.

The purpose of the present mission was to meet high and medium level officials of the Government agencies involved in and affiliated with the project, and to discuss with them the most important and urgent matters of implementation.

In the course of the mission discussions were held in Jakarta with:

- Members of the National Steering Committee of the Project
- Agency for Industrial Research and Development (BPPI)
- Directorate General of Transmigration
- National Housing Corporation (PERUMNAS)
- Directorate General of Housing, Building, Planning and Urban Development (CIPTA KARYA)
- Ministry of Industry, Directorate of Small-Scale Industries
- UNDP Resident Representative

In Bandung discussions were held at the:

- Institute for Research and Development of Ceramics (CDRI)
- Directorate of Building Materials Research (DBR)
- Institute of Metal and Machinery (MIDC)
- Institute for Research and Development of Engineering and
 Industrial Materials (formerly Materials Testing Institute, MTI)
- Institute of Cellulose

In Solo discussions were held at the Regional Office of the Department of Industry and the location of the low-cost housing project in Mojosongo. The UNIDO project sites of INS/74/034 in Kebakramat and Wirun were also visited.

Summary of the visits and discussions in Bandung (15-16 January 1983)

In Bandung, the laboratories of the listed Institutes were visited and their present role with respect to low-cost housing was discussed. It was agreed that all the institutes mentioned will make important contributions to the project.

With Mr. Protopo, Director CDRI and National Project Director Designate, as well as his staff special discussions were held on

- a) Nominations for International Team Leader and Experts
- b) Nomination of full time National Project Director and National Staff
- c) Compilation of lists of equipment (provisional list attached as Annex IV to this report)
- d) Nomination for Fellowship for National Scaff
- e) Preparation of Job Description for associate experts.

Summary of the visits and discussions in the Solo area (17 January 1983)

In Solo the Deputy Head of the Regional Office of the Department of Industry explained the organization and activities of the Regional Office. Further, the objectives of the project and its potential in supporting low-cost housing and local building materials industries were discussed.

The construction site of a large-scale PERUMNAS housing project in Mojosongo was visited and discussions were held with respect to the various architectural and technological solutions applied in the houses.

Finally, a co-operative in Kebakramat (Kemiri) and one in Mojalaban (Wirun) were visited. Both co-operatives are producing burnt clay roofing tiles and were assisted by the UNIDO project DP/INS/74/034.

Closing discussions in Jakarta on 18 January 1983

On the last day of the mission discussions were first held at the UNDP Office with Mr. G.M. Hamdy, Resident Representative.

Mr. Hamdy expressed his appreciation with UNIDO/DIO's performance particularly with respect to the speedy submission of a long list of good candidates for the various international expert posts.

At the Agency of Industrial Research and Development, Ministry of Industry, a summary of the visits and discussions held during the mission was given and the most important and urgent actions to be taken on behalf of the Government and UNDP/UNIDO respectively were stressed.

TIME SCHEDULE OF THE MISSION

10	January 1983		Arrival in Jakarta
11	January 1983	8.30 - 10.00	Meeting with the members of the National Steering Committee at the Agency for Industrial Research and Development, Ministry of Industry.
		12.00 - 13.00	Meeting with Mr. S. Kodiyat, Secretary to the Minister of Public Housing, at the Ministry.
12	January 1983	10.00 - 12.00	Meeting with Mr. Nursaidi, Director of Development at PERUMNAS
		13.00 - 15.00	Meeting with Mr. Soelistijo Tjitrohamidjojo, Secretary at the Directorate of Cipta Karya.
		19.00 - 21.00	Dinner hosted by the Agency for Industrial Research and Development
13	January 1983	9.00 - 11.00	Meeting with Mr. Tampubolon, Director of Planning and Programming at the Directorate of Small-Scale Industries of the Ministry of Industry.
		13.00 - 15.00	Meeting with Mr. Subandi Reksosudarmo, Secretary at the Directorate of Trans- migration
14	January 1983	10.30 - 11.30	Meeting with Mr. G.M. Hamdy, Resident Representative at the UNDP office
		12.30 - 17.00	Travel by car to Bandung

14 January 1983	19.00 - 21.00	Dinner hosted by the Ceramic Research and Development Institute.
15 January 1983	7.30 - 9.00	Meeting with Mr. Pratopa Sumitro, Director, Ceramic Research and Development Institute, and his staff. Visit of Institute laboratories.
	9.00 - 10.00	Meeting with Mr. A. Kartaharja, former Director of Building Research and senior staff. Visit of the laboratories of the Directorate of Building Research at Turangga.
	10.30 - 11.30	Meeting with Mr. Bangun, Head of the Administration, Division of the Metal Industry Development Center and senior technical staff. Visit of the Center's workshops and laboratories.
	11.30 - 12.30	Meeting with Mr. Suprapto, Director of the Institute for Research and Development of Engineering and Industrial Materials and senior staff. Visit of Institute laboratories.
	12.30 - 13.30	Meeting with Mr. Garjito, Director, Cellulose Research and Development Institute at a lunch hosted by the Institute for R+D of Engineering and Industrial Materials.
	16.00 - 18.00	Meeting with Mr. Marc de Smed, associate expert DP/INS/74/034
	19.00 - 21.00	Meeting with Mr. Pratopo Sumitro, National Project Director Designate.
16 January 1983	6.00 - 17.00	Travel by car from Bandung to Solo.

17 January 1983	7.00 - 9.00	Meeting at the Regional Office of the Department of Industry with senior representatives of the Regional Office and PERUMNAS
	10.00 - 11.00	Site visit to the PERUMNAS housing project in Mojosongo.
	11.00 - 13.00	Site visit to the burnt clay roofing tile production co-operative in Kebakramat (Kemiri)
	14.00 - 16.00	Site visit to the burnt clay roofing tile production co-operative in Mojalaban (Wirun)
18 January 1983	8.00 - 9.00	Flight from Solo to Jakarta
	9.30 - 10.30	Report to Mr. G.M. Hamdy, Resident Representative at UNDP Jakarta
	11.30 - 12.30	Summing-up with members of the National Steering Committee and the Agency of Industrial Research

ANNEX II

LIST OF OFFICIALS MET DURING THE MISSION

Agency for Indus	trial Research
and Development	(Ministry of
Industry (BPPI)	

Jl. Proklamasi. 56, Jakarta

I. Sucipto Umar, BPPI, Secretary
Trisura Suhardi, BPPI, Director,
Industrial Research
Idi Subroto, Building Materials, BPPI
Mr. Sudarmadji, Building Materials,

Ministry of Public Housing

Jl. Paltimura eo (Dept. P.U), Jakarta Mr. Salmon Kodijat, Secretary to Minister of Housing

PERUMNAS

Jl. Jendral Punjaitan

Mr. Nursaidi, Director

Cipta Karya

Jl. Pattimura 20, Jakarta

Mr. Soelistiyo Tjitro Hamipjojo, Secretary

Directorate of Small-Scale

Ir.ustries

Jl. K.H. Hasyim Ashari No. 6-12, Jakarta

Mr. Tampubolon

Mr. Hendro Pranoto

Directorate of Transmigration

Jl. M.T. Haryono, Jakarta

Mr. Subandi Reksosudarmo

Mr. Abdul Sukur

Ceramic Research and Development

Institute

Jl. A. Yani 392, Bandung

Mr. Pratopo Sumitro, Director

Mr. Suyata

Mr. Hartono

Mr. Widad Baraba

Mr. Sumardi Kartomidjojo

Directorate for Building

Research

Head Office: Jl. Tamansari 84

Bandung

Laboratory: Jl. Turangga 7,

Bandung

Mr. A. Kartaharja, former Director, in charge of Assistance to the

Ministry of Public Work

Mr. B. Tular

Mr. Saleh, architect

Mr. Zulkarnain Aksa

Mr. Ritonga

Metal Industry Development Center

J1. Sangkuriang 12, Bandung

Mr. Bangun, Head of Administration

Division

Mr. Aslam

Mr. Wibisarto

Institute for Research and

Development of Engineering and

Industrial Materials (formerly:

