

特出案件

社会開発協力部

REPUBLIC OF INDONESIA

**FEASIBILITY STUDY
FOR
JAKARTA RING ROAD
INCEPTION REPORT**

MARCH 1977

JAPAN INTERNATIONAL COOPERATION AGENCY

108
614
SDS
LIBRARY

SDS
77

JICA LIBRARY



1054767[7]

REPUBLIC OF INDONESIA

**FEASIBILITY STUDY
FOR
JAKARTA RING ROAD
INCEPTION REPORT**

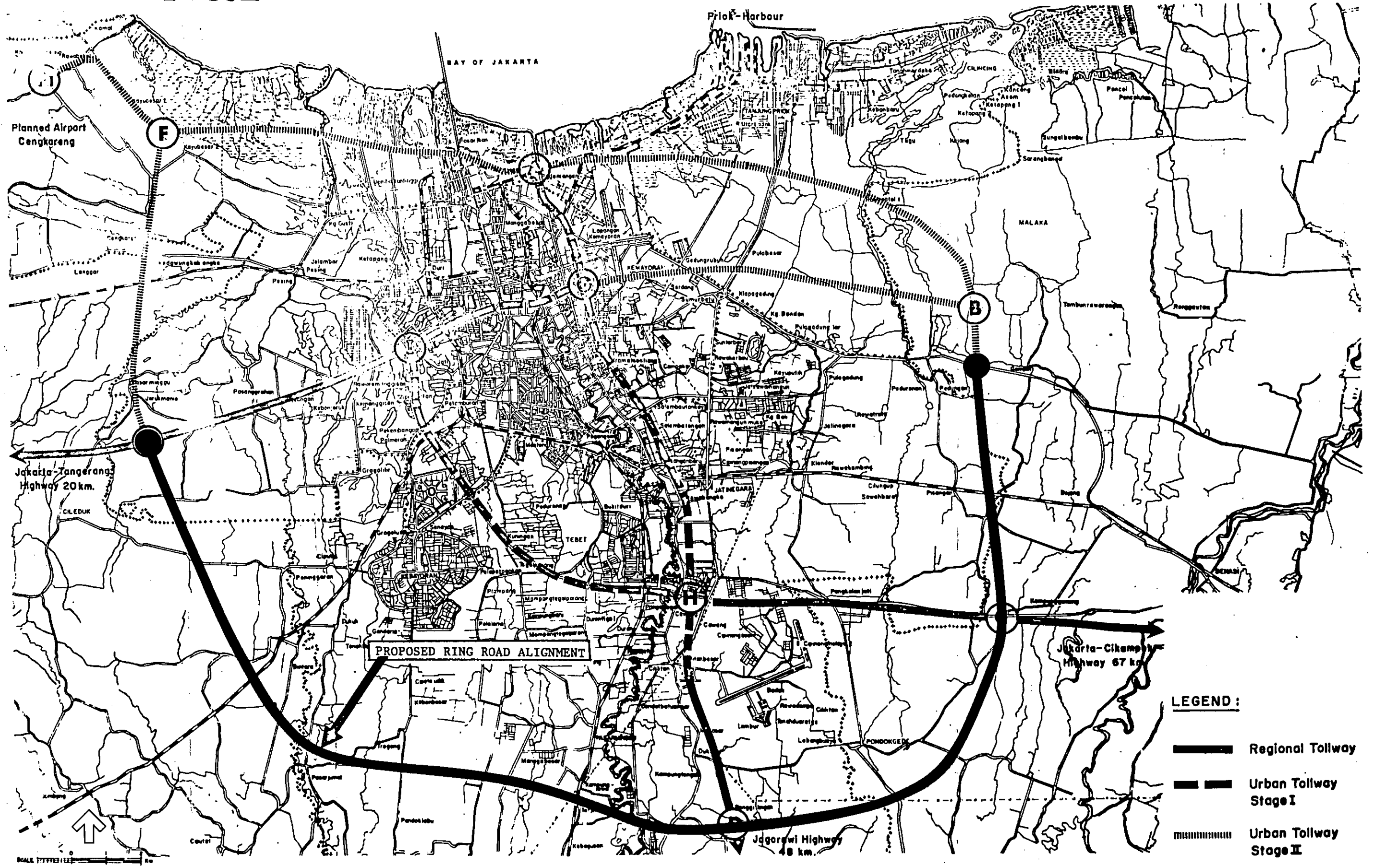
MARCH 1977

JAPAN INTERNATIONAL COOPERATION AGENCY

国際協力事業団	
受入 月日 '84. 5. 20	108
登録No. 06049	61.4
	SDS

06049 SDS

PROJECT LOCATION MAP






- LEGEND :**
-  Regional Tollway
 -  Urban Tollway Stage I
 -  Urban Tollway Stage II

Table of Contents

1. Overall Concept of the Study

2. Execution Schedule for Phase I

3. Undertakings by the Government

4. Outline of Phase I

Attachment 1 Detailed Work Items

Attachment 2 Scope of Work

Fig. 1 Organization Chart

Fig. 2 Work Schedule of the Study

Fig. 3 Flow Chart of the Study

Fig. 4 Staffing Schedule of Phase I

1. Overall Concept of the Study

The Government of Japan has, in compliance with the request of the Government of the Republic of Indonesia, agreed to undertake the feasibility study for the Jakarta Ring Road Project.

Based on this decision, the Japan International Cooperation Agency (JICA), an official agency responsible for the execution of the Government of Japan's Technical Cooperation Programmes, will carry out the Study.

The main objective of the study is to establish the technical, economical and financial feasibility of the Jakarta Ring Road Project now planned by the Government of Indonesia, and to recommend priority of the routes for construction with the study depth appropriate for financing by the International Lending Agencies.

