

DESA

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"TERMS OF REFERENCE: PROPOSAL FOR TECHNICAL ASSISTANCE, IN THE ESTABLISHMENT OF DATA BANK FOR MINERAL INDUSTRY," PROJECT PROPOSAL SPONSORED BY DEPARTMENT OF MINES, REPUBLIC OF INDONESIA

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T E R M S   O F   R E F E R E N C E

PROPOSAL FOR TECHNICAL ASSISTANCE, IN THE ESTABLISHMENT  
OF DATA BANK FOR MINERAL INDUSTRY ( CTA 12 )

Submitted to :

INTERESTED SUPPORTING COUNTRY.

Sponsored by

DEPARTMENT OF MINES  
DIRECTORATE GENERAL OF MINES  
ACADEMY OF GEOLOGY AND MINING  
R E P U B L I C   O F   I N D O N E S I A  
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## I. BACKGROUND AND SUPPORTING INFORMATION

### 1. Justification of the Project

Mining activities of non oil and natural gas covering survey, exploration, exploitation, production and others related to this have a rapid progress. Survey and exploration carried out either by Department of Mines or State Enterprises and Private Foreign Enterprises, covering almost all areas in Indonesia which have mineral potentials.

Investigation set up in the survey and exploration by foreign enterprises only, will covered million U.S. dollars. It has been estimated, that investment following the exploration will approximately be about several billion dollars. Mean while, the collected basic data as a result of survey and exploration will then be processed in their own way. Information as reports of their activities then are given to Department of Mines, as a task.

Geological Survey as a Government body, is carrying out works on survey and exploration. Most of this works are parts of activities on the program of Five Year Development Plan (Pelita), by the aim of collecting data of deposits of the local areas in question.

So far, the Mining State Enterprises which produce various mineral commodities (tin, bauxite, nickel, iron sand, gold and silver) have been enlarged their activities, either for the quantity or quality of these minerals. The projections of production in the operating years of Second Five Year Development Plan have been set up in detail.



Those geological and mining data which can not be separated each other, have been visualized to be increasing rapidly. The huge volume of data, gradually are difficult to handle by conventional manner. It is the time to set up a new approach in handling the volumous data, and this approach would be computerization of geological and mining data.

It is the intention of the Project, to set up a body which will be able to serve processing, interpretation, storage and retrieval of geological, mining and administrative data.

## 2. Project in the establishment of Data Bank for Mineral Industry.

Project in the establishment of Data Bank for Mineral Industry which can be abbriviated as Data Bank, is intended in setting up a computer service center for mineral (excluded oil and natural gas) and all its aspects.

This centre is expected to be a servicing agency for processing, interpretation, compilation, storage and retrieval of various mineral data such as :

- . geological data based on works of survey and exploration;
- . mining data based on works of exploitation, production and marketing;
- . government records based on planning, supporting and supervision of mineral industry and government administrative works.

Using facilities of the expected centre, an integrated activity, which will involve various disciplines can be devised. In fact this integrated approach is very important in developing and operation.