Materials Testing Institute)

Jl. Sangkuriang 14, Bandung

Mr. Suprapto, Director

Mr. Mustarsid

Mr. Siti Kami

Mr. Trisno

Mr. N. Parka

Cellulose Research and Development

Institute

Jl. Mohamad Toha, Km 12, Bandung

Mr. Garjito, Director

Solo Regional Office of the

Department of Industry

Jl. Josodipuro no 50, Suralarta

Mr. Moedjinarto, Administrative Division

Mr. Endang Martini, Deputy Head

Mr. Suwardjito, Head of the branch office

of Karanganyar

Mr. Djasmin, technical staff of the branch office of Sukohardjo

Mr. Joko Santosa, technical staff of the branch office of Boyolali

Mr. Bambang Supriyadi Bae, Dev. Division of PERUMNAS Project in Solo

Co-operative - Kemiri Tile Industry

Mr. Sudjar Miko, Supervisor

Mr. Sunarno, Foreman

Co-operative in Mojolaban (Wirun)

Tile Industry

Mr. Suhardi, owner member

Mr. Dartodiano, owner member

Mr. Hadi Rahmanto, Chairman of the

co-operative

Information Data for National Steering Committee

INFORMATION DATA FOR NATIONAL STEERING COMMITTEE

ASSISTANCE IN THE DEVELOPMENT OF
BUILDING MATERIALS AND SUPPLIES INDUSTRY
FOR LOW COST HOUSING

AGENCY FOR INDUSTRIAL RESEARCH AND DEVELOPMENT
MINISTRY OF INDUSTRY

2. MANAGEMENT OF THE PROJECT

OVERVIEW OF PROJECT MANAGEMENT ACTIVITIES

(Code of project activities)

F. Forecast	P. Planning	O. Organizing	I. Implementing	(Control
Pre studies and identification investigations of: 1. Existing situation and conditions and capabilities of BEMI & CONI. 2. Goals and projected conditions and capabilities of BEMI & CONI. 3. Identification and measurement of development. 4. Needs and means for achievement of goals. 5. Identification of R & D support for experties. 6. Identification of business opportunities for product ion and supplies. of required material & equipments.	 Goals and targets. Breakdown and measurement of development. Programmes and steps phases for implementation. Fulfilment of means needed for implementation. Methods for implementation. Budget planning. First stage financing. General needs of project management TOR, SOP, Job description. Partial schedules of regional and project side activities Dispatching of international experts and consultants. Net work. 	 Steering Committee establishment. National planning team establishment Regional planning team establishment. Recruitment of IIQ staff member. Recruitment of regional staff. Recruitment of staff for project location Coordinations of concerned ministries and institutes. 	 Detailed schedule of planning team. Dito steering committee. Dito regional and project side. Dispatching of international experts. Finance. Material and equipment procurement. Ajustment of schedule. Physical targets. 	1. Management budget personnel physical schedule communication. 2. Targets achievement 3. Problem solving. 4. Report of progress. 5. Monitoring. 6. Financial ajustment. 7. Material & equipment supplies.

6

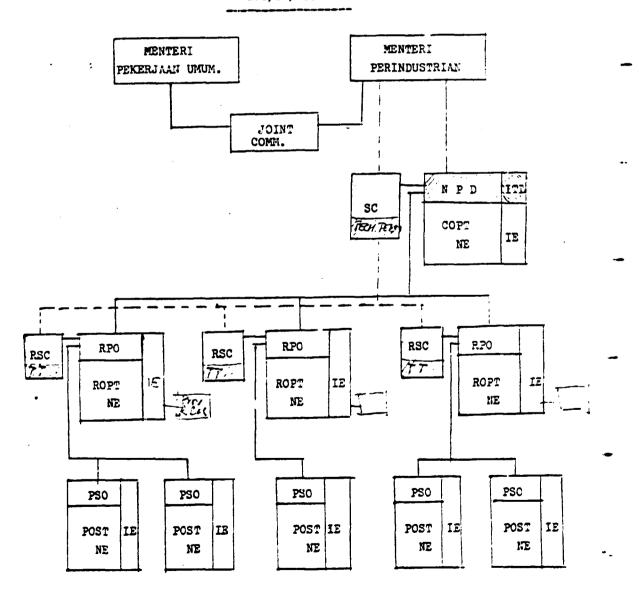
Short term programme Assistance in the development of building material supplies industry for low cost housing INS/81/006

No.	<u>I t e m</u>	Code
1.	Establishment of National Steering Committee	01
	interdepartmental meetings nomination of officials decree of minister of industry job description & standards operation	
2.	Establishment of National planning/roving team interdepartmental meetings nomination of officials for staff consultation to SC and ministries	02
3.	Identification of conditions and capabilities of BEMI and CONI, and location of Regional project side.	F1
4.	Determination of goals and projected condition and capabilities of BEMI and CONI	F2 & P1
5.	Identification and measuremer prelopment item of BEMI projected qualification of targets (P2)	F3 & P2
6.	Determintaion of programmes and activities implementation.	P3
7.	Budget planning and arrangement.	P6
8.	First stage finance.	P7
9.	REcruitment of Project HQ staff member.	04
10.	Project net work planning and mayor schedule of activities	P11 & Ii

3. ORGANIZATION OF THE PROJECT

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ORGANISASI PROYEK
INS/81/006



ASSISTANCE IN THE DEVELOPMENT OF BUILDING MATERIALS AND SUPPLIES INDUSTRY FOR LOW OF HOUSING

TOTAL PAGES

PAGE :

CODE :

SC - 001

JOB DESCRIPTION

FUNCTION AN TASK OF NATIONAL STEERING COMMITTEE

FUNCTION

- Prepare, formulation of directive and policies of the Minister of Industry concerning the strategyof achievement of the projects goals.
- Elaboration of interconnection of BEMI and CONI and others concerned with the implementation of the project.
- Provide directives to COPT

TASK

- 1.Considering the National Main Policies/GBHN, programmes of the government and the project document of the project (INS/81/006).
- 2.Identify the participation and substantives of institutes concerned with the projects programmes.
- 3.Define the objectives and approaches of implement $\underline{\underline{a}}$ tion of the programme.
- **4.Int**egrate substantives and government institutes concerned with the projects programme.
- 5.Provide directives to the NPD and COPT.
- 6.Inspect the implementation of the project and the achievement and targets.
- 7.Provide recommendation needed for the implementation of the project.
- 8.Report to the Minister of Industry concerning the project.
- 9.S.C is directed by the SC Chairman.

RESPONSIBILITY :

The SC is responsible to the Minister of Industry.

ASSISTANCE IN THE DEVELOPMENT OF BUILDING MATERIALS AND SUPPLIES INDUSTRY FOR LOW COST HOUSING TOTAL PAGES

PAGE :

CODE : SC - 001

STRUCTURE AND MEMBERSHIP OF THE NATIONAL SC

CHAIRMAN

: The Junior Minister of Peoples Housing

VICE CHAIRMAN

: The Head of The Agency for Industrial Research and Development, Ministry of Industry.

1st SECRETARY

: Secretary of The Junior Minister of Peoples Housing.
Ir. Salmon Kodiat.-

2nd SECRETARY

: Secretary of The Agency for Industrial Research and Development.

MEMBERS

- The Dir. General of Small Scale Industry.
- The Dir. General of Cipta Karya
- The Dir. General of Transmigration
- The Dir. General of Cooperatives
- The Dir. General of Local Develop ment.
- The Director of Perumnas
- The Director of BTN (National Sa ving Bank.)