The Government of Indonesia and the Government of Japan have basically agreed on the following scope and schedule of the work:

Phase I

Phase I will cover the preparatory work in Japan and the field work in Indonesia. The field work in Indonesia will cover the following work items:

- Collection of data and field reconnaissance survey
- Socio-economic survey and analysis
- Survey and analysis of the land use
- Traffic survey and analysis
- Supplemental field reconnaissance survey
- Soils and materials investigation
- River and hydrological investigation
- Investigation of the capability of the local contractors
- Design criteria

- Selection of alternatives (from the view points of staged construction and toll system.)

The available data will be analysed immediately and arrangements will be made for obtaining any necessary additional data. At the end of the field works in Indonesia, the survey team will prepare a progress report embodying the summary of the field work and the criteria for subsequent work in Japan, which will be submitted to the Government of Indonesia for review and comment.

Phase II

Based on the agreed results of the progress report, further detailed studies will be carried out in Japan. Based on the results of the socio-economic study, land use study and the traffic study, an estimate will be made of the future traffic volume.

At the same time, designs will be developed taking into consideration the data obtained during field reconnaissance survey. Moreover, an economic evaluation and financial analysis will be made on the assumption that the ring-road will be operated as a toll-road. The impact of this road construction on the environment will be determined as a part of the social impact study. The findings and recommendations of these studies will be compiled in an interim report and submit to the Government of Indonesia for review and comment.

Phase III

In this phase, the outline designs will be developed further to the stage of preliminary designs, taking fully into account the comments

of the Government of Indonesia on the interim report. The economical and financial analyses will also be checked once more in the light of the above, and worked out in full detail. The draft final report incorporating all the Phase III work will be submitted to the Government for review and comment, and the final report will be prepared and submitted to the Government at the end of this phase.

All through its three phases, the conduct of the study will be guided by the following:

1. The need to coordinate the data collection and the over-all approach with DKI Jakarta, the Directorate General of City Planning and the other Government agencies concerned. This coordination will be done through Bina Marga.
2. The need to coordinate the layout and design of the ring road with those of the Jakarta-Bogor Highway, the Jakarta-Merak Highway, the Intra-Urban Highway etc.
3. The need to consider also the effect of introducing the toll road system on the over-all traffic pattern, and thereby on the economic and social pattern and life of Jakarta.
4. The need to plan the layout and design of the ring road in such a way as to achieve utmost harmony with the environment.
5. The long experience of the Japan Public Highway Corporation and other Japanese Public Expressway Corporations in the organization and management of their systems.

The proposed bar-chart and the flow diagram for this study are shown in Fig. 2 and Fig. 3, respectively. Further details are given in Attachment I.

2. The Execution Schedule for Phase I

The survey team for the Phase I will start its activity from the beginning of March, 1977. The survey team working under the guidance of a Supervisory Committee will be composed of 10 members as follows:

- | | |
|--|------------------|
| 1. Project Manager | Mr. H. Chiba |
| 2. Senior Highway Engineer | Mr. M. Shibuya |
| 3. Highway Engineer | Mr. S. Yomogida |
| 4. Assistant Highway Engineer | Mr. H. Yamaguchi |
| 5. Structural Engineer | Mr. H. Endo |
| 6. Soils & Materials Engineer | Dr. S. Itoh |
| 7. Transportation Planner/Economist | Mr. N. Yamakawa |
| 8. Traffic Engineer | Mr. T. Matsumura |
| 9. Regional Planner | Mr. H. Sakai |
| 10. Coordinator/Construction Planning Specialist | Mr. T. Iitoyo |

The first party of the survey team, composed of Project Manager, Senior Highway Engineer and Transportation Planner will visit Indonesia on March 17 for preparatory works. The member of the Supervisory Committee and remainders of the survey team will visit Indonesia on March 24. The team will stay in Indonesia for a period of about 1.5 months, during which period, necessary data will be collected and analysed, and supplemental surveys will be conducted.

The progress report embodying the finding at site and the design criteria, policy and direction of subsequent study in Japan will be submitted to the Government of Indonesia for comments at the end of the field survey period, which is expected at the beginning of May, 1977. Based on the comments and approval on the progress report, further studies

will be carried out in Japan as a Phase II study.

The staffing schedule of Phase I is attached at Fig. 4 of this report.

3. Undertakings by the Government

The full cooperation and assistance of the Government of Indonesia is necessary for the successful accomplishment of the study. The following is a list of undertakings of the Government of Indonesia prior to on in the course of the study which will greatly expedite the smooth performance of the study.

1. To issue necessary approvals for the field survey works upon request of the survey team.
2. To provide transportation facilities such as vehicles during the survey period.
3. To supply the survey team with an office furnished with appurtenance facilities such as desks, office equipment, typewriters, telephones and air conditioners.
4. To assign counterpart personnel (officials/engineers) to the team during the survey period.
5. To arrange necessary number of technicians, typists and labourers for topographic survey, soil survey and traffic survey.
(The recruitment schedule of these personnels will be submitted separately.)
6. To execute soil investigation by boring or etc. at necessary site and test the collected materials for the survey team.
7. To provide and assist the team with the relevant data information and materials necessary for the Survey/Study. (The detailed list

of necessary data will be submitted separately.)

8. To exempt the survey team from taxes and duties for machinery, equipment and materials to be brought into Indonesia by the team as the Government normally extends to Technical Assistance experts (to the experts of the third countries under similar circumstances) and exempt the members of the team from income tax and charges of any kind imposed on or in connection with the living allowance remitted from abroad and from import and re-export duties imposed on the member's personal effects.
9. To assure the security of the survey team members and survey equipment to the extent possible and provide them with medical services when necessary.