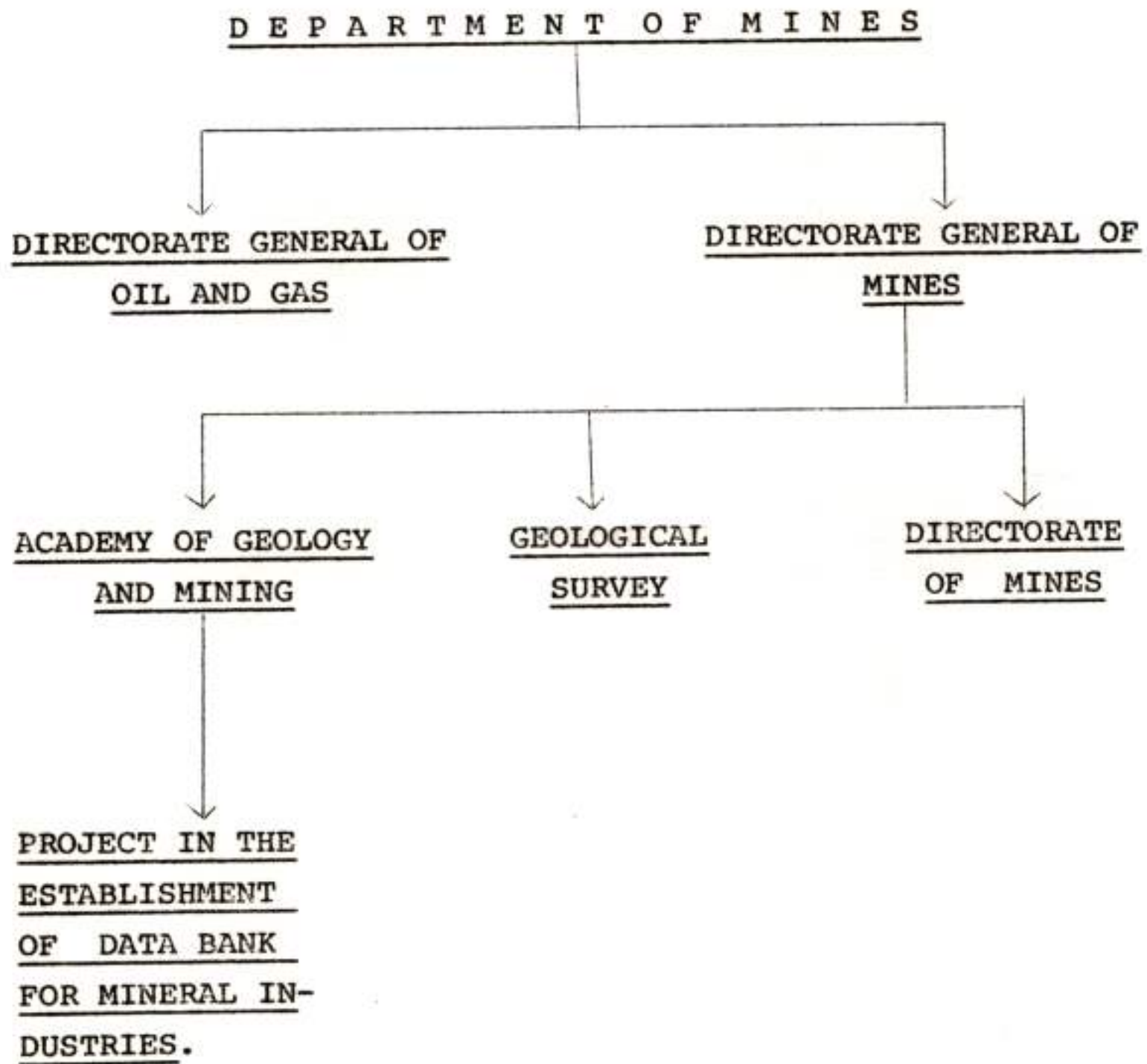
### 3. Institutional frame work.

The Academy Geology and Mining hereby undertakes the Data Bank Project. This Academy is administered under Directorate General of Mines, Department of Mines. With support - ing of foreign government, it is planned to improved and expanded as a Training and Vocational Centre for Mineral Industries and will have two objectives, i.e. :

- i. To educate and to train either high school graduates or personnel of the Ministry of Mines and Mining Enterprises, leading to B.S. degree and certificate for specific skill in geology and mining engineering.
- ii. To conduct training at graduate level in the form of seminar, classroom and field activities introducing new techniques in geology and mining engineering and processing data.

The establishment of Data Bank will be designated as one of the Training and Vocational Centre activities and located in Bandung.

By schematic, the position of the Project can be visualized in the organogramme as follows :

ORGANOGRAMME

#### 4. Government follow up.

As the Data Bank has been established, it will be designated to serve geological and mining data. The activities of Data Bank is expected to enlarge and embody of all aspects in processing geological data, mining data and administrative data. It is planned to organized as a separate body and will be ascertained as reference body for data and information in the Department of Mines.

Activities which has been in operation and use computer services are;

- i/ Compiling and processing man power and budget data by Inspectorate General of Mines;
- ii/ Exploration in North Sumatera by Geological Survey with sponsorship of British Technical Aid. For the time being, those activities use private computer service in running their programs.



## II. OBJECTIVES OF THE PROJECT

### 1. Immediate Objectives

- a. To demonstrate the practical aspects for the storage of geological and mining data in computer memories.
- b. The possibility of organizing integrated activities as exploration activity. Disciplines on the integrated exploration involve geography, general geology, geochemical, petrography, technical condition of sampling and rock forming data.
- c. To assist the arrangement of government supervision to the State Mining Enterprises and Foreign Companies operation intensively. This act is made possible because mostly all data either from the deposital point of view such as mineral, quality, reserve, production etc or the financial as budgeting and income are available on data bank and always up dating. Supervision processes suitable to the government requirements and the enterprises condition can be carefully carried out. Checking on mining work can be monitored so far as data operation needed to be fulfilled.