ASSISTANCE IN THE DEVELOPMENT OF BUILDING MATERIALS AND SUPPLIES INDUSTRY FOR LOW COST HOUSING TOTAL PAGES

PAGE :

CODE : COPT : 002

JOB DESCRIPTION

FUNCTION AND TASK OF CENTRAL OPERATION AND PLANNING TEAM (COPT)

FUNCTION

- Direct and establish planning of programmes and activities and implementation of the project as to achieve the goals and targets, considering - the directives of the SC.

T-ASK

- : 1.COPT is directed by the NPD
 - 2.Scrutinize the project document and directives of the SC
 - 3. Identify the existing capabilities of BEMI and CONI and the development in the projects location.
- 4.Establish planning, activities and targets to achieve project goals and targets.
 - 5. Commence integration of concerned institutes.
 - 6.Establish RSC, ROPT and POST
 - 7.Recruite and coordinate International Experts and National Experts.
- 8.Manage the project.
- 9.Control and monitor the implementation of project programmes in the ROPTs and POSTs.
- 10.Consult the SC.
- 11. Prepare report of the project.

RESPONSIBILITY:

COPT directed by the NPD is responsible to the Minister of Industry.

FORMASI COPT

1 National Project Director	56 mm
1 Senior Industrial Englineer	55 mm
1 Industrial Enggineer	49 mm
1 Industrial Planning/Market Develop- ment Officer	49 <u>um</u>
2 Quantity Surveyor	2 x 15 mm
1 Industrial Information and Documen - tation Officer	51 <u>mm</u>
2 Research Officers	2 x 45 mm
9 Orang	
SUPPORT PERSONEL	
1 Bilingual Secretary	48 mm
2 Bilingual Secretaries	2 x 39 mm
	//
1 Translator/Typist	48 mm
<pre>1 Translator/Typist 3 Translators/Typists</pre>	•
	48 mm
3 Translators/Typists	48 mm 3 x 45 mm

^{. 11} Orang.

FORMASI EXPERT INTERNATIONAL

1	Construction Industrial Development Expert (ITL)	48	mc.
2	Building Material Production/ Pla <u>r.</u> ning Experts	39	mm
1	Industrial Promotion/Extension Ser- vice Expert	39	mm.
3	Building Material & Construction Industry Field Experts (Region)	3 x	24 mm
	Short term International Consultant	8	me:

ASSISTANCE IN THE DEVELOPMENT OF -BUILDING MATERIALS AND SUPPLIES INDUSTRY FOR LOW COST HOUSING TOTAL PAGES

PAGE :

CODE :RSC - 003

JOB DESCRIPTION

FUNCTION AND TASK OF REGIONAL STEERING COMMITTE (RSC).

FUNCTION

- Elaborate into detail the directives and policies of The Minister of Industry into strategy of achievement of projects goals and targets concerning the regional and POST activities.
- Elaborate interconnection of DEMI and CONI and other institutes concerned with the implemen tation of the project in the region.
- Provide directives to ROPT and POST.

TASK

- : 1.RSC is chaind by the RSC chairman.
 - 2.Identify participation and substance of ins tixutes concerned with the regional programmes or POST.
 - 3.Elaborate and formulate objectives and approaches of the implementation of programme in the regional area and POST.
 - 4.Integrate substance an institutes in the region concerned with the implementation og projects programmes.
 - 5.Provide directives to ROPT and POST.
 - 6.Control the implementation of the regional project activities and the achievement of goals targets.
 - 7. Provide recommendations to ROPT and POST.

RESPONSIBILITY :

RSC is responsible to the Minister of Industry

ASSISTANCE IN THE DEVELOPMENT OF BUILDING MATERIALS AND SUPPLIES INDUSTRY FOR LOW COST HOUSING TOTAL .

PAGE :

CODE :

STRUCTURE AND MEMBERSHIP OF REGIONAL STEERING COMMITTEE

CHAIRMAN

: The Head of The Provincial Office of The

Ministry of Industry.

VICE CHAIRMAN

: The Head of Regional Office of the Minis

try of Public Work.

1st SECRETARY

: Regional BIPIK

2nd SECRETARY

: The Head of the Industrial Research Ins-

titute.

MEMBERS

: 1.Head of the Regional Office of Ministry

of Industry.

2.Head of Regional Office of Transmigra -

tion.

3.Head of Regional Office of Cooperatives

4. Head of Building Information Service.

5.Staff of Provincial Government.

6.Director of BTN Branch.

7.Project Officer of Regional Perumnas.

ASSISTANCE IN THE DEVELOPMENT OF BUILDING MATERIALS AND SUPPLIES INDUSTRY
FOR LOW COST HOUSING

TOTAL :

PAGE :

CODE :

ROPT - 004

JOB DESCRIPTION

FUNCTION AND TASK OF REGIONAL OPERATION AND PLANNING TEAM (ROPT).

FUNCTION

-

Direct and implement the elaboration of programme planning, implementation of regional project as to achieve objectives and targets defined and scrutinize the directives of NSC

TASK

- 1.ROPT is directed by the Regional Project Offi cer (RPO).
- 2.Consider the ROPT and POST programme and recommendations of RSC.
- 3. Elaborate and detail the capabilities of exis ting BEMI and CONI in the region.
- 4. Formulate programmes, activities and targetsof the regional project to achieve defined goals.
- 5. Implement integration of activities of institutes concerned with the regional projects programme.
- 6.Establish POST in the project side concerned.
- 7. Manage the ROPT.
- 8.Guide POSTs concerned.
- 9.Control and monitor the implementation of the regional project.
- 10.Consult with RSC
- 11. Prepare Report of the project.

RESPONSIBILITY:

Directed by $\ensuremath{\mathsf{RP\tilde{0}}}$, $\ensuremath{\mathsf{ROPT}}$ is Responsible to the NPD.

FORMASI ROPT

I Industrial Planning Officer		3	3 m	m.
2 Quantity Surveyor	2	x	12	m
1 Industrial Enggineer			3 m	Œ.
1 Research Officer		3:	3 m	m.
3 x 5 = 15 Orang				
SUPPORT PERSONNEL.				
3 x 1 Bilingual Secretaries	3	x	3 3	mm
3 x 1 Translators/Typists	3	x	3 3	mir.
6 x 1 Drivers	6	x	33	mm

¹² Orang.

ASSISTANCE IN THE DEVELOPMENT OF BUILDING MATERIALS AND SUPPLIES INDUSTRY FOR LOW COST HOUSING TOTAL PAGES

PAGE :

CODE :

POST : 00E

JOB DESCRIPTION

FUNCTION AND TASK OF PROJECT OPERATION SITE TEAM

FUNCTION

: Implement the fisical activities of the regional BEMI project and interlink activities/operation with CONI toward the project it...

TASK

- : 1.PCST is directed by the Site Officer (SO).
 - 2. Make preparation of project site.
 - 3.Implement the construction of BEMI com replying to the planning and design.
 - 4.Prepare operation of the BEMI productionunit.
 - 5.Implement training for skill forming of operators.
 - 6.Cooperate with CONI and institute concerned
 - 7. Implement trial run of production unit.
 - 8.Manage production unit in the operation
 - 9.Implement supply of building materials to consumers concerned.
- 10.Guide administration of production unit and the supply.
- 11. Keport the project progres.
- 12.Coordinate the institutes concerned with the project.
- 13. Manage the construction of BEMI plant, production and supply of building materials

RESPONSIBILITY

Directed by the Site Officer POST is responsible to the NPD through the Regional Project Officer. (RPO).

FORMASI POST.

