

Appendix 1

Scope of work for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar

SCOPE OF WORK

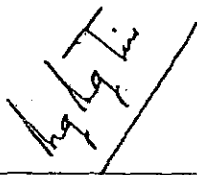
FOR

THE STUDY ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN THE UNION OF MYANMAR

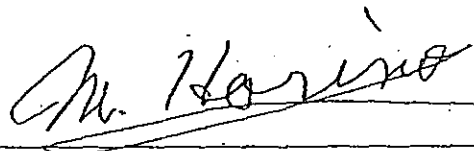
AGREED UPON BETWEEN

SURVEY DEPARTMENT, MINISTRY OF FORESTRY
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

YANGON, 12 OCTOBER, 2001



U Maung Maung Tin
Director General
Survey Department
Ministry of Forestry



Mr. Masakatsu HORINO
Leader
Preparatory Study Team
Japan International Cooperation Agency

I. INTRODUCTION

In response to a request from the Government of the Union of Myanmar (hereinafter referred to as "the Government of Myanmar"), the Government of Japan has decided to conduct the "The Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar" (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of the Government of Myanmar.

The present document sets forth the scope of work with regard to the Study.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are as follows:

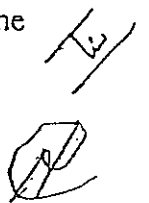
1. to produce digital-based topographic map covering the selected priority area at the scale of 1:50,000 and to establish the database, both of which are necessary for national rehabilitation and development programme,
2. to formulate the guideline of the standard for GIS, and
3. to pursue technology transfer in the course of the implementation of the Study.

III. STUDY AREAS

The Study shall cover Yangon Division and Ayeyarwady Division shown in Appendix I (approximately 27,000 square kilometers).

IV. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Study shall cover the



following items.

1) Review of Existing Conditions

Existing conditions relevant to the Study including organizational set-up, mapping system, facilities management and control points shall be reviewed.

2) Aerial Photography

New panchromatic aerial photographs necessary to draw topographic maps on UTM projection at the scale of 1:50,000 shall be taken.

3) Control Point Survey, Pre-marking and Pricking

Control point survey, pre-marking and pricking shall be carried out.

4) Aerial Triangulation

Aerial triangulation shall be carried out.

5) Plotting

Digital topographic data shall be plotted.

6) Field Identification (including Supplemental Field Identification)

Topographic information shall be identified mainly using the aerial photographs. The field identification shall be conducted in case that the information on the aerial photographs is found difficult to be interpreted.

Administrative boundaries, village names and other relevant data shall be acquired by Survey Department, Ministry of Forestry.

7) Editing

Digital topographic data shall be edited and revised according to field identification and shall be checked whether the data is properly structured.

8) Symbolization

The digital topographic data shall be symbolized to print topographic maps.

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9) CD-ROM Production

The digital topographic data shall be compiled into CD-ROM.

10) Printing of Maps

The topographic map shall be printed at the scale of 1:50,000.

11) Establishment of the Database

The digital topographic data shall be stored as the geographic database.

12) Technology Transfer

In order to facilitate technology transfer to the counterpart personnel, a part of the above-mentioned items shall be undertaken by the counterpart personnel under the technical supervision of the study team.

13) Dissemination of the Final Products

Recommendations for the wide and effective use of the geographic database produced under the Study shall be prepared.

STUDY SCHEDULE

The Study shall be implemented in accordance with the tentative Study schedule shown in Appendix II. The schedule, including report submission dates stated in the next clause (VI), is tentative and subject to be modified when both parties agree upon and any necessity that arises in the course of the Study.

VI. REPORTS AND FINAL PRODUCTS

JICA shall prepare and submit the following reports and final products in English to the Government of Myanmar.

