

## SCOPE OF WORK

### I. INTRODUCTION

In response to the request of the Government of Zimbabwe, the Government of Japan has decided to undertake the Feasibility Study on the Installation Project of Intelsat Standard A Earth Station to be linked to the Intelsat V satellite in the Atlantic Ocean region, in accordance with laws and regulations in force in Japan as a part of its technical cooperation program.

Based on this decision, the Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of the technical cooperation program of the Government of Japan, will carry out the study in close cooperation with the Government of Zimbabwe and the authorities concerned.

### II. OBJECTIVE OF THE STUDY

The objective of the study is to verify the feasibility of the project from not only technical but also economic points of view and to provide the Government of Zimbabwe with necessary data for promoting the project.

### III. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, JICA will carry out the studies as follows;

1. To make a plan for the satellite communications earth station system concerning to;
  - site selection,
  - site plan for layouting antenna, buildings, etc. incorporating the provisions in the future,
  - system configuration of communications facilities, and
  - organization structure for administration, operation and maintenance of the station.

2. To make a plan for terrestrial transmission system between earth station and central gateway station concerning to;
  - transmission routing, (site selection for repeater station(s), if necessary).
  - system configuration of the link.
3. To make a plan for the interface with associated equipment already installed and the equipment to be covered by the project.
4. To study and predict traffic demand for international telecommunications services.
5. To make cost estimation for the project.
6. To make a plan of implementation schedule for the project.
7. To make a plan of training program for operation and maintenance staff and its associated administration's staff.
8. To make financial and economic analysis, and project evaluation.

#### IV. SCHEDULE OF THE FEASIBILITY STUDY

The study shall be undertaken in accordance with the schedule shown to Annex.

#### V. STAFFING

The study shall be undertaken by the study team of experts covering the following fields which may, however, be subject to further change.

- Satellite Communications system
- Transmission system
- Telephone Switching
- Circuit Planning
- Demand Prediction

## I. SUBMISSION OF THE STUDY REPORT

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

1. Inception report (30 copies)

The report will contain the program of the study with its schedule and will be discussed as soon as possible after arriving study team to Harare.

2. Progress report (30 copies)

The report will be submitted and explained as the intermediate report at the end of the field survey.

3. Draft final report (30 copies)

The report will be submitted and explained within 4 months after finishing the field survey work in Zimbabwe for consultation with the Ministry of Information, Posts and Telecommunications.

4. Final report (40 copies)

The report will be submitted by JICA within 2 months after receiving the comments on the draft final report from the Government of Zimbabwe.

## II. UNDERTAKING OF THE GOVERNMENT OF ZIMBABWE

1. To provide the study team with the relevant data and/or information necessary for the study.

2. To exempt the study team from taxes and duties for materials and equipment necessary for the study and personal effects brought into Zimbabwe by the study team in accordance with prevailing laws and regulations.

3. To assign counterpart officials during the study work in Zimbabwe.

4. To provide the office with facilities for the study team during the study work in Zimbabwe.
5. To secure permission to bring out data, maps and materials relating to the study from Zimbabwe to Japan, however, these information should not be disclosed to third parties without prior consent from the Government of Zimbabwe.
6. To arrange necessary transportation such as jeeps for the field survey.
7. To ensure the safety of the study team.
8. To secure the necessary entry permits to private property for the study team to conduct field survey.
9. To provide the study team with medical facilities when needed, but medical expenses shall be chargeable to the study team.
10. To provide credentials or identification (ID) cards to the members of the study team who shall work in Zimbabwe for the execution of the study.

VIII. UNDERTAKING OF THE GOVERNMENT OF JAPAN

To transfer knowledge to the counterpart personnel of Zimbabwe during the study work.

TENTATIVE SCHEDULE OF THE FEASIBILITY STUDY FOR THE INSTALLATION PROJECT ANNEX  
 OF INTELSAT STANDARD A EARTH STATION IN ZIMBABWE (Amended)

Year & Month	1982						1983						
	ITEM	9	10	11	12	1	2	3	4	5	6	7	8
Preliminary Study													
Feasibility Study													

← Field Survey

Preparation of Draft Final/R

Explanation of Draft Final/R

Amendment of Draft Final/R

A Submission of Final/R

Work in Zimbabwe

Work in Japan

## 2. 議 事 録

SUMMARY OF DISCUSSIONS RESULTING FROM VARIOUS MEETINGS  
BETWEEN THE JAPANESE STUDY TEAM AND THE P.T.C. ON THE  
FEASIBILITY STUDY OF ESTABLISHING A STANDARD A EARTH  
STATION IN ZIMBABWE.