1 Industrial Enggineer	21 <u>mm</u>
1 Research Officer	21 mm
1 Quantity Surveyor	3 mm
3 x 5 = 15 Orang	
SUPPORT PERSONETL.	
5 Secretaries	5 x 21 mm
10 Drivers	10 x 21 mm
15 Orang	
STAFF OFFICER. (PUSAT)	
Centre	24 x 6 mm
Field	144 mm

JOB DESCRIPTION INTERNATIONAL EXPERTS

Draft - 20 -TOTAL PAGES ASSISTANCE IN THE DEVELOPMENT OF PAGE : BUILDING MATERIALS AND SUPPLIES INDUSTRY FOR LOW COST HOUSING CODE : St - 00 STANDARD FOR ABBRAVIATION IN3/81/006 Assistance in the Development of Building materials and supplies Industry for Low Cost Housing. Joint Committe JC SC Steering Committe ITL International Team Leave National Project Director -- -NPD Central Operations Planning Team COPT Regional Operation Planning Team ROPT RSC Regional Steering Committe Regional Project Officer RFO International Expert ΙΞ National Expert NE UI UNIDO/UNDP input Government Input GI Project Operation Site Team POST Building Material Planning Experts BMPE Industrial Promotion and Extension Service ex-PESE perts.

BMFE Building Material Field Expert

SIE Senior Industrial Expert

Industrial Engineer

IEN Industrial Engineer

IMPO Industrial Planning/Market Development Officer

QS Quantity Surveyor

INFO Information and Documentation Officer

RO Research Officer

SECR Secretary

TT Translator/Typist

S0 Staff Officer

Dri Driver

ASSISTANCE IN THE DEVELOPMENT OF BUILDING MATERIALS AND SUPPLIES INDUSTRY FOR LOW COST HOUSING

TOTAL : 2 PAGE : 1

CODE : IE-ITL O1.

JOB DESCRIPTION

Position : INTERNATIONAL PROJECT LEADER

1. Function:

- Assist the National Project Director (NPD)

- Manage and coordinate UNIDO/UNDP experts and inputs.

- In cooperation with the Central Operation Planning (COPT) to establish planning and organize implementation of the Project.

2. Task

- Assist the NPD in establishing planning and implementation of the Project activities.
- Develop and maintain data bank.
- Coordinate international experts and consultants.
- Arrange recruiting, dispatching and releasing international experts.
- Prepare budget and manage financial activities related to UNIDO/UNDP input and adjustment whenever considered necessary.
- Prepare and arrange periodical report of the project
- Keep in close contact and communicate with the Steering Committee, Joint Committee and SIDFA of UNI DO/UNDF.
- In cooperation and consultation with the NPD manage planning, adjust whenever needed, control the implementation of the project activities as to keep the project implementation on schedule.
- Prepare Job Description of International experts with consultation of NPD.

3. Responsibility:

The International Team Leader (ITL) is responsible for the assistance and achievment of the project ob - jectives, time schedule of the project to the Minister of Industry and UNIDO/UNDP.

4. Qualification :

- Qualified industrial economist/engineer, having vast
- . and varied experience in the production, procurement and/or marketing of a number of building materials, supplies and equipment.
- Knowledge of construction management preferably pertaining to low cost housing and exposure to pro curement of construction materials, supplies and e quipments, if possible through small and medium scale industry will be prefered.
- Experience in information systems, plant design, and lay-out, production planning and manufacturing management will be desirable.
- Good perspective of the stages of industrial pro ject development and capacity to deal with government

ASSISTANCE IN THE DEVELOPMENT OF BUILDING MATERIALS AND SUPPLIES INDUSTRY FOR LOW COST HOUSING

TOTAL : 2. P.

PAGE : 2

CODE : IE-1TL

01.

JOB DESCRIPTION

Position : INTERNATIONAL PROJECT LEADER

officials, financial institutions and independent consultants/contractors will be another important requirement.

- Good personality as to cope with cooperative efforts in team.

Started date : January 1983

TOTAL PAGES

PAGE :

CODE : IE - 02.

JOB DESCRIPTION

BUILDING MATERIALS PRODUCTION & PLANNING EXPERT (BMPE).

1. Function :

- Assist the COPT in preparations of quantity, quality of materials.
- Supplies and equipments.

2. Task

- Guide preparation and planning of materials requirements schedule with respect to quality, timing and locations.
- Guide assessment of available production capability.
- Identification of gaps in the production process and sup ply activities.
- Develop alternatives to effectly meet the demand of ma terials, supplies and equipments.
- Arrange materials, supplies and equipments schedule assure certainly of events.
- Scrutinize production inputs and otputs.
- Solve production and supplies problems.
- Plan production and control production sequances.Provide special attention of production elements process conditions, procedure and quality of output.
- Analisies production data.
- Develop improvement of production performance.
- Prepare report of pertaining production and supplies per formance.

3. Responsibility:

- The expert is responsible for the production and supplies of materials and equipments to NPD and ITL.
- 4. Qualification :
 - Qualified engineer with extensive experience in the manu facturing of various building material and supplies.
 - Well versed in production management, planning and evalu ation.
 - Familiarity with small and medium scale building terial production will be prefered.
 - Good personality and cooperative coverage.

TOTAL PAGE: 1

CODE : IE - 03

JOB DESCRIPTION

Position : INDUSTRIAL PROMOTION & EXTENSION SERVICE EXPERT

1. Function:

- Assist the COPT in the development of strategies upgradition and improvement of capacities of building materials manufacture, supplies and equipments.

2. Task

- Design alternative strategies with respect to up gradition expansion and creation of new capacities for the manufacture and supply of the required materials, supplies and equipment.
- Develope modalities of the same as to be in line with current government policies.
- Plan system, steps, and phases of upgradition, expansion and construction of building material manu facture and supply.
- -- Prepare workplan for implementation of same.
- Prepare promotion of production and supply performance
- Develope the prepared plan for promotion to Banks and Government authorities.
- Prepare presentation for bank loan application and installment concepts.
- Evaluate industrial economic capabilities and describe upgradition of same.
- Prepare report and analysis of the performances.

3. Responsibility:

- The expert is responsible for the strategies and performance of promotion and extension services applied to the NPD and ITL.

- Industrial economics or bussiness administrationgraduate with various experiences in industrial project planning, design and promotion.
- .- Experience in extension service to manufacturing in dustries.
- Able to cooperate with national expert
- Good personality and cooperative coverage

ASSISTANCE IN THE DEVELOPMENT OF PAGES: 1 PAGE:
BUILDING MATERIALS AND SUPPLIES INDUSTRY
FOR LOW COST HOUSING CODE: IE - 04

JOB DESCRIPTION

Position : BUILDING MATERIALS AND CONSTRUCTION INDUSTRY FIELD EXPERTS (BMFE)

3 Pers.

1

1. Function :

- Assist the ROPT & POST in the identification and de - velopment of production establishment for supply, procurement process and creation of data bank.

2. Task

- Prepare survey planning of establishment for assesing supply of building materials.
- Prepare bills of materials, specification and pro curements schedules and material assessment.
- Evaluate surveys and prepare action programmes for up gradation; expansion and creation of new enterprises for improvement of local supply capacity.
- Scrutinize the entire process of supply and assesment of building material.
- Control the implementation of procurement and provide suggestion for improvement.
- Manage data bank.
- Prepare special studies for above, proceed evaluation and report.
- Provide assistance for improvement activities.

3. Responsibility:

- The experts is responsible for the interaction be - tween procurement, supply establishment and assessment of building materials to the NPD and ITL.

- A construction engineer experience in identification procurement distribution, marketing assessment of e quipment and building materials.
- Capable in problem solving pertaining to supply and assesment of building materials.

JOB DESCRIPTION NATIONAL EXPERTS

TOTAL : 2 PAGE : 1

CODE : NE - 05

JOB DESCRIPTION

Position : NATIONAL PROJECT DIRECTOR

1. Function:

- Manage and direct the project

- Prepare budget, manage and coordinate government input

- In cooperation with the International Team Leader (ITL) to establish planning and organize implementation of the projects programmes.

2. Task

- Prepare project workplan

- Direct and manage the project.