1. Inception Report

Twenty (20) copies, within one (1) month of the commencement of the Study

2. Progress Reports (1)

Twenty (20) copies, within four (4) months of the commencement of the Study

3. Progress Reports (2)

Twenty (20) copies, at the beginning of field survey

4. Interim Report

Twenty (20) copies, at the end of the second year

5. Progress Reports (3)

Twenty (20) copies, at the end of the third year

6. Draft Final Report summarizing the overall study results

Twenty (20) copies, at the end of printing of maps and CD-ROM production

Myanmar will provide JICA with its written comments in English within one (1) month of the receipt of the Draft Final Report.

7. Final Products

(1) Final Report

- Fifty (50) copies, at the end of Study

(2) Topographic Maps

- Ten (10) sets of copies of digital data files
- Five hundred (500) copies of printed topographic maps for each sheet
- One (1) set of printing films

VII. UNDERTAKING OF THE GOVERNMENT OF MYANMAR


1. To facilitate the smooth conduct of the Study, the Government of Myanmar shall take the following necessary measures:

- (1) to secure the safety of the study team,

- (2) to permit the members of the study team to enter, leave and sojourn in the Union of Myanmar for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees,
- (3) to exempt the members of the study team from taxes, duties, fees and other charges on equipment, machinery and other materials brought into and out of Myanmar for the conduct of the Study,
- (4) to exempt the members of the study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the study team for their services in connection with implementation of the Study,
- (5) to provide necessary facilities to the study team for remittance as well as utilization of the funds introduced into Myanmar from Japan in connection with the implementation of the Study,
- (6) to facilitate legal entry with permission (or, to secure permission for the study team for entry) into private properties and restricted areas for the implementation of the Study,
- (7) to secure permission for the study team to take all data (including topographic maps, original manuscripts and contact prints, positive films and digital data of aerial photographs) related to the Study out of Myanmar,
- (8) to secure permission for the study team to use suitable communication instrument for the implementation of the Study,
- (9) to secure permission to use Myanmar aircraft, and, if necessary, to use another aircraft for aerial photography for the implementation of the Study, and
- (10) to provide the medical services as needed. Its expenses will be chargeable to the study team.

2. The Government of Myanmar shall bear claims, if any arises, against the members of the study team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the study team.

3. Survey Department shall act as the counterpart agency to the study team and also

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as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

4. Survey Department shall, at its own expense, provide the study team with the followings, in cooperation with other organizations concerned:

- (1) available data and information related to the Study,
- (2) counterpart personnel,
- (3) suitable office space with necessary equipment in Yangon,
- (4) vehicles with a guide and drivers when conducting field surveys outside Yangon,
- (5) credentials or identification cards, and
- (6) administrative and technical support.

VIII. UNDERTAKING OF JICA

For the implementation of the Study, JICA shall take the following measures:

- (1) to dispatch, at its own expense, the study team to the Union of Myanmar; and
- (2) to pursue technology transfer to the Myanmar counterpart personnel in the course of the Study.

IX. CONSULTATION

JICA and the Survey Department, Ministry of Forestry, shall consult with each other in respect of any matter that may arise from or in connection with the Study.

Appendix 2 Minutes of Meeting upon the Scope of Work for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar

MINUTES OF MEETING

UPON THE
SCOPE OF WORK
FOR

THE STUDY ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN THE UNION OF MYANMAR

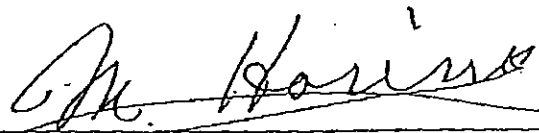
AGREED UPON BETWEEN

SURVEY DEPARTMENT, MINISTRY OF FORESTRY
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

YANGON, 12 OCTOBER, 2001



U Maung Maung Tin
Director General
Survey Department
Ministry of Forestry



Mr. Masakatsu HORINO
Leader
Preparatory Study Team
Japan International Cooperation Agency

The Japanese Preparatory Study Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Masakatsu HORINO (Director of Topographic Department, Geographical Survey Institute, Ministry of Land, Infrastructure and Transport) visited the Union of Myanmar from Oct. 1st to Oct. 13th, 2001 in connection with the Study on "The Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar" (hereinafter referred to as "the Study").