4. Outline of the Phase I Study

1. Inception Report

JICA will prepare and submit to the Government of Indonesia 15 copies of Inception Report in English at the beginning of the field survey.

2. Collection of the relevant data

The survey team will collect the relevant data, information and materials necessary for the survey prior to and in the course of the field survey as follows:

- a. Traffic study data
- b. Landuse plan
- c. Materials used for Study of Jakarta and West Java tollway system
- d. Geological data
- e. Hydrological and meteorological data

- f. Aerial photo and topographic map
- g. Report of study of railway system in Jakarta
- h. Construction cost data

The detailed list of data necessary to the survey team will be submitted separately.

3. Field Survey

The survey team will carry out the field survey in the following fields.

- a. Traffic count survey
- b. Travel speed survey
- c. Intersection condition and congestion survey
- d. Tend of residential and industrial development
- c. Qualification survey of the area for landuse
- d. Geological survey
- e. Soil and construction materials investigation
- f. Inventories of existing structures and roads
- g. Field hydrological investigation
- h. Surveys on capacity and capability of contractors

4. Progress Report

Survey team will prepare and submit to the Government of Indonesia the progress report at the end of the field survey, which will include the following main items.

- a. Report of the field survey of the team members
- b. Data collected during the survey period
- c. Information and materials collected
- d. Study and analysis during the survey period
 - 1. Design criteria and route alignment
 - 2. Selection of alternatives

- 3) Zone division
 - 4) Traffic forecast
 - 5) Treatment of crossing roads and railways
 - 6) Position and type of interchanges
 - 7) Review of land use plan
 - 8) Toll system
 - 9) Others
- e. Confirmation of the study schedule described in the inception report.
- f. Contents of works by subsequent study in Japan

Attachment - I

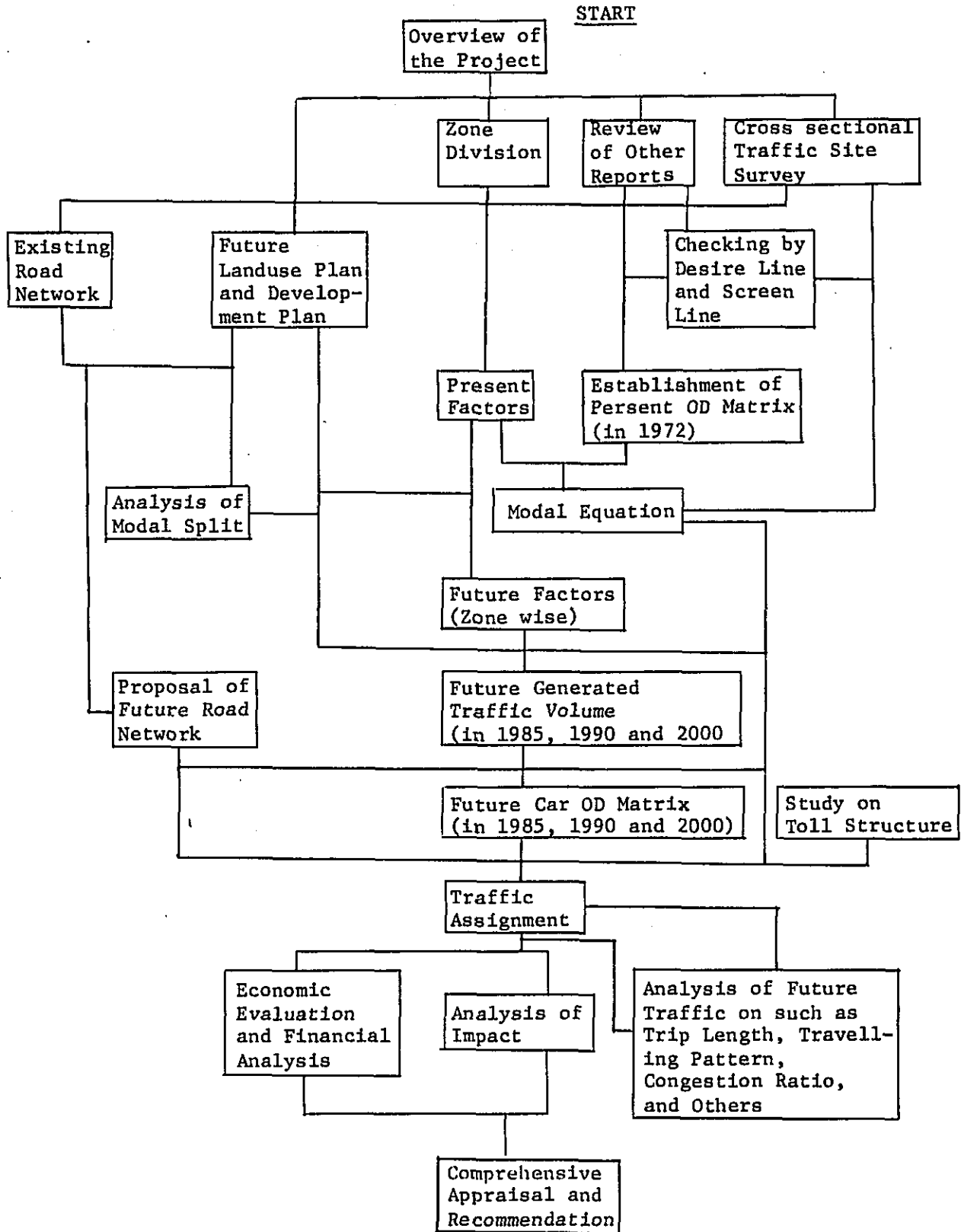
Detailed Work Items

Work Items of this feasibility study are listed as follows: The staffs in charge of each work item are shown in parenthesis by symbols corresponding to the Fig. 3.