- In cooperation and consultation with ITL prepare and manage planning, ajust whenever necessary control the implementation of the project activities as to keep project implementation on schedule.

- Consider the Ministers SC, JC recommendation pertaining the project.

- Prepare, direct and control the overall project management.

- Prepare budget and manage financial needs from the Government Input.

- Direct and control interaction of project elements when ever necessary.
- Prepare NE job description with consultation of ITL. Coordinate NE and staff and consultant in the COPT.
- Coordinate interaction of COPT; ROPT; POST of the project

- Coordinate interaction of IE and NE

- In cooperation with ITL prepare and arrange periodical report of the project.
- Communicate with and consult SC,JC, and SIDFA of UNI DO/UNDP.

3. Responsibility:

The NPD is responsible for the management performance and the achievement of projects objectives to the Minister of Industry.

- An engineer / economist having a minimum of 10-15 years experience in construction management, production, procurement, planning and programming of major construction projects preferably low cost housing.
- Experience in procurement of materials, supplies and equipment from small and medium scale manufacturers will be an asset.
- Full knowledge and relations with relevant Government Departments particularly Industry, Public Works, Transmigration and other will be highly desirable.

TOTAL : 2 PAGE : 2

CODE : NE - 05

JOB DESCHIPTION

Position : NATIONAL PROJECT DIRECTOR

- Prior knowledge of small and medium scale manufacture of building materials, supplies and equipment and channels of trade and distribution for these products is recommended.

- Experience and/or interest in promoting and organizing small and medium scale enterprises will be helpful. Besides his professional inputs he would be ex-

. pected to plan and coordinate the activities of national and international staff in the central and regional teams.

- Experience in project management.

TOTAL : 1 PAGE : 1

CODE : NE - 06.

JOB DESCRIPTION

Position: SENIOR INDUSTRIAL ENGINEER (SIE)

1. Function :

- Establish planning and organize development programme of building material production and supply of INS/81/006.
- Manage relation to Association, Industry and Research Institute with full knowledge.

- Execute implementation planned project programmes

2. Task

- Prepare production planning and workplan for COPT with considering SC, JC recommendations.
- Elaborate policies, and transform it into justified activities and systems.
- Prepare implementation of programmes by pragmatic and systematic phases.
- Provide assistance to develop building material production unit and supply and related organizations / institutions in the set up of operations methods and technics.
- Develop product design.
- Set up training programmes for operators and organize the implementations.
- interact with COPT; ROPT and POST
- Scrutinize implementation of programmes and prepare analysis for improvement or corrections, in cooperation with international and national experts.
- Manage and maintain data bank.
- Counterparting IE

3. Responsibility:

- The SIE is responsible for the preparation of develop mentplanning and implementation of same to the NPD.
- 4. Qualification
 - Engineer, experinced in manufacturing set up/construction management procurement of building materials with a minimum total service period of 10 years.
 - Posses a strong background in industrial technology and engineering.
 - Capable in elaboration and cooperation with any other graduates and diciplines.
 - Willingness to travel to all part of Indonesia.

TOTAL PAGE: 1

CODE: NE - 07.

JOB DESCRIPTION

Position: INDUSTRIAL ENGINEER (IEN)

1. Function :

- As subordinate and secondant of the SIE
- Prepare element of planning in cooperation with SIE
- Implement industrial development programmes of the project.

2. Task

- Assist SIE and NPD in COPT activities.
- Formulate elements of planning and implementation under takings.
- Develop methods for implementation activities.
- Supervise implementation activities to cope with the planning concept.
- Counterparting IE
- Cooperate with any other COPT, ROPT and POST staffs.
- Provide assistance as programmed/assigned
- Establish operation standards and methods for produc tion and supply activities.
- Undertake problem shooting and solving.
- Execute assigned jobs from COPT.
- Provide instruction & training to POST production crews

3. Responsibility:

- The industrial engineers is responsible for the above mentioned and particular assigned jobs to the NPD through SIE.

- Engineer with 5 years manufacturing/instructions ex perience.
- Knowledge of management and procurement will be prefered.
- Posses moderate background in industrial technology and engineering.
- .- Able to cooperate with any other graduates /staffs
- Willingness to stay at project side.

TOTAL PAGES

PAGE :

7

NE - 08. CODE :

DESCRIPTION JOB

INDUSTRIAL PLANNING/MARKET DEVELOPMENT OFFICER (IPMO).

1. Function :

- Establish market planning of production output with consideration of capabilities of production unit.
- Develop marketing design and procurement.
- Cooperate in product design particular in the aspect of demanded product specification.

2. Task

- Cooperate with COPT for market planning and development
- Design marketing and manage activities of marketing.
- Design procurement of material, supplies and equipment needed for the establishment and operation of the pro duction unit.
- Undertake subcontract manufacture system in the develop ment of market.
- Establish administration for marketing, supply sub contract and procurement.
- Develop trading and distribution method for the pro duction unit.
- Provide training for the POST

3. Responsibility:

- The planning/ market development officer is responsible for the marketing concept, planning, procurement implementation of the same to the NPD.

- Industrial economist having at least 10 years perience in industrial planning and management.
- Capable in industrial product marketing, distribution and procurements.
- Strong background of building material systems, and their characteristics.

TOTAL : 1 PAGE : 1

CODE : QS - 09.

JOB DESCRIPTION

· Position : QUANTITY SURVEYOR (QS)

1. Function :

- Prepare and develop bill of quantities & methods of industrial inputs and outputs.

- Evaluation of materials; supplies and equipments lot pertaining, quality, quantity; acceptance and rejections.

2. Task

- Establish and develop bill of quantity methods for $i\underline{n}$ dustrial input and output.
- Execute sampling procedures.
- Undertake certification of material.
- Evaluate lots and decide acceptance or rejection by using appropriate methods and procedure.
- Investigate acceptance and rejection events in the production unit.
- Prepare analysis and report of above .

3. Responsibility:

- The quantity surveyor is responsible to the NPD for the established methods, acceptance and rejection of material, supplies and equipments input, and the sold industrial products.

4. Qualification :

- Certificated quatity surveyor

- Full knowledge of quality characteristics of material, supplies and building material products.

- Capable in statistic for the use of evaluation of acceptance and rejections.

TOTAL PAGE: 1

CODE : Info - OlO

JOB DESCRIPTION

Position: INDUSTRIAL INFORMATION AND DOCUMENTATION OFFICER (Info).

1. Function

- Assamble & dissemination of industrial information pertaining technology; building material products, market, material, supplies and equipments needed for the de velopment of building material production units.

2. Task

- Data collection of inputs; throughputs and output of building material manufacturing concerned in the activities of the project.
- Collect relevant and appropriate information of same.
- Proceed data into appropriate information & maintain it
- Manage data and documentation of the project.
- Multiplication of relevant information/documentation.
- Disseminate information and documentation related to the project concerned.
- Expose the project results and performance.
- Cooperate with resource persons.

3. Responsibility:

- The industrial information and documentation officer is responsible to the NPD for the data and document col - lection multiplication, dissemination and expose of the information and documentation.

- Experience at least 3 years in industrial information and documentation.
- Good background in industrial information systems.
- Capable in communication technics and active.
- Good command in English speaking and written.

TOTAL PAGES : 1

PAGE :

1

CODE : RO - Oll.

JOB DESCRIPTION

OFFICERS RESEARCH

1. Function :

- Search industrial data, establish collection, main - tain, retrieve data and information pertaining varied aspect of building material manufacture, construction materials, supplies and equipments.

2. Task

- Collect data/information pertaining raw material re sources, variety of transformation, products specifi cation of building material, supplies and equipment
- Establish data bank and manage storage and retrieval for the development of building material manufacture
- and market set up.
 Prepare & organize research subjects for appropria tion of data/information and decesion making.
- Select and analyze data/information.
- Cooperate with any other experts and officers of COPT : ROPT and POST.