The Team had a series of discussions on the Scope of Work of the Study with officials of Survey Department, Ministry of Forestry (hereinafter referred to as "SD"). A list of participants is given in Annex.

Through these discussions, both sides have completed the Scope of Work and confirmed the following points:

1. Both sides agreed that the title of the Study shall be "The Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar".

2. SD shall take the responsibility to provide the Myanmar aircraft for aerial photography to the Study.

Both sides agreed, in case aerial photography is not completed, in terms of area coverage and quality which will be designated in the contract to local contractors, or on account of the unseasonable weather, to extend the duration of aerial photography within the limits of one (1) year, and SD shall take the responsibility to take necessary action for aerial photography.

Both sides also agreed to consult with each other in respect of changing the method of the Study, in case the aerial photography is not completed due to above reason, or suspending the Study when SD fails to take the responsibility.

3. The Team explained the necessity to take the aerial photograph of the designated mangrove vegetation area in the southern part of Ayeyarwady Division

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(approximately 2,240 square kilometers) by the end of May, 2002, and requested SD for permission to use the digitized aerial photographs in JICA's Development Study on "Integrated Mangrove Management through Community Participation in the Ayeyarwady Delta in the Union of Myanmar".

SD understood the necessity and accepted the request.

4. Both sides recognized the necessity of technical transfer to the staff of SD so that SD builds up the capability to produce and revise topographic maps by themselves.

Based on the recognition, SD proposed to provide more than twenty (20) counterpart personnel with its own expense in the course of the Study.

The Team welcomed the proposal.

5. Both sides agreed that SD shall act as consignee of the equipment, and shall carry out all the necessary procedure, such as duty-free clearance, etc., and otherwise SD shall pay all other necessary expenses for import procedures for the equipment.

Both sides also agreed that the equipment thus imported shall be used exclusively for the implementation of the Study under the supervision of the study team, the management and utilization right shall be transferred to SD in order to promote the effective technology transfer upon approval of JICA Headquarters after the completion of the Study, and, in transferring the equipment, a memorandum shall be exchanged.

6. SD promised to provide office spaces, furniture, communication facility, and personnel when conducting field survey to the study team, and to apply for the e-mail address for the study team, and explained the difficulty in providing the vehicles with drivers to the study team.

SD also explained the difficulty in providing the vehicles with drivers to themselves for the field survey until the end of March, 2002.

The Team promised to convey the request to JICA Headquarters.

7. The Team requested that the final products (topographic maps and digital data) to be prepared by the Study shall be open to the public immediately after completion

upon request of users.

SD understood the request and agreed to take full responsibility for necessary procedure.

8. SD requested that more than one (1) counterpart personnel shall take advantage of training in Japan related to the Study to promote an effective technology transfer.

The Team promised to convey this request to JICA Headquarters.

9. Only operation cost of Myanmar aircraft shall be born by the Study. Payment shall be made upon presentation of flight record.

10. SD requested to take aerial photographs outside the study area which will be printed for various purposes, after the completion of aerial photography for the study area, within planned flight hours.

The Team promised to convey the request to JICA Headquarters.

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LIST OF ATTENDANTS

Myanmar Side

Survey Department, Ministry of Forestry

U Maung Maung Tin	Director General
U Myint Thein	Deputy Director General
U Min Din	Director, Administration and Planning
U Kan Sint	Director, Aerial Survey and Photo Division
U Myint Sein	Director, Map Reproduction Division

Japanese Side

Mr. Masakatsu HORINO	Leader of the Team
Mr. Hitohide HIDANI	Member of the Team
Mr. Yoshimitsu YOSHIMURA	Member of the Team
Mr. Yoshikazu FUKUSHIMA	Member of the Team
Mr. Kozo OKUMURA	Member of the Team
Mr. Nobuaki KOGUCHI	Member of the Team
Mr. Toshiya SATO	JICA Myanmar Office
U Kyaw Lwin Oo	JICA Myanmar Office