### 2. Long Range Objectives

- a. Data collecting from all aspects of the activity of Department of Mines might cause informative reports which can be used as :
  - i. To analyse progress;
  - ii. To ascertain policy;

- iii. To solve problems;
  - iv. Planning for the future.
- b. The possibility of arranging complex works easily and accurately such as :
- i. Mine plan operation, where as computer program made to insert the economic and ore extraction aspects. The possibility of the economic implication as results of operation changes is carried out with the procedure of computer.
  - ii. Economic feasibility studies from those new operations/projects and modifications of existing operations. Those studies might be based on discounted cash flow analyses.
  - iii. Simulation of the operation process based on field and laboratory data. By computer simulation, conclusion on the optimum condition of the operation process will be achieved.



### III. PLAN OF OPERATION

In establishing the Project, the Academy of Geology and Mining will manage consecutively the following activities :

1. Providing Land site, building and its utilities, office and general equipments;
2. Recruiting personnels, for operating the data bank;
3. Providing budget for running the Project and operation of the established Data Bank;
4. Providing accomodations and other facilities for foreign expert (s).

The supporting foreign government is expected to provide training provisions, posting one or more expertise who will assist the Project in implementing its work-program, to provide specific equipments for Data Bank.

The duration of the Project is not longer than 3 years and the Project activities might be scheduled as follows :

1. Consideration of Project proposal by Supporting Country. Proposed duration : 1<sup>st</sup> and 2<sup>nd</sup> quarter of the 1975/1976 operational year.
2. Initiation of Supporting Country followed by proposal agreement between the Supporting Country and Depart - ment of Mines.
3. A Concrets agreement by the Supporting Country.  
Proposed duration for 2) and 3) items :  
3<sup>rd</sup> and 4<sup>th</sup> quarter of the 1975/1976 operational year.



4. Recruitment of skill for computer service/data bank covering mathematics, electronic engineering, geology, mining engineering, systematic analyst, programmer and auxiliary personnels.  
Proposed duration : 3<sup>rd</sup> and 4<sup>th</sup> quarter of the 1975/1976 operational year.
5. Job training in the Supporting Country on Data Bank. Training for system analyst and programmer can be carried out in Indonesia.  
Proposed duration : variable length of time, all trainings occupy during the 1976/1977 operational year (commence on April 1, 1976).
6. Setting up computer unit and other equipped data processing/data bank, followed by setting up communication system between data bank and its user (units in the Department of Mines).  
Proposed duration : from 3<sup>rd</sup> quarter of the 1976/1977 operational year to 1<sup>st</sup> and 2<sup>nd</sup> quarter of 1977/1978 operational year.
7. Starting operation of data bank which will be carried out by Indonesian skills supervised by experts of the Supporting Country.  
Proposed commencement : to begin with 3<sup>rd</sup> quarter of 1977/1978 operational year.
8. Data Processing Centre/Data Bank is carried out by Indonesian skills. A consultant from Supporting Country is needed.  
Proposed commencement : to begin with 1978/1979 operational year.



Description of Data Bank work operation

1. Communication system between the user and data processing centre is carried out by telex or other terminal apparatus. Although transmission by telex is not suitable for volumous input and output data/information, it is still the efficeint system for transmitting to and from the computer centre.
2. Department of Mines determines data to be reported from work units and production units in the Department. Data processing centre determines tabulation formats for data collecting. Those data coming from units then are stored in tapes or disks. Calling data is available any time.
3. Data centre makes types of format starting from calculation of down drill hole survey data reduction or particle size analyses up to the program for mine planning operation or other complex works. Data are sent by telex which then receives result of calculation or answer by telex.

#### IV. EXTERNAL AND GOVERNMENT INPUTS

##### 1. External inputs

###### a. Experts and job description

Post title : i/ geologist  
ii/ mining engineer

Duty Station : Academy of Geology and Mining  
with visit to mines, and other  
places needed.

Duration : 2 (two) years.

Date required : 2<sup>nd</sup> quarter of 1976/1977  
operational year.

Duties : i/ To aid in planning for the  
establishment of Data Bank.

ii/ To demonstrate the practical  
aspects for the storage and  
processing of geological and  
mining data.

iii/ To formulate and organize the  
operation of Data Bank.

iv/ Formulating computer programs  
of various necessities in rele-  
vance to the mineral industries.

v/ Training of technical personnels  
in running such a Data Bank.