3. Responsibility :

- The research fficers is responsible to the NPD con cerning research data/information and analysis.

- Economics/technical graduates/statistics, experience or familiarity with construction materials, industrial input/output, supplies and equipment.
- Full knowledge and good relationship with any other as sociation; government institution, Research and De velopment Institutes concerned with building material, supplies and equipments.
- Good command of sources of industrial data.

TOTAL : 1 PAGE :

CODE :

Secr - 012

JOB DESCRIPTION

Position: BILINGUAL SECRETARIES (Secr)

1. Function :

- Implement secretarial and office work efficiently with IE, NE and officies in the COPT.

2. Task

- Translate Indonesian manuscripts to English Language and vice versa.
- Develop dictation into sound formal writing in English language and Indonesian language as well.
- Prepare minutes of meeting and negotiation.
- Prepare letters and arrange sending/distribution.
- Execute direct oral translation and shorthand typing .
- Serve the same to ITL, NPD and COPT.

3. Responsibility :

- These secretaries are responsible to NPD for oral and written translation preparation of letters etc.

- Well versed in English language
- High proffesional in secretary.
- Good personality, and appearance.

TOTAL : 1 PAGE : 1

CODE : TT - 013

JOB DESCRIPTION

Position: TRANSLATORS / TYPIST (TT)

1. Function :

- Execute paper, cffice works and translation from Baha-sa Indonesia to English language and vice-versa.

2. Task

- Translation from Bahasa Indonesiā to English language and vice-versa.
- Type letters, minutes, etc.
- Handle office works and administration.
- Implement assigned office works.

3. Responsibility :

- Translators/typist is responsible to the NPD for translation and letters assigned to and done by them.

- Shorthand typing with appropriate speed.
- Certified translaters.
- Lady
- Good command in Spoken and written English.
- Good personality and appearance.

TOTAL : 1 PAGE :

CODE : Dr - 014

JOB DESCRIPTION

Position: DRIVERS

1. Function

- Drive cars and serve IE and NE or officers in the implementation of project activities.

2. Task

- Maintain car assigned to him.
- Drive car(s) securly and carefully.
- Serve passengers comprise of IE, NE and officers
- Doing administration work concerned with car.

3. Responsibility :

- Drivers are responsible to the NPD for the car and jobs assigned to him. Human

- At least primary high school certificated.
- Moderate English speaking.
- Good health.
- Good driving and posses driving licence.
- Experience as driver for at least 3 years.

TOTAL PAGE :

CODE : SO - 015.

JOB DESCRIPTION

Position: STAFF OFFICER

1. Function :

- Represent the concerned Directorate Generals, Institution related to the project activities in the team.

2. Task

- Cooperate in the team for elaboration of programmes etc.
- Feed information concerning the represented Di rectorate General/ Institution to the team.
- Convey minutes of consensus of the team to the Di rectorate General/Institution Head for further interaction.
- Report interaction of the concerned Directorate General/Institution related to the project.
- As liasion officer maintain interaction, interelation interconnection and interdependence between the project team and concerned Directorate General/Institution.
- Good command in communication with regional and subregional officies related to the concerned Ministry will be in useful asset.

3. Responsibility :

- The staff officer is responsible to the NFD in the team work responsible to the concerned Directirate General/Institutes head represented.

- Posses at least third echelon
- Good command and knowledge pertaining policies, system and implementation of the represented Directorate General/Institution.
- Formally assigned by the Directorate General/Insti tution Head as representative/liasion officer.

Program and Implementation

The estimation of the demand or need for housing can be thought of consisting of the following three components, (a) due to growth of population, (b) replacement of inadequate dwelling units and (c) reduction of overcrowding. The programs for housing construction for Pelita II, III and most probable also for Pelita IV are geared to enhance housing construction in general through mass housing construction initiated by Perum PERUMNAS. Attention were given to overcome the need for housing due to the growth of population.

The need due to population increase is a straithforward calculation derived from assumption about growth rate of urban population and average household size which yields new household formation, and this is equal to the number of housing required. Based on this assumptions, Perum PERUMNAS target was set at 73,000 units for Pelita II and 120,000 units for Pelita III with a further assumption that the biggest portion of the housing need can be fullfilled by the people own effort and some will be supplied by private developer.

The first four years of Perum PERUMNAS existence have also indicated constraints under which Perum PERUMNAS must operate. Some of its difficulties can be explained as the normal startup difficulties of a new organization, such as the recruitment of qualified staff and the development of organization and management procedures. One of the most severe

problem is land acquisation. The procedures for acquiring land is under the control of other institutions and local government, it is often long and tedious.

The most severe constraints during Pelita III is actually the extensive distribution of project location. In Pelita II Perum PERUMNAS had to operate in 17 sites which were located mostly in relatively big cities, but now in Pelita III Perum PERUMNAS have to operate in about 100 cities which is in many cases rather remote. The criteria for selecting the locations of Pelita III housing program are as follows:

- a. All capital cities of the 27 Provinces (27 cities).
- b. All capital cities of the Regencies with population of more than 100,000 inhabitants in 1971 (17 cities).
- c. Cities as the center of regional development, with population of more than 50,000 inhabitans in 1971 (33 cities).
- d. Other cities or towns of which the growth should be induced by a housing program, or a housing program is needed because of a disaster (estimated for 30 cities).

Other problem during Pelita III is more in the field of estate management, but steps are being taken jointly with BTN to set up an appropriate system in selecting applicants and in collection of the instalments.

Gographic Distribution of Projects BRANCH BRANCH CH

List of Projects

NO.	CITY/TOWN	SITE	НА	COMPLETED	ALLOCATED	2000
1.	Medan	· Halvetia	97	4.794	4.775	1.917
}		Percut Seituan	173	7.331	5.976	-
2	Tebingtinggi	Bagelen	6	292	· 292	-
3.	Padang	Air Tawar	8	368	368	. 365
		Rimbo Siteba	20	1.400	1.394	-
4.	Palembang	Sokokenten	78	. 98 6	_	-
5	Tanjungkaran		22	-	-	-
6.	Pontianak	Jeruju I	16	1.078	1.075	-
7.	Jakarta	Klender I	151	8.033	7.882	19
•		Tanah Abang	4	960		_
8.	Depok	Depok I	113	4.854	4.850	3.784
		Depok II	294	13.500	12.761	106
		Depok Utara	34	1.311	1.311	1.310
9.	Bogor	Bantarkemang	18	644	644	-
10	Tangerang	Karawaci I	160	7.358	7.218	-
11.	Bekasi	Rawatembaga I	257	3.818	3.810	339
Ē.	· · · · ·	Rawatembaga II	-	1.300	648	_
. 12	Bandung	Sukaluyu	3	150	150	148
**		Sadang Serang	15	860	859	588
,		· Cijerah I	10		460	418
		Cijerah II	5 3	2.380	1.998	-
ŗ	•	Sarijadi	81	3.346	2.740	-
13.	Tasikmalaya	Sukamanah	12	570	388	-

NO.	CITY/TOWN	SITE	НА	COMPLETED	ALLOCATED	SOLD
	Cirebon	Larangan	151	3.904	2.396	1.072
15.	; Semarang	Sampangan	6	438	438	427
		Krapyak	13	732	730	_
•		- Banyumanik	97	4.908	4.888	_
16.	Solo	``Karanganyar	34	1.806	1.776	1.171
17.	Magelang	Kalinegoro I	. 9	430	428	_
18.	Yogyakarta	Condongcatur	21	1.166	1.166	_
		Minomartani	_	64	6	_
19.	Surabaya	Simomulyo I	27	1.696	1.639	_
		Simomulyo II	24	1.340	1.336	_
•		Tandes I	83	2.400	2.559	168
		Tandes II	73	1.736	754	_
20.	Kamal	Banyuayuh	28	1.292	1.265	111
21.	Mataram	Batudawa	26	~	424	_
22.	Larantuka	Larantuka	-	250	240	-
23.	Samarinda	¹ Sei Mei	21	200	200	_
24.	Manado	Paniki Bawah	17	656	242	_
25.	Palu.	Balaroa	8	400	386	-
26.	Ujungpandang	Panakkukang	123	1.204	1.194	499
					01.010	12.442
<u>i</u>	TOTAL	,	2386	91.915	81.818	12.442