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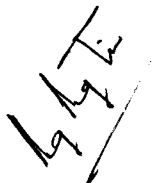
Appendix 3 Minutes of meeting on the Inception report for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar

MINUTES OF MEETING
ON
THE INCEPTION REPORT
FOR
THE STUDY
ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR
NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN
THE UNION OF MYANMAR

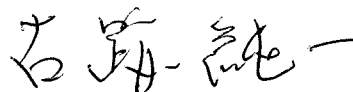
AGREED UPON BETWEEN

SURVEY DEPARTMENT, MINISTRY OF FORESTRY
AND
JICA STUDY TEAM

YANGON, 13 FEBRUARY 2002



U Maung Maung Tin
Director General
Survey Department
Ministry of Forestry



Mr. Junichi Koseki
Leader, Study Team
Japan International
Cooperation Agency

The Scope of Work for The Study on The Establishment of Geographic Database for national Rehabilitation and Development Programme in the Union of Myanmar was agreed between Japan International Cooperation Agency (hereinafter referred to as JICA) and Survey Department of the Ministry of Forestry in the Union of Myanmar (hereinafter referred to as the SD) on 12 October 2001.

The JICA Study Team headed by Mr. Junichi Koseki visited Myanmar to discuss and confirm the Inception Report of the Study from 27 January to 13 February 2002.

The discussion was held several times from 29 January to 5 February 2002. The list of the attendants is attached hereto as Appendix.

After several discussions, the following matters were agreed and confirmed between the JICA Study Team and the SD.

- (1) The JICA Study Team submitted the Inception Report with Operation Manual (draft) and Technical Specifications for Survey and Mapping (draft) to the SD and explained the details of the contents. After several discussions between the JICA Study Team and the SD, both parties basically agreed upon the contents of the Inception Report.
- (2) The JICA Study Team explained the system and regulations of Japanese ODA program that will be executed by JICA to the SD. The JICA Study Team requested the SD to respect these system and regulations for smooth implementation of this Study.
- (3) The JICA Study Team explained that basic aerial photography area is 27,000 km² with the maximum 80 flight hours and the SD basically agreed this volume of aerial photography area and flight hours. However, JICA Study Team expressed that actual aerial photography area may be more than 27,000 km².
- (4) The SD requested JICA Study Team to include the most southern part area into topographic mapping area in case this area is out of boundary of the mapping area (At this stage, it is not clear that the most southern part area is included in the topographic mapping area or not due to the reason of uncertain existing topographic maps). The JICA Study Team promised to convey this request to JICA Headquarters.
- (5) The SD indicated that the numbers of GPS point (100 points) are little much considering the number of photo models in case of GPS supported aerial triangulation. The JICA Study Team agreed to make a plan of GPS observation based on the discussion with the counterparts.
- (6) The SD indicated that there are many existing benchmarks within the topographic

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mapping area. Therefore, the SD requested to consider these existing benchmarks for the planning of vertical control. The JICA Study Team agreed to make a plan of leveling work based on the discussion with the counterparts.

- (7) The JICA Study Team requested to open the produced topographic data for public use. The SD expressed to make efforts to open it continuously.
- (8) The JICA Study Team requested to organize the steering committee to spread GIS widely among the Government Agencies. The SD expressed to consider it.

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List of Attendants

Myanmar Side

Survey Department, Ministry of Forestry

U Manung Maung Tin	Director General
U Myint Thein	Deputy Director General
U Min Din	Director, Administration Division
U Nyi Htoo	Director, Boundary Division
U Kan Sint	Director, Aerial Survey and Photo Division
U Myint Sein	Director, Map Reproduction Division
U Min Sein Lwin	Deputy Director, Administration Division

Study Team

Mr. Junichi Koseki	Leader
Mr. Toru Watanabe	Supervisor for specifications
Mr. Shinichi Kono	Supervisor for GPS survey
Mr. Hidehito Hosoda	Supervisor for photography
Mr. Ichiro Nonaka	Administrator