Language : English

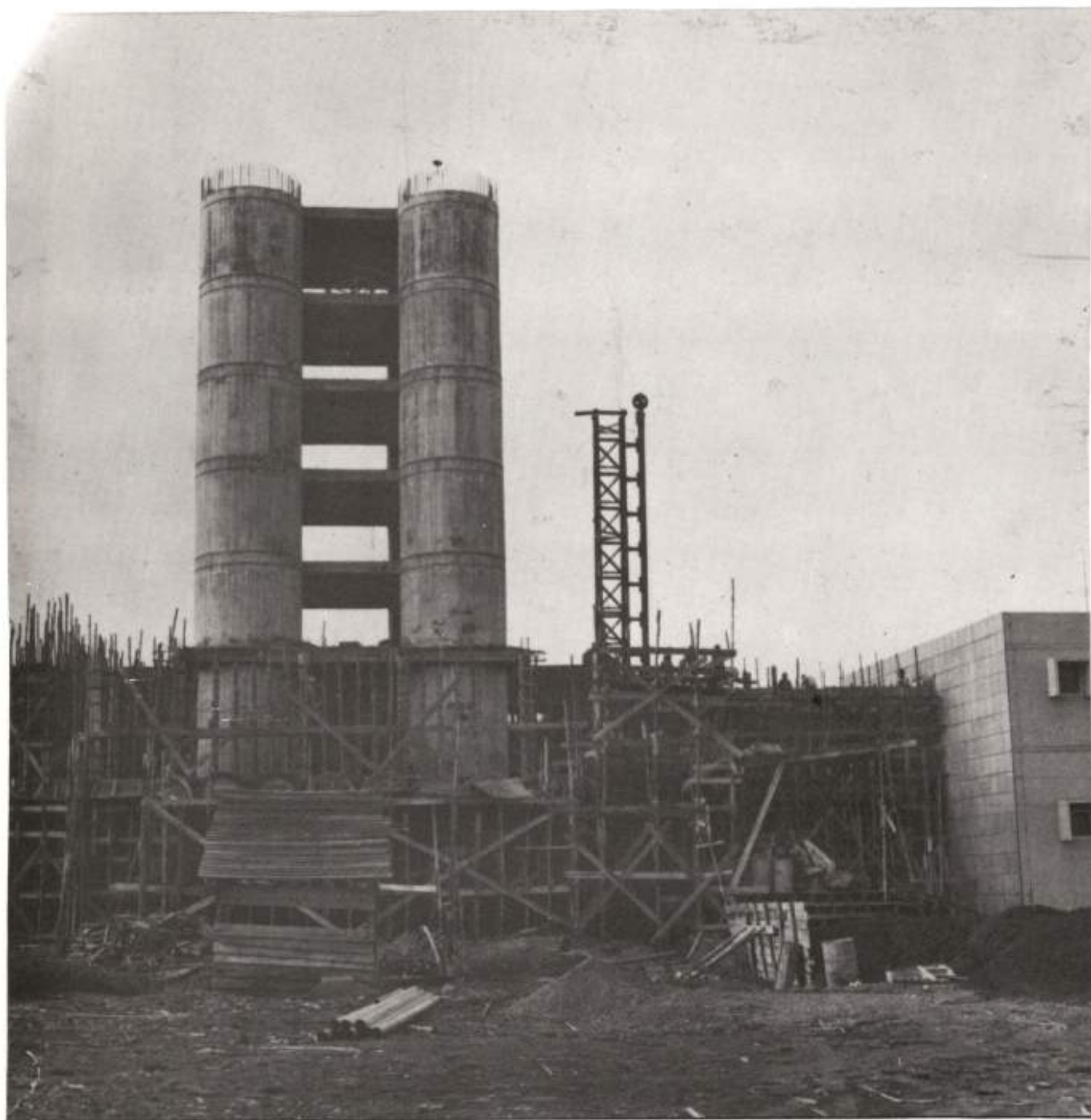
Qualification : University degree with extensive experience in processing and interpreting of geological and mining data.

b. Equipments.

1 (one) unit of Computer. The type of computer is delivered to the Supporting Country.