- A. Preparatory Works (S1 - S10)
 - a. Preparation of Inception Report.
 - b. Review and evaluation of the available data
 - c. Preparation of mobilization
- B. Discussion on Inception Report for review and comment (S1, S2, S7)
- C. Field Reconnaissance Survey (S1 - S10)
 - a. Existing condition of crossing roads and railways over the proposed Ring Road.
 - b. Present land use in the project area
 - c. Investigation of the area from the view point of land use
 - d. Investigation of the area from the view point of each engineering field
- D. Additional Data Collection, Review and Evaluation (S1 - S10)
 - a. Socio-economic data
 - b. Traffic data
 - c. Land use and urban planning data
 - d. Engineering data
- E. Socio-economic Survey and Analysis (S7, S9)
 - a. Analysis of present indices
 - b. Industry and port
 - c. Car ownership
 - d. Transportation modes
 - e. Transportation cost

- f. Trend of development
 - g. Forecast of indices (Zonewise)
 - h. Others
- F. Survey and Analysis for Land Use Plan (S7, S9)
- a. Review of Jakarta Urban Planning
 - b. Review of JABOTABEK Plan
 - c. Analysis on trend of residential development
 - d. Analysis on trend of industrial development
 - e. Qualificaiton of the area for land use
 - f. Allocation plan of residential area and industrial area
 - g. Recommendation on modified land use plan
- G. Traffic Survey and Forecast (S7, S8)
- a. Review of other related reports
 - b. Zone division
 - c. Cross sectional traffic survey
 - d. Preparation for present OD matrix (in 1972) and checking by
desire line and screen line.
 - e. Modal split under existing condition
 - f. Investigation of existing road network
(Including such field survey items as travel speed, congestion,
intersection phenomena and others.)
 - g. Model building for traffic generation
 - h. Model building for traffic distribution
 - i. Model building for traffic conversion and toll-traffic relation
 - j. Forecast of future generated traffic volume
 - k. Forecast of future macro modal split
 - l. Evaluation of future road network
 - m. Forecast of future car OD matrix (in 1985, 1990, 2000)

FLOW CHART ON TRAFFIC SURVEY AND ANALYSIS



- n. Model building for traffic assignment
 - o. Traffic assignment (in 1985, 1990)
 - p. Analysis of future road traffic (including such as trip length, travelling pattern, congestion ratio and others)
- H. Supplemental Topographic Survey and Arrangement of Topographic Maps for Design Works (S2, S3, S4)
- a. Establishment of alignment corridor
 - b. Detailed field reconnaissance survey
 - c. Selection of appropriate topographic maps
 - d. Arrangement of maps for outline design and preliminary design
- I. Soils and Materials Survey (S2, S5, S6)
- a. Reconnaissance and additional test
 - b. Aggregate survey and test
 - c. Survey of other construction materials
 - d. Preparation of report
- J. River and Hydrological Survey (S3, S4)
- a. Riview of data
 - b. Field reconnaissance survey
 - c. Preparation of report
- K. Investigation on capability of Local Contractor (S2, S3, S5)
- a. Review of data
 - b. Interview
 - c. Preparation of report

- L. Design Criteria (S2, S3, S5)
 - a. Review of data
 - b. Preparation of report

- M. Selection of Alternatives for subsequent study (S2, S7)
 - a. Analysis of factors (such as toll system, staged construction, etc.)
 - b. Selection of alternatives for subsequent study (as well as cases of sensitivity analysis)

- N. Preparation and Discussion of Progress Report for review and comment (S1, S2, S7)
 - a. Results of field survey and listing of collected data and reports
 - b. Results of engineering analysis (such as design criteria, alternatives, zone division, how to deal with crossing roads and railways, sites of interchanges, essential parts of modified land use plan, toll system and so on)
 - c. Confirmation of work schedule shown in the inception report
 - d. Contents of subsequent works in Japan
 - e. Preparation of Progress Report
 - f. Discussion about Progress Report

- O. Outline Design and Rough Estimate of Construction Cost (S2, S3, S4, S5)
 - a. Alignment study
 - b. Outline design (Plan and profile, $S = 1/5000$, $V = 1/500$,
Cross section, $S = 1/100$)
 - c. Outline design (Pavement design $S = 1/200$)
 - d. Outline design (Bridge and culvert $S = 1/200$ or $1/100$)

- e. Rough construction cost estimate (including maintenance cost)
 - f. Tentative construction schedule
- P. Economic Evaluation (S7, S8)
- a. Vehicle operation cost estimate
 - b. Time value estimate
 - c. Benefit from operation cost saving
 - d. Benefit from time saving
 - e. Other benefits
 - f. Costs (construction, maintenance, operation cost and others
 - g. Cost-benefit analysis (B/C ratio, IRR)
 - h. Sensitivity Analysis (Modal split, toll structure, construction method and others)
- Q. Financial Analysis (S7, S8)
- a. Analysis on the relation between toll and traffic volume
 - b. Study on the organization of agency and its management
 - c. Rough management cost estimate
 - d. Analysis of redemption plan
 - c. Appraisal and recommendation
- R. Social Impact Study (S7, S9, S11)
- a. Effects on land use
 - b. Corelation with urban functions of Jakarta
 - c. Effects on residential area
 - d. Effects on the public and transportation
 - e. Pollution, Congestion
 - f. Appraisal and recommendation