---

PRESENT:      Attending the meetings were:--

### Posts and Telecommunications Corporation

Mr. A. Silcox            (Postmaster General) - Part time only  
Mr. T. 't Hart          (Director Telecomms. Development)  
Mr. G. Browning        (Switching Group Manager - Part time only)  
Mr. W. Hamman          (Director Telecomms. Exec.) - Part time only  
Mr. R. Butchart        (Transmission Group Manager)  
Mr. G. Conibear        (Principal Engineer Radio Transmission)

### Japanese Study Team

Mr. Hiroaki Sogabe ( Team Leader )  
Mr. Hikotada Takeuchi  
Mr. Tadasuke Fujimoto  
Mr. Shinichi Kamimura  
Mr. Tadashi Tomizawa (Co-ordinator)

1. The Director Telecommunications Development, expressed his thanks to the Japanese Study Team which was despatched to Zimbabwe in response to an earlier request from the Government of Zimbabwe for assistance in establishing a Standard A Earth Station.

Mr. Hiroaki Sogabe, leader of the Japanese Study Team, extended his appreciation for the co-operation extended by the Government of Zimbabwe to the Japanese Study Team.

2. The Japanese Study Team submitted the draft Scope of Work and questionnaire for this feasibility study for the development of the Satellite Earth Station in Zimbabwe.
3. The P.T.C. had prepared and provided sufficient data and information as requested in the questionnaire which was submitted to the P.T.C. by the Japanese Study Team in advance of their arrival.

Both P.T.C. and the Japanese Study Team could discuss the details of the Project, information and data supplied, to their mutual satisfaction.

4. P.T.C. and the Japanese Study Team carried out site surveys near Harare on 30th September, 1982 and near Gweru on 4/5th October, 1982 and at a third alternative site near Mazoe on 5th October, 1982.
5. As the information by the P.T.C. was sufficient it was possible for the Japanese Study Team to propose a reduced time schedule for the feasibility study.

After discussion with the P.T.C. on the proposed time scale for the implementation of the project, it was agreed that the feasibility study time scale may be further reduced. The P.T.C. requested the Japanese Study Team to expedite the feasibility study in view of the priority of the project.

6. The P.T.C. having been made aware of the possible requirements for the establishments of an IOR Earth Station in addition to the AOR Earth Station, requested The Japanese Study Team to include this consideration in their current economic and technical feasibility study. The P.T.C. would provide all traffic data (present and predicted) which would be required for this study.

The Japanese Study Team was provided with details and information of the proposed International Telephone Switching Exchange at Gweru. The requirement for the establishment of similar exchanges in Bulawayo and Harare to cater for international traffic in the national network was made known.

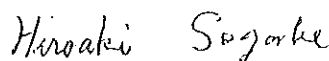
7. P.T.C. requested the Study Team to complete their site RADIO FREQUENCY INTERFERENCE analysis for all 3 sites as soon as possible and advise the P.T.C. on their recommendations.

HARARE 8 OCTOBER, 1982



T. 't Hart

DIRECTOR TELECOMMUNICATIONS DEVELOPMENT  
POSTS & TELECOMMUNICATIONS CORPORATION



Hiroaki Sogabe

LEADER OF THE STUDY TEAM



### 3. 質 問 表

#### QUESTIONNAIRE

This questionnaire shows the list of minimum information and/or relevant data which shall be required essentially for the feasibility study on the installation project of INTELSAT Standard A Earth Station in Zimbabwe.

#### GENERAL

1. National Development Plan
2. Statistical data on national economy
3. Present organization, Number of employees, Budget of Posts and Telecommunications Corporation
4. Present status of telecommunications facilities and services
5. Telecommunication service revenues and expenditures
6. Present tariff system

#### TECHNICAL A (Satellite Earth Station /Terrestrial Microwave Link)

7. Details of requirements and/or any special comments to be taken into account for the feasibility study and/or system planning of the project
8. A map to indicate routes of existing microwave transmission system including future planning
9. Technical data on microwave links including planned links
  - Exact location and height of repeater stations
  - Antenna gains, feeder losses and wide angle antenna sidelobe patterns for transmit and receive links
  - Transmit power at antenna feeder input port
  - Maximum channel capacity of the system
  - Baseband top/lowest frequency and test tone deviation
10. Outline of national television services to include such as types of TV standard, location of TV studio, etc. including future planning.
11. Maps around the nominated or planned earth station site(s) to cover the terrestrial microwave links (Magnified scale preferable to read contour of the ground)

12. Statistical data on wind, rainfall, earthquake, hail storm, etc.
13. Major routes of commercial power line and/or any commercial power planning for the earth station and repeater stations
14. A surveying instrument to measure horizontal and vertical angles for the station (Field survey only).

TECHNICAL B (Traffic Exchange Field)

15. Details of present status and future plan of international switching system (to make interface between earth station and gate office)
16. Present national and international telecommunications network configurations
17. Present national and international exchange transmission loss including subscriber's line (Telephone and Telex)
18. National, international and inter-office signalling systems and their future plans (Telephone and Telex)
19. International traffic service and its volume (recent 5 years)
  - 1) Telephone
  - 2) Telex
  - 3) Telegram
  - 4) Others
20. Traffic characteristics of each service
  - 1) Traffic profile
  - 2) Busy hour calls
  - 3) Average holding time
  - 4) Concentration rate of calls.