COLECTION OF DATA

- 1. NATIONAL HOUSING CORPORATION
- 2. TRANSMIGRATION PROGRAMME PELITA III
- 3. BUILDING MATERIALS

TRANSMIGRATION PROGRAM. 3rd Felita (Five years Development Programme)

Province	Number of families head x 1000	Distribution planning and implementation
1. Aceh x) 2. Sumut 3. Riau 4. Sumbar	14 0,5 - 2 41 - 46 2 - 3	1. Number of transmigrant 79/80 50.000 kk 80/81 75.000 kk 81/82 100.000 kk
5. Jambi6. <u>Sumsel</u> x)7. Bengkulu	70 - 75 42 -100 14 - 20	82/83 125.000 kh
8. Kalbar 9. Kaltim 10. Kalsel	14 - 25 22 14 - 24	2. Preparation of location <u>á 2000/location</u> . 79/80 25 tempat
 Sulawisi Utara Sulteng Sulawesi Tengga 	0,5 - 2 22 - 28 <u>ra</u> x)22	80/81 38 tempat 81/82 50 tempat 82/83 62 tempat
14. <u>Sulawesi Selata</u> 15. Maluku 16. Irian Jaya	12 - 16 14 - 20	83/84 75 terrat 250 tempat divided into:
= one location for = one family head : total houses 5	housing of 35 m ² .	a. 44 tides locations. b. 206 dry locations.
<pre>= each 500 family ed will one prim</pre>	head will be provid ary school building Iding are needed.	mily head/school. 79/80 = 100 schools
x) ·projected loca programme.	tion in the	80/81 = 150 schools 81/82 = 200 schools 82/83 = 250 schools 83/84 = 300 schools
		1000 schools

Estimation of basic building material needs for housing and non housing for 9 cities in Indonesia

(briged from SGV. UTOMO; UNIDO survey contract)

9 Cities	Types of Building Materials respectively , for the year :					
	1980	1981	1982	1983	1984	
I. Natural stone.						
(x 1000 m ³)						
1. DKI. Jakarta.	1135,8	747,8	782,9	825,2	849,0	
2. Bandung.	9,3	85,8	87,3	88,7	90,2	
3. Semarang.	29,7	47,5	50,0	52,7	55,6	
4. Surabaya.	202,0	143,8	148,0	152,4	156,9	
5. T.Karang/T.Betung	16,8	36,2	37,5	38,9	38,4	
6. Palembang.	1995,0	64,7	67,6	70,2	73.2	
7. Medan.	14,8	137,1	144,9	153,3	162,2	
8. Samarinda / Balikpapan.	-	31,3 53,6	34,1 58,0	36,8 63,2	40,1	
9. Ujungpandang.	78,8	69,7	72,2	74,4	77,4	
II. Aggregates.					•	
(x 1000 m ³).						
1. DKI. Jakarta.	3044,7	765	801	833,5	868,	
2. Bandung.	233,5	71,0	72,2	73,4	74,6	
Semarang.	192,6	44,6	47,1	49,6	52.	
4. Surabaya.	313,5	144,9	149,2	153,7	158,2	
5. T.Karang/T.Betung	-	34,6	35,7	37,0	38,2	
6. Palembang	283,5	57,0	59,6	62,2	64,7	
7. Medan.	160,8	141,1	149,3	157,9	167,0	
8. Samarinda /	•	40,0	43,4	46,8	51,	
Balikpapan	•	71,8	77,9	84,8	92,6	
9. Ujungpandang.	96,0	71,4	73,9	76.5	79.	

III	. Galvanices steel & A	sbestos cement				
	(x T000 pi	eces)				
1.	DKI. Jakarta.	588,3	198,1	207,2	216,1	225,3
2.	Bandung.	264,0	25,9	26,4	26,8	27,1
3.	Semarang.	294,1	75,6	88,1	93,8	95,2
4.	Surabaya.	-	249,3	256,7	264,3	272,2
5.	T.Karang/T.Betung.	-	80,4	83,8	87,5	92,4
6.	Palembang.	-	107,4	112,2	116,9	121,8
7.	Medan.	1750	458,2	486,0	515,2	546,3
8.	Samarinda / Balikpapan.	-	193,4 193,3	209,9 210,5	227,2 229,3	245,4 250,2
9.	Ujungpandang.	454,2 + 54,8	291.7	303.2	315,1	327,5
IV.	Portland cement. (x 1000 bags)					
1.	DKI. Jakarta.	28095,5	2741,9	2870,9	2987,8	3111,7
2.	Bandung.	3077,0	169,2	172,0	174,9	177,9
3.	Semarang.	2650	91,0	95,8	101,0	106,5
4.	Surabaya.	645,8	279,3	287,6	296,1	304,9
5.	T.Karang/T.Betung.	3175	123	127,2	131,7	136,1
6.	Palembang.	2807	208,1	217,3	225,6	234,9
7.	Medan.	9802,5 (1979)	474,3	501,6	530,3	561,2
8.	Samarinda / Balikpapan.	787 533,6	115,7 201,2	125,5 218,2	135,5 237,5	147,9 259,4
9.	Ujungpandang.	353,8	192,2	199,7	206,6	213,8
٧.	Clav (structural) bricks.					
1.	(million pieces). DKI. Jakarta	703,6	416,5	436,3	453,7	472,6
1	Bandung.	29,0	45,8	46,6	47,4	48,2
Ĭ.	Semarang.	30,8	22,2	23,5	24,8	26,1
4.	Surabaya.	40,7	67,0	68,9	70,9	73,1
5.	•	15,6	15,2	15,8	16,2	16,8
6.	Palembang.	20,4	24,1	25,2	26,2	27,2
7.	Medan.	190,3	64,6	68,4	72,2	76,5
8.	Samarinda/Balikpapan	-	18/32,1	19,6/34,9	21,1/37,9	23/41,5
9.	Ujungpandang.	46,7	35	36,2	37,0	38,8
#===	: = = = = = = = = = = = = = = = = = = =	 	d=====================================	tassssssss:	f========	*========

VI. Clay roofing tiles.					
(million pieces)					
1. DKI Jakarta	277,4	137.7	144,2	150,4	156,8
2. Bandung.	10,6	11,5	11,6	11,9	12,1
3. Semarang.	12,9	9,3	9,9	10,5	11,11
4. Surabaya.	37,4	23,7	24,5	25,1	26,0
T.Karang/T.Betung.	4,0	5,3	5,5	5,9	6,1
6. Palembang.	2,8	7,5	7,8	8,1	8,4
7. Medan.	-	8,6	9,0	9,6	10,1
8. Samarinda/Balikpapan	-	1,8/3,1	1,9/3,4	2,0/3,7	2,2/4,0
9. Ujung Pandang.	3,3	3,4	3,6	3,7	3,8
VII Wood (x 1000 m ³ .).					
1. DKI. Jakarta.	516,292	316,5	331,4	346,3	361,3
2. Bandung.	62	43,9	44,5	45,4	46,2
3. Semarang.	215,7	36,3	38,6	50,1	43,8
4. Surabaya.	60,5	88,5	91,2	93,9	96,6
T.Karang/T.Betung.	43,0	22,8	23,8	25,1	26,3
6. Palembang.	161,7	29,3	30,5	31,8	33,2
7. Medan.	87,452	72,3	76,6	81,3	86,2
8. Samarinda, Balikpapan.	-	40,3 45,4	43,7 49,5	47,4 54,0	51,4 58,9
9. Ujung Pandang.	84,9	38,9	40,5	42,2	44,0
VIII. <u>Lime</u> . (x 1000 m ³).					
1. DKI. Jakarta.	*	-	-	-	_
2. Bandung.	13,4	36,9	37,5	38,3	38,8
3. Semarang.	17,5	7,2	7,6	7,9	8,4
4. Surabaya.	16,0	9,7	9,9	10,3	10,5
5. T.Karang/T.Betung.	1305,9	-	-	-	-
•	(11 persil)				
6. Palembang.	-	•	-	-	-
7. Medan.	-	-	-	-	:
8. Samarinda/Balikpapan	-	-	-	-	-
9. Ujungpandang.	56,2	3,1	3,2	3,3	3,4
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TABEL 9. Estimation of the Development of Building Materials Industries, production capacity and the demands of building material components for the physical construction in Banda Aceh in 1985