- S. Preparation and discussion of Interim Report
 - a. Preparation of Interim Report
 - b. Discussion about Interim Report

- T. Establishment of Preliminary Design (S2, S3, S4, S12)
 - a. Plan and profile
 - b. Pavement design
 - c. Bridges and culverts
 - d. Additional facilities for tollway

- U. Construction Cost Estimate (S2, S3, S5)
 - a. Land acquisition cost
 - b. Construction cost
 - c. Maintenance cost
 - d. Foreign currency portion and domestic currency portion
 - e. Economic cost and financial cost

- V. Detailed Economic Evaluation (S7, S8)
 - a. Economic evaluation
 - b. Priority
 - c. Appraisal and recommendation

- W. Detailed Financial Analysis (S7, S8)
 - a. Financial analysis
 - b. Appraisal and recommendation

- X. Implementation Programme (S1, S2, S7)
 - a. Implementation programme
 - b. Preparation of draft scope of work for detailed engineering stage

- Y. Comprehensive Appraisal and Recommendation (S1, S2, S7)
 - a. Comprehensive appraisal
 - b. Recommendations (on such objectives as toll way system, financial aspects, effects, construction method, synthetic judgement and others)

- Z. Preparation and Discussion of Draft Final for review and comment (S1, S2, S7)
 - a. Preparation of Draft Final Report
 - b. Discussion about Draft Final Report

- AA. Preparation and Submission of Final Report (S1, S2, S7)
 - a. Preparation of Final Report
 - b. Submission of Final Report

SCOPE OF WORK
FOR
THE FEASIBILITY STUDY OF JAKARTA
RING ROAD PROJECT IN THE REPUBLIC OF INDONESIA

I. INTRODUCTION

The Government of Japan, in response to the request of the Government of the Republic of Indonesia, has decided to conduct the feasibility study of Jakarta Ring Road Project, as a part of Jakarta and West Java tollway system, in accordance with laws and regulations in force in Japan. Based on this decision Japan International Cooperation Agency (JICA), an official agency responsible for the implementation of technical cooperation programmes of the Government of Japan, will carry out the study. The present document sets forth the scope of work for conducting the study in close cooperation with the authorities concerned of the Government of Indonesia.

II. OUTLINE OF THE STUDY

1. Objective of the Study

To conduct the feasibility study of the project area of Jakarta Ring Road Project as a tollway and to recommend priority of the links for construction.

2. Project Area

Project area is shown in the drawing of another sheet.

3. Scope of Work

- i) Socio-economic condition study
- ii) Land use study of the project and surrounding area
- iii) Traffic study and analysis
- iv) Surveying work (collecting available data and additional data as required)
- v) Soil and construction materials investigation
- vi) Capacity of contractors study
- vii) Preliminary design
- viii) Cost estimation
- ix) Economic analysis
- x) Financial analysis
- xi) Implementation Schedule

III. REPORTS

JICA will prepare and submit the following reports in English to the Government of Indonesia.

1. Inception Report

- * 15 copies
- * at the beginning of the field survey

2. Progress Report

- * 15 copies
- * at the end of the field survey

3. Interim Report

- * 15 copies
- * within 6 months after the commencement of the field survey
- * The Government of Indonesia will provide JICA with its comments within 15 days after the receipt of the Interim Report.

4. Draft Final Report

* 15 copies

* within 3 months after the receipt of the comments of the Interim Report

* The Government of Indonesia will provide JICA with its comments within 15 days after the receipt of the Draft Final Report.

5. Final Report

* 20 copies

* within 60 days after the receipt of the comments on the Draft Final Report

IV. UNDERTAKINGS OF THE GOVERNMENT OF INDONESIA

The Government of Indonesia agrees,

1. To exempt the study team from taxes and duties for machinery, equipment and materials to be brought into Indonesia by the team as the government normally extends to technical assistances experts (to the experts of the third countries under similar circumstances).
2. To exempt the members of the team from income tax and charges of any kind imposed on or in connection with the living allowances remitted from abroad and to exempt the members from import and re-export duties imposed on the members's personal effects.
3. To grant necessary approvals for the special field survey work upon request of the study team.
4. To provide transportation facilities such as vehicles for the survey and to supply the study team with suitable accommodation and an office furnished with appurtenant facilities in the vicinity of the survey area when required.

5. To assign counterpart personnel (officials/engineers) to the team during the survey period and to arrange necessary number of labourers (employment cost of labourers will be borne by the team).
6. To provide the team with the relevant data, information and materials necessary for the survey/study.
7. To execute soil investigation by boring or etc. at necessary site and to test the collected materials for the study team.
8. To assure the security of the study team members and survey equipment to the extent possible and to provide them with medical services when necessary.
9. To provide 1/5,000 - 1/3,000 scale maps of the project area.