JICA

Mr. Yoshimitsu Yoshimura	Technical advisor
Mr. Toshiya Sato	JICA Myanmar Office

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Appendix 4 Minutes of meeting on the Progress report 1 for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar

MINUTES OF MEETING
ON
THE PROGRESS REPORT 1
FOR
THE STUDY
ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR
NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN
THE UNION OF MYANMAR

AGREED UPON BETWEEN

SURVEY DEPARTMENT, MINISTRY OF FORESTRY
AND
JICA STUDY TEAM

YANGON, 30 APRIL 2002

Myint Thein

U Myint Thein
Deputy Director General
Survey Department
Ministry of Forestry

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Mr. Junichi Koseki
Leader, Study Team
Japan International
Cooperation Agency

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The JICA Study Team headed by Mr. Junichi Koseki visited Myanmar to discuss and confirm the Progress Report 1 concerning the Study to be undertaken from April 21 to May 4, 2002.

The meeting was held on April 30, 2002. The list of the attendants is attached hereto as Appendix.

1. First-Year Study in Myanmar

(1) Signalization

The signalization was replaced with pricking in order to give a priority to the aerial photography.

(2) Aerial photography

The aerial photography was performed by SUNTAC Technologies as contractor. The area of 44,658 km² including the range specified in the Study and the area specified by the Survey Department was photographed over a total flight length of 5,548 line-km. This photography actually covered the area of approximately 36,000 km² south of latitude 17° 15'N in the Ayeyawady Delta area.

The SD expressed its satisfaction with the results of this aerial photography.

(3) GPS Survey

The GPS survey of 48 control points has been completed. The JICA Study Team and the SD confirmed that the number and distribution of these control points were appropriate to perform the aerial triangulation.

(4) Conventional leveling

The leveling of 21 GPS points over a distance of approximately 100 km for observation of Geoid and the pricking of 22 existing benchmark for vertical control were carried out. A Geoid undulation map has been prepared based on these GPS points, and the orthometric heights of the remaining control points could be obtained using this map.

(5) Pricking

48 control points were pricked on contact prints. The Study Team and the SD confirmed that aerial triangulation would be executed appropriately using these pricking points and the three-dimensional coordinate values.

(6) Technology transfer

The technology transfer has been made in regard to signalization, GPS survey, leveling and pricking. The technology transfer was carried out through the joint work of the engineers of the SD and the Study Team.

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The SD expressed its satisfaction with the results of technology transfer.

(7) Additional mapping work

The SD wished the JICA Study Team to undertake an additional topographic mapping if the southern part of the delta zone is not covered with 47 map sheets. The JICA Study Team promised the SD to convey this intention to the JICA Headquarters.

(8) Custody of the first-year products

The Study Team requested the SD to take custody and control of the products and materials prepared in the first year. The SD promised to undertake their custody and control.

2. Second Year Study in Myanmar

The Second-Year Study in Myanmar would start early in July 2002.

(1) Items of study

The Second-Year Study would include discussions on technical specifications, field identification, aerial triangulation and digital plotting.

(2) Counterpart training in Japan

The SD requested that the training of the SD's engineer in Japan would be accepted by JICA. The JICA Study Team promised the SD to convey this request to the JICA Headquarters.

(3) Smooth introduction of procured equipment

The JICA Study Team requested the SD to cooperate in smooth customs clearance and acceptance of the equipment to be procured in the Second-Year Study in Myanmar. The SD promised to make efforts and cooperation to introduce the equipment smoothly.

(4) Seminar

A seminar is scheduled for February 2003. A request has been made to arrange the results of the technology transfer in this year, in order to prepare the presentation of the results at the seminar.