2. Government inputs

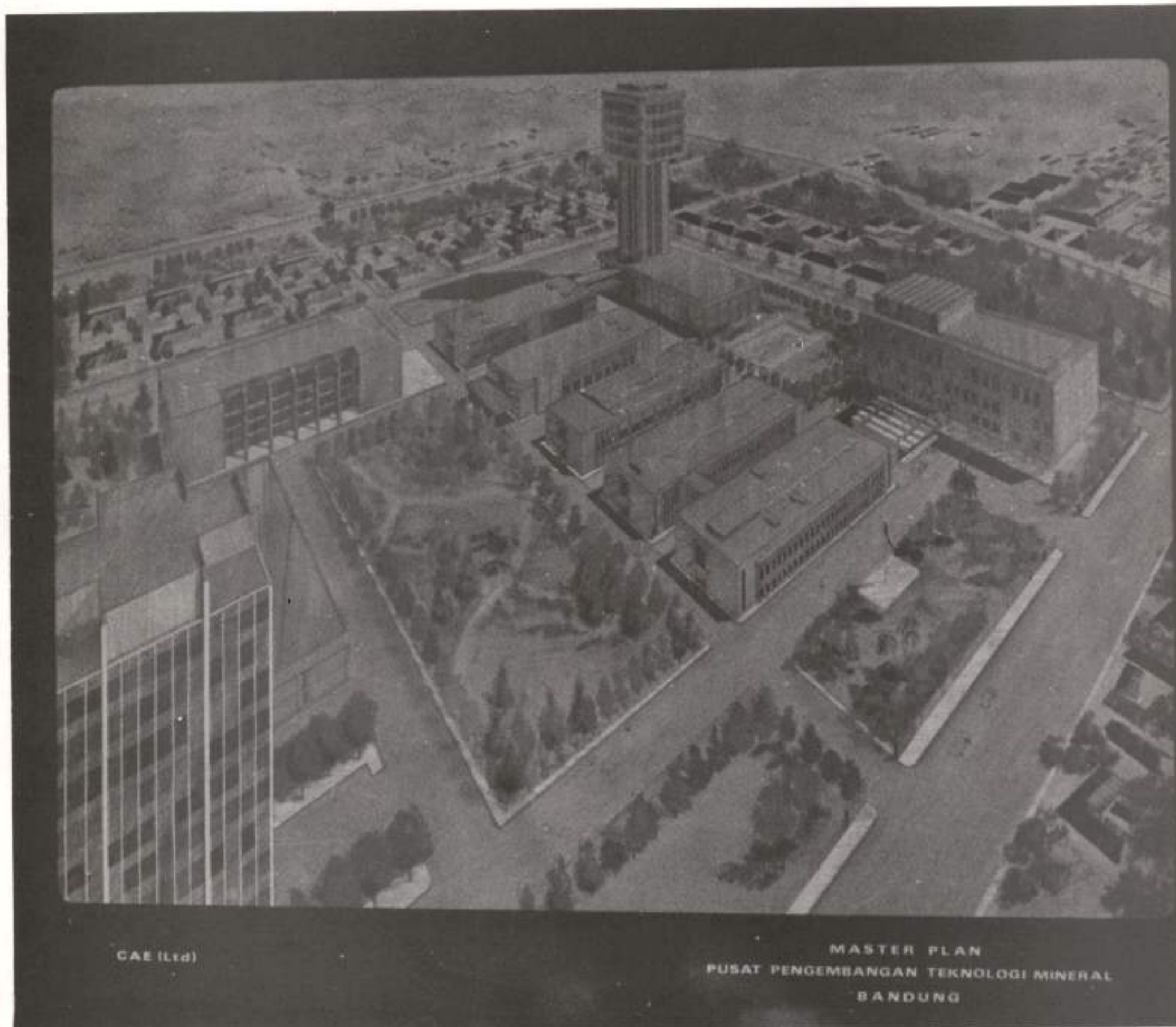
- a. Land site, building and its utilities, office equipments. Building of 540 m<sup>2</sup> floor area have been provided for computer room.  
Fire-proof building of 441 m<sup>2</sup> floor area is being under construction; it will be completed by the end of March, 1978.
  - b. Operating budget which will be cooperated in the Second Five Year Development Plan (Pelita II).
  - c. Accomodations for foreign experts.
  - d. Cars for transportation and visiting to the fields.
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Photograph of Data Bank buildings.

Right hand side is computer room (finished). Left hand side is data storage being under construction and it will be finished by March 1978.





Photograph of Master Plan.

Master Plan of Mineral Technology Development Centre. Its components will be Research & Development, Training & Vocational Centre and Data Bank.