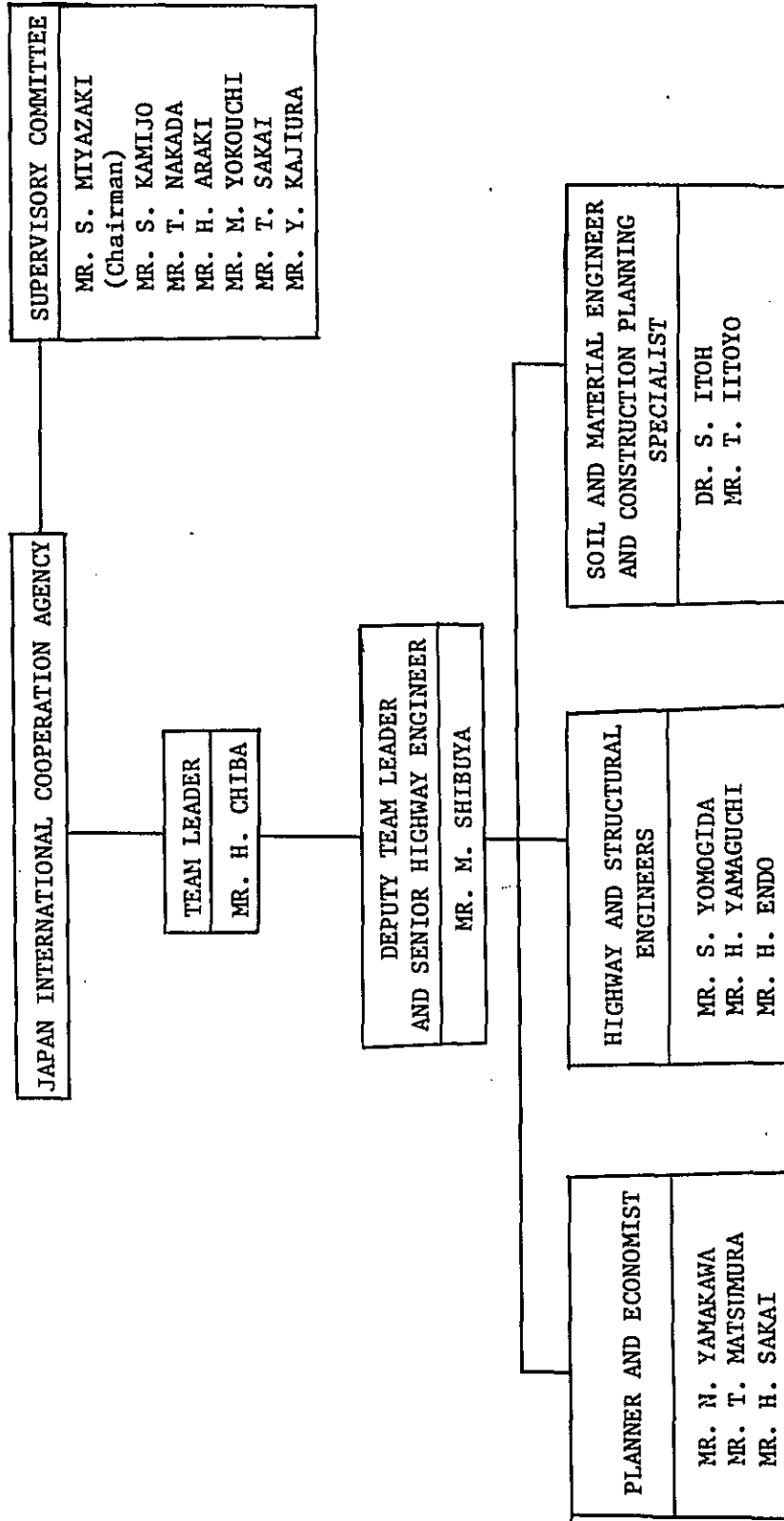
V. UNDERTAKINGS OF THE GOVERNMENT OF JAPAN

In connection with the execution of the above feasibility study JICA agrees to conduct the following:

1. On the-job training of the counterparts during the period of the survey at site.
2. Training in Japan for the engineers of relevant section of the Government of Indonesia during the period of works conducted in Japan.