4. ジンバブエ国面会者リスト

ECONOMIC PLANNING AND DEVELOPMENT (E.P.D)

Mr. Nyawo 次官補  
Mr. Muguwara 次官補

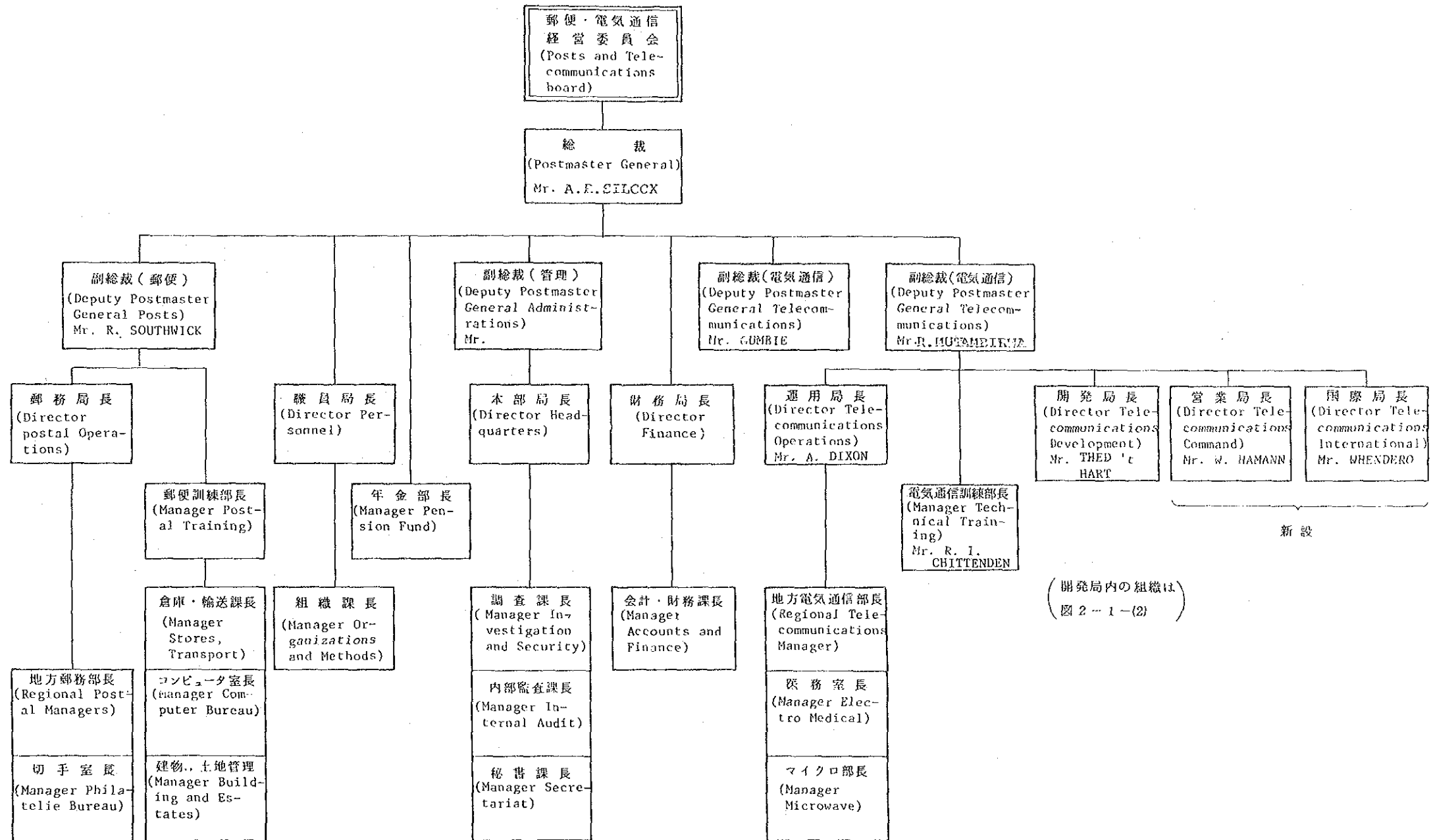
MINISTRY OF INFORMATION, POST & TELECOMMUNICATION

Dr. N. Shamuyarira 大臣 (SOW 署名者)  
Dr. N. Nhwatiwa 副大臣 (女性)  
Mr. E. Moyo 次官補

POST AND TELECOMMUNICATIONS CORPORATION (P.T.C.)

Mr. A. R. Silcox 総裁  
Mr. R. Mutambirwa 副総裁 (電気通信)  
Mr. Theodor Hart 開発局長 (Minute 署名者)  
Mr. W. Hamann 営業局長  
Mr. R. Butchart 技術部長 - カウンターパート  
Mr. N. Ree 計画部長  
Mr. G. Browning 交換機部長  
Mr. G. Conibear 主任技士 (無線伝送) - カウンターパート  
Mr. H. Helm 技士 ( " ) - 同上  
Mr. M. Stow senior executive officer (traffic)  
Mr. Williams 運用マネジャー (テレックス)

5. P T C の 組 織







JICA