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Appendix

List of Attendants

Survey Department, Ministry of Forestry

U Myint Thein	Deputy Director General
U Kan Sint	Director, Aerial Survey and Photo Division
U Myint Sein	Director, Map Reproduction Division
U Min Sein Lwin	Deputy Director, Administration Division

Study Team

Mr. Junichi Koseki	Leader
Mr. Ichiro Nonaka	Administrator

JICA

Mr. Toshiya Sato	JICA Myanmar Office
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Appendix 5 Minutes of meeting on the Progress report 2 for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar

MINUTES OF MEETING
ON
THE PROGRESS REPORT 2
FOR
THE STUDY
ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR
NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN
THE UNION OF MYANMAR

AGREED UPON BETWEEN

SURVEY DEPARTMENT, MINISTRY OF FORESTRY
AND
JICA STUDY TEAM

YANGON , 11 December 2002

U Myint Thein

U Myint Thein
Deputy Director General
Survey Department
Ministry of Forestry

Mr. Junichi Koseki

Mr. Junichi Koseki
Leader, Study Team
Japan International
Cooperation Agency

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The JICA Study Team headed by Mr. Junichi Koseki visited Myanmar to discuss and confirm the Progress Report 2 concerning the Study to be undertaken from December 1 to 13, 2002.

The meeting was held on from December 4 to 9, 2002. The list of the attendants is attached hereto as Appendix.

1. Submission of the draft of Progress Report 2

The Study team submitted the draft of progress report 2, the draft of technical specifications for digital mapping with Map symbols and Application rules and the draft of GIS guideline to Survey Department (SD).

The Study team explained the contents, and both sides discussed about the details of progress report 2. Both sides prepared the progress report 2 finally after discussions. And SD accepted it. 20 sets of progress report were delivered.

The draft of technical specifications for digital mapping with Map symbols and Application rules and the draft of GIS guideline will be discussed in details at the next meeting.

2. Report of Second-Year Work in Japan

The Study team reported a progress of the work in Japan.

Aerial triangulation work was finished,

Digital plotting work had been finished the fifty percents (50%) of the Study area.

SD expressed its satisfaction with the results of the work.

3. Confirmation of technology transfer

The Study team reported that both Aerial triangulation and Digital plotting have been finished and field verification is still in execution. Besides, the Study team reported that the training to a trainee for operation of block adjustment program in Aerial triangulation was executed in Japan. Furthermore, a lecture on Aerial triangulation was additionally given.

SD requested that the same subject promoted in Japan would be trained for other counterpart personnel of SD.

The Study team answered that the training would be set aside a time after the block adjustment program would be procured.

4. Lecture of aerial triangulation

Mr. KOSEKI gave a lecture on theory and application of aerial triangulation.

Twenty-five (25) persons of engineer and staff were joined in this lecture.

SD gave an address of thanks.

5. Seminar for technology transfer

Seminar for technology transfer will be planned to hold in next February, 2003.

Both sides discussed with a date, an agenda and participants and confirmed them. The

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seminar will be held on 14 February, 2003, based on contents expressed in Inception report. And more than 50 guests will be invited. The list of invited guests will be sent to the Study team later.

Both sides confirmed to hold the seminar in cooperation.

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Appendix

List of Attendants

Survey Department, Ministry of Forestry

U Myint Thein	Deputy Director General
U Min Din	Director, Administration and planning
U Myint Sein	Director, Map Reproduction Division
U San Lwin	Assistant Director, Administration Division
U Than Aye	Assistant Director, Aerial Survey Division
U San Maung	Assistant Director, Headquarter Office.
U San Aye	Assistant Director, Map Reproduction Division
U Nyi Nyi Khin	Staff officer, Map Reproduction Division

Study Team

Mr. Junichi Koseki	Leader
Mr. Nobuo Shimizu	Supervisor for field verification

JICA

Mr. Yoshimitsu Yoshimura	Technical advisor
Mr. Toshiya Sato	JICA Myanmar Office

Appendix 6 Minutes of meeting on the Interim report for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar

MINUTES OF MEETING
ON
THE INTERIM REPORT
FOR
THE STUDY
ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR
NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN
THE UNION OF MYANMAR

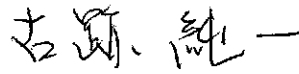
AGREED UPON BETWEEN

SURVEY DEPARTMENT, MINISTRY OF FORESTRY
AND
JICA STUDY TEAM

YANGON, 17 February, 2003



U Maung Maung Tin
Director General
Survey Department
Ministry of Forestry



Mr. Junichi Koseki
Leader, Study Team
Japan International Cooperation Agency

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The JICA Study team headed by Mr. Junichi Koseki visited Myanmar to discuss and confirm the Interim Report of the Study from 2 February to 18 February 2003.