No	Type of Industry	Number of factory	Production capacity	Evarage production	Estimates of building materials needs	Open capacity	Number of factory possibly to be developed.
1	Crushed stone	unknown	unknown	unknown	3,93	<u>-</u>	-
2 2	Clay bricks	379	85,613 (million pieces)	0,226 (million pieces)	1.580 (million pieces)	1494,38	6612 pieces
3	Cement floor tiles	31	1,57 (million pieces)	0,051 (million pieces)	367,5 (million pieces)	365,93	7206
4	Ceiling materials	unknown	unknown	unknown	14,7 (milliom m ²)	-	-
5	Sand and aggregate	unknown	unknown	unknown	3268,08 (thousand m ³)	•	-
6	Pozolan	unknown	unknown	unknown	217,14 (thousand m ³)	-	- '
7	Lime	29	1.925 ton	0,066 (million ton)	217,14 (thousands m ³)	215,21	3241 pieces
8	Portland cement	-	_	<u>-</u>	314,57 (thousands m ³)	-	-
9	Wood	321	0,245 (million m3)	0,0008 (million m3)	1.399,02 (million m ³)	1,154 (million m3)	1442 pieces
10	Roofing tile	20	416.770 pieces	20.838 pieces	879,55 (million pieces)	879,13 (million pieces)	42.188 pieces
11	Plywood	1	824.790	824.790	3.812,3 (thousands pieces)	2987,51	3 pieces

Phologure.

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Equipments needed by the R & D. Institute.

Items.	Estimated price US \$.
1. Bending testing machine, for tile, and	
mall slabs, etc. 1000 Kp. Tonindustrie Model 2604.	30.060
2. Combined bending and top pressure test machine.	
for Beam, large dimension plate, pipes and other	
construction elements. 40 Mp. Tonindustrie	
model 2636.	166.000,~
3. Compression testing machine-100 Mp. Tonin-	en e
dustrie hodel 2579/2.	100.000,-
400 May 2017 to 1	•
. Portable rock tester, 120 Ton. Soiltest Inc.	3.000
CT 710 M.	5.000.
Accessories: Alectrical pump attachment	*. •600
110 V. 1 phase,50 Hz.AC. C 715G.	3500
Flaten and spacer set for CT 710.	150
Eoiltest CT 707.	120
5. Abrrasion testing machine as per DIN 52108 and	
IN 51954, for testing the abrasion resistance of	î
flooring materials, rock, and concrete, etc.	
Tonincustrie Model Bauform 1650.	20.000
6. Rock musonry saw, 20" blade, Coiltest Inc.	
Hodel CT 306 A.	2,000,-
Accessories: a. liamond blade 20% x 0.105 ² 2 pieces. CT 318.	1.000
b. Abrasive blade 18 x 5/32	1,000
10 pieces. CT 316.	500
7. Fulti position strange gauge, metric gracuation,	-
for measuring, shrinkage of masonry products.	•
Soiltest Inc. Model CT 171M.	500,-
8. Fiel indicators Metric graduation, 5 pieces,	
Soiltest Model LC-12.	600
9. Water stills, capacity. 5 gallons/nour.	
Sciltest Inc. Godel S-5.	1800
10. Labor, tory vibrating screen. Widag Type	
1 945/1	1500
ll. Humidity cubinct. Moiltest model L 82.	1.606

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	•	
	12. Chapman flask. for aggregat.	
•	Soiltast model CT 90. 10 pieces.	200
	13. La Chatelier flask. Soiltest model	
	CT 92. 5 pieces.	300
	14. Dismond bit Ø 2 " Soiltest or other	•
	model. 2 pieces	300
	15. Sinva Ram Brick press. Local type.	
	2 sets.	500
	162 Concrete block/batsco vibrating machine.	
	Local made. 1 sets	7,500
	.Rotery blade type concrete mixer.	
	b.Local made. 1 set.	
1		
)	17. Eirich type concrete mixer. 1 set.	
•	(any Model)	5,000
		• •
	18. Floor tile pressing machine 1 set.	F 000
	local made.	5,000
	19 . Polishing machine for tile. 1 set.	5,000,-
	20. Dies for pipe casting. 5 sizes.	750
	21. Dies for tilo. 4 model/paterns.	600 ,-
	22. Clay pipe moulcing machine. 1 set.	
	Euchlager and Handle	20,000
	23. Loss Angeles abrasion machine. 1set.	2,000
_	24. Gilsontype, serrening machine for	
('	aggregates.Schltestmodel CE 325H	1,500
	25. Vibrating table. Soiltest model CT 164.	1,800
	26. Filed vibrator. Ø 2". Control model C 163	500
	27. Calori meter, (Karl Kolb).	4,000
	28. Flame photo mater,	5,000
•	29. pR moter nad its accessories. 1 set.	850
	30. Magnotic stirer and hot plate. 2 sets.	1,300
	31. Analitical balance. 2 sets.	3,000,-
	32. Platinum crusible Ø 3 cm 5 pieces.	12,500
	33. Platinum dishes \$6 or 7 cm. 5 pieces.	25,000
	34. Nickel crusible. 40 ml. 100 ml and 200 ml.	
	5 of each.	150
	35. Viscosimeter. 1 set.	1,000
	36 Class wares.	4,900
	Total \$	370,000,-

Equipments for Regional Industrial Laboratory.

items.	Esti	mated price
1. a. Fortable rock tester. Soiltest	CT 710 H.	3,000,-
	CT 715.G	1,500
c. Flaten and spacer/	CT 707	150
2. Cement and mortar apparatus.		
a. Mortar mixer 5 liters. Control		1,500
b. 50 mm mortar cutes.	1 80 9 "	225
c. Rumidity cabinet	D1380 1 set	1,500
d. Flow table hand operated "	L 40/A 1 set	500
e. Flow caliper	L 39/1 1 sat	100
f. Vicat apperatus.	L 29/A 1 set	500
g. Coment autoclava +	L 32. 1 set.	15,500
replacement electrical	L 32/1 2 set	500
resistance.		
N. Frism would + contact poit.	2 sets	500
Control. L 33 + L 33/1	2 packs	ges 100
1. Length comperator Control	L 34 1 set	1,000
j. Elaine apparatus.	L 41. 1 set	500
k. Blaine accessories.		
L 42/1;42/2;42/3;/42/3		500
1. Le Chatelier flask.	D 1080. Spieces	50
3 . Sieve Shaker Soiltest C 305A-3		500
4. Sieve series 8" diameter. (fina		
series)		1,100
5. Analytical balance 160 g.		2.000
6. Triple beam belance 2610 gram. Soil	itest I415.	100
7. Heavy duty balance 20 kgs.	" L 50C	400
8. Erging oven, Soiltest L 24 B.		1.000,-
9. Additional glasswares and accessor	ries.	17,775
	Total \$	50,000