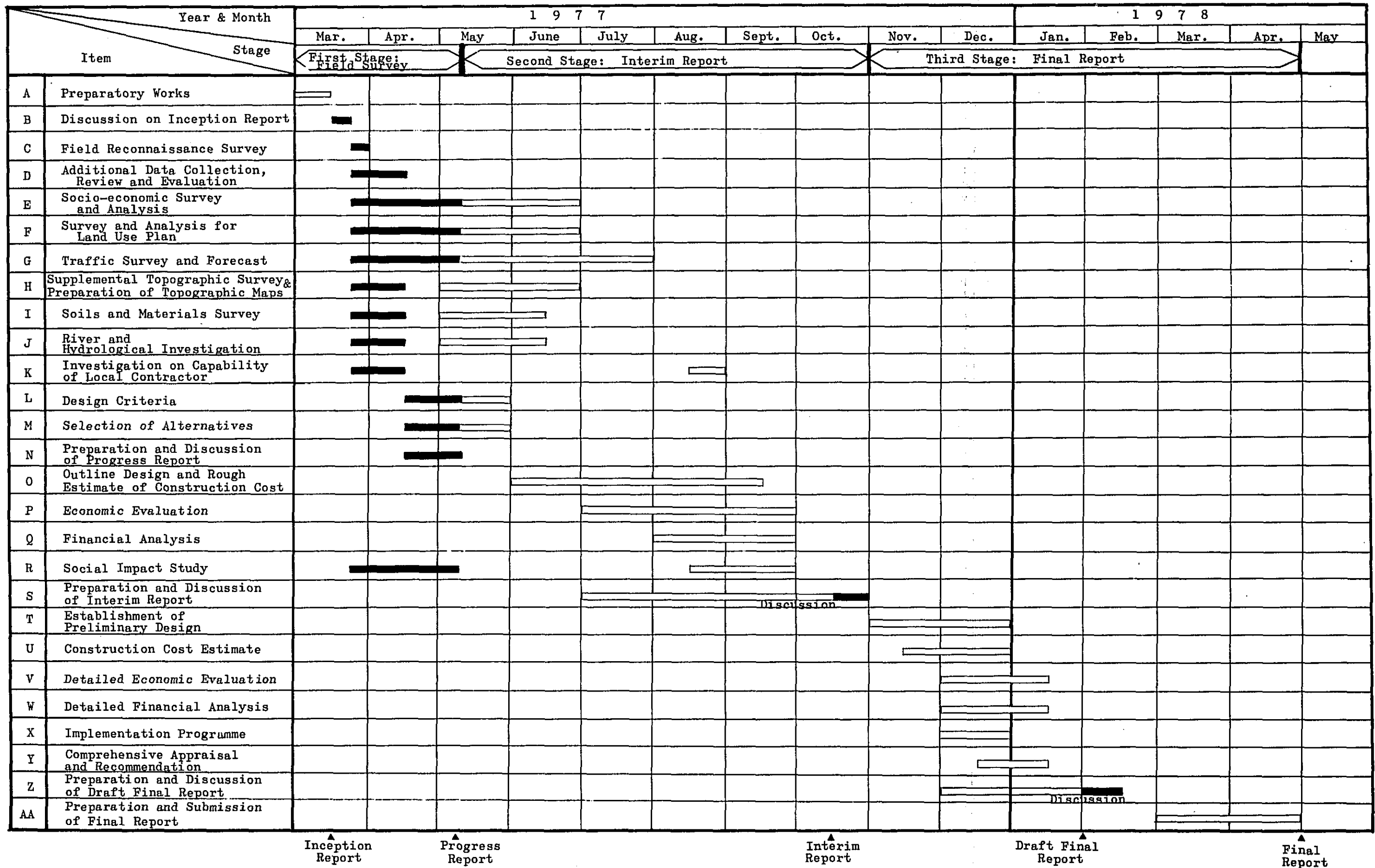
Fig. 1

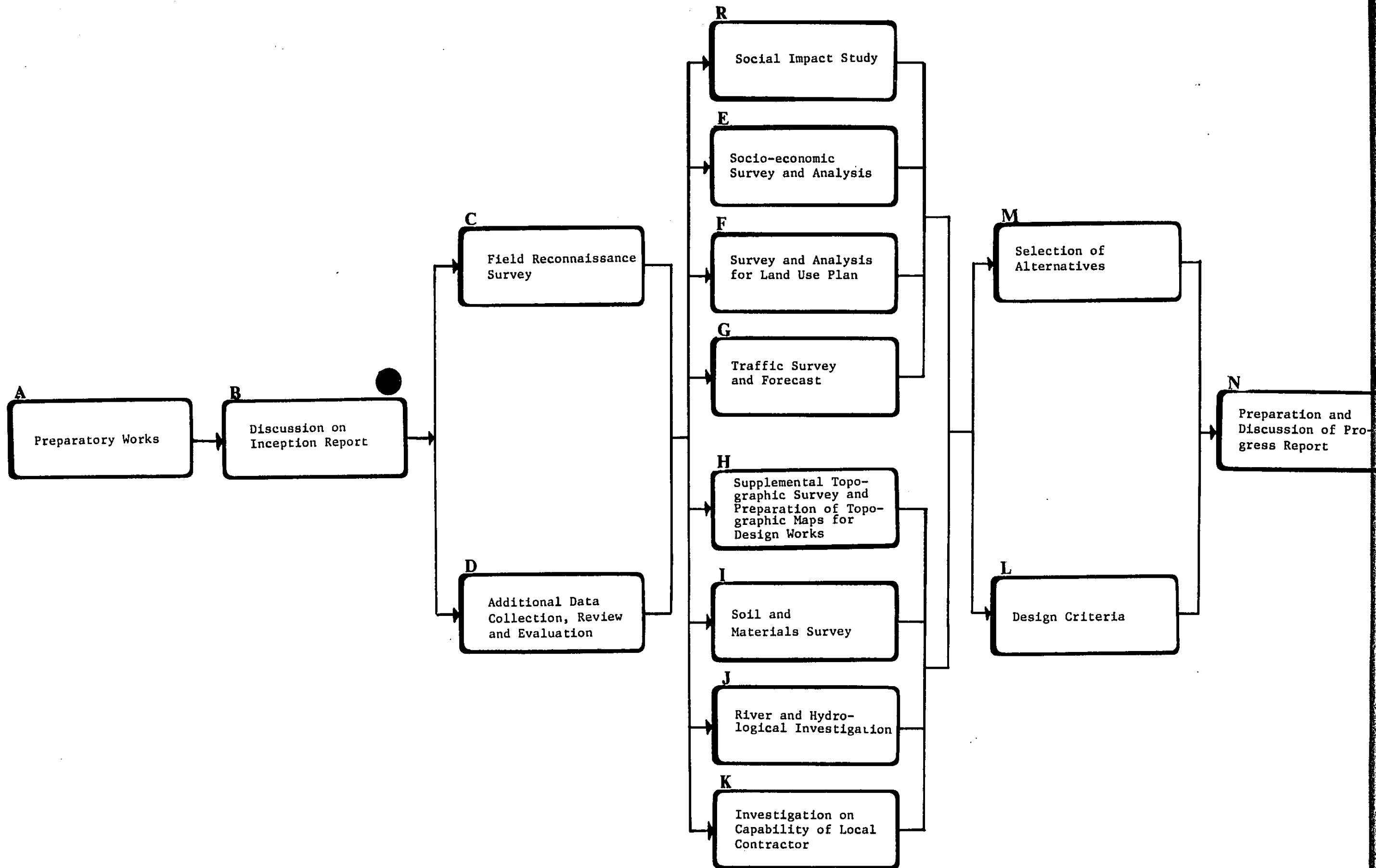
ORGANIZATION CHART



WORK SCHEDULE OF THE STUDY

: Field Work
 : Work in Japan





FLOW CHART OF THE STUDY

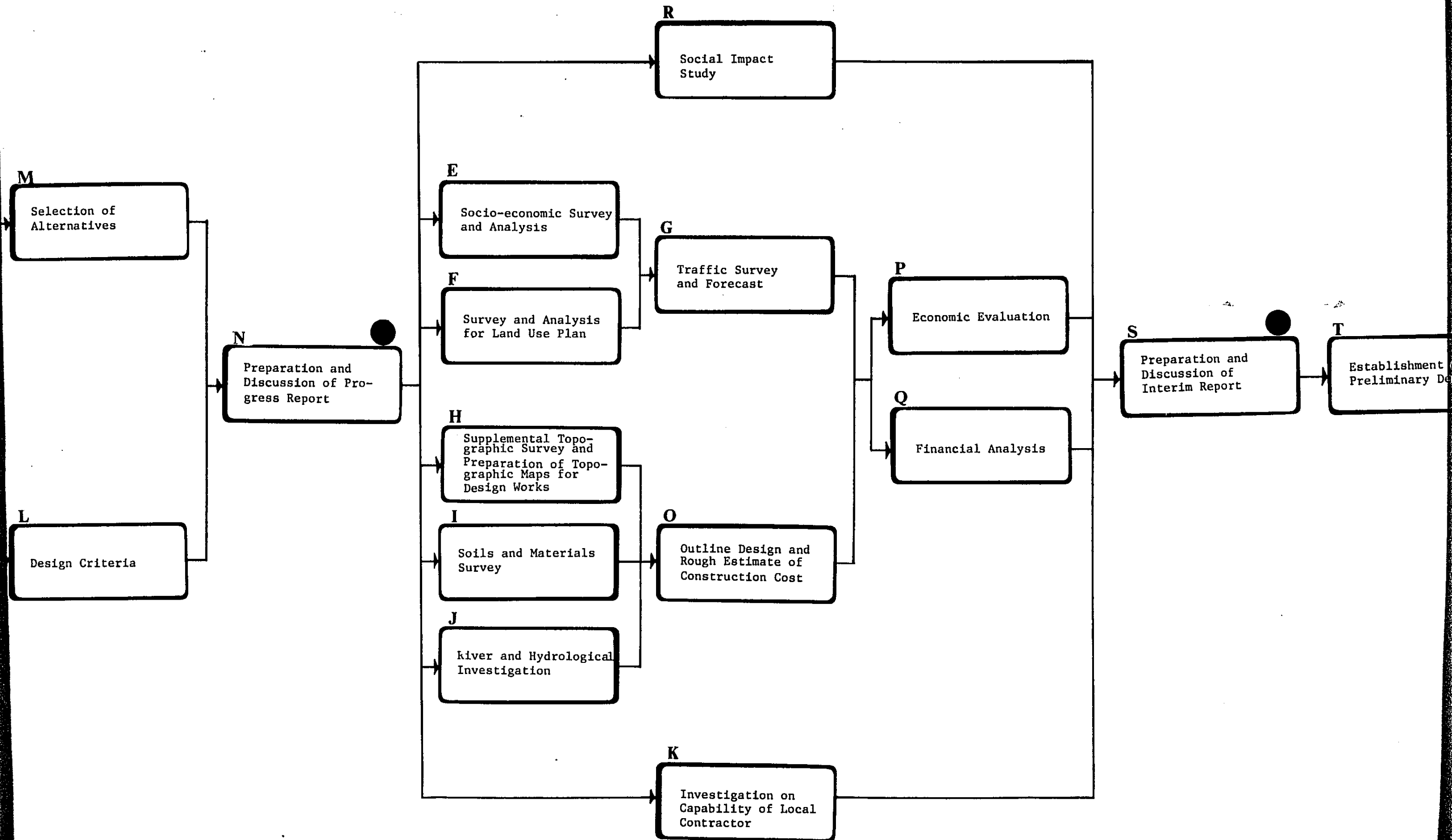
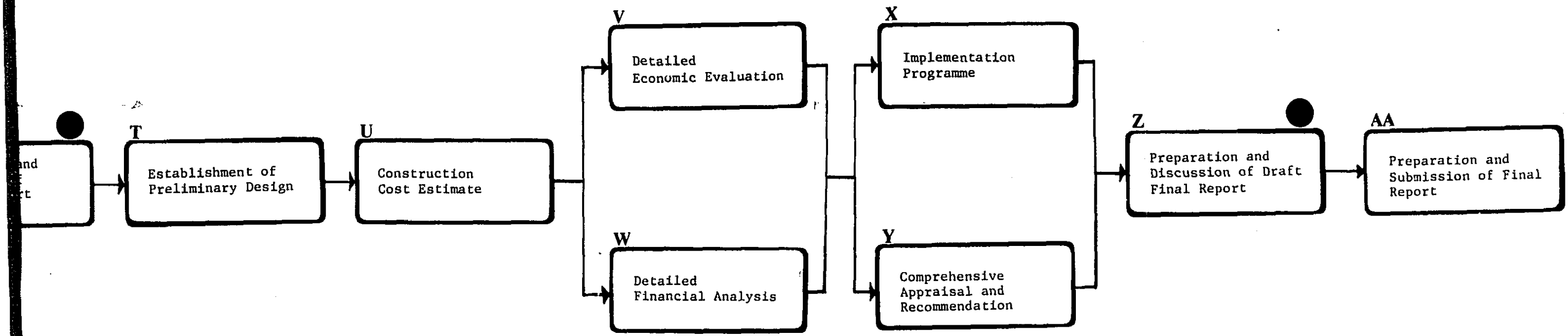


FIG. 3



● DISCUSSION WITH BINA MARGA