The discussion was held several times from 3 February to 17 February 2003. The list of the attendants is attached hereto as Appendix 1. Following items were explained, discussed and confirmed.

1. Explanation and discussion with the Interim Report

The Study team informed to the SD that the second year work have finished smoothly and submitted the draft of the Interim Report.

Furthermore, the Study team explained the Interim Report to the Survey Department (SD) and discussed in detail.

The SD asked for how to present accuracy of maps. The Study team explained that the quality of map is composed to non-quantitative elements as production purpose and quantitative elements such as completeness, logical consistency, positional accuracy, temporal accuracy and thematic accuracy, but usually the resource of map production and date of field completion should be described as marginal information.

2. Number of sheet produced in the JICA study

The Study team told the following items.

- The coast line was confirmed based on the prepared orthophotos and a part of the land in the southern part of delta area is out of the study area.
- Five (5) map sheets should be added and total number of map sheets comes to 52.
- However, the land in 4 sheets occupies very small area. Therefore, these 4 map sheets should be included upper map sheet respectively.

The study team explained that the Study area was covered by 48 map sheets finally. Index map of produced map sheets is attached as Appendix 2.

The SD requested to produce 48 map sheets totally. The Study team promised to convey it to the JICA head office.

3. Technology transfer

The original plan of technology transfer related to aerial triangulation, digital plotting and field identification was executed successfully by joint operation of the engineers of the SD and the Study Team.

Due to the delay of procurement of digital mapping system, technology transfer of aerial triangulation and digital plotting was carried out by rent instrument. Besides, the SD expressed the worry about the operations of the system to be procured, the Study team explained that both theory and technology concerning to aerial triangulation and digital plotting were already transferred and prepared the survey manual. The Study team requested strongly that counterparts of related work would exercise to operate it by using the survey manual, after instrument would be arrived at SD.

The SD expressed thanks to the results of technology transfer.

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4. Distribution of maps and digital data for public use

The Study team requested that the products of this Study such as maps and digital data would be distributed to the public user, when the final products would have been prepared.

The SD expressed to prepare that these outputs would be distributed for the public use. Every user concern with Government and the international cooperation agencies will get these outputs after having received permission from authorities concerned. The price of each product is not decided yet.

The Study team requested to show the procedure to get outputs of JICA Study at the next Seminar, which will be held in discussion of Draft Final Report.

The SD agreed to take the effort for this matter.

5. Seminar 1

Seminar 1 was held under auspices of both the SD and JICA at the Sedona Hotel on February 14, 2003. Outline of this Study and promotion GIS were presented at the seminar. Especially, presentation concern with work items of digital mapping by counterparts was successful, therefore both side confirmed to have been transferred the technology of digital mapping. The agenda is attached as Appendix 3. The number of participants joined in the seminar was 65 persons.

6. Arrangement for surrounding of technology transfer

The Study team requested for members of the SD to develop technology transferred by the Study team.

The SD requested to supply some books as bibliography and another GIS software. Because, there are not enough books or materials concerning to survey, photogrammetry and mapping in the SD, when the SD discuss with data exchange and another function, they cannot compare these issues.

The Study team promised to convey this item to JICA head office.

7. The third year work

The third-Year Study in Myanmar will be planed to start in August 2003.

The computer operation and field work such as digital compilation, map symbolization, field completion and structurization of topographic data will be executed in Myanmar, and these technology also will transferred.

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Appendix 1

List of Attendants

Survey Department, Ministry of Forestry

U Maung Maung Tin	Director General
U Myint Thein	Deputy Director General
U Min Din	Director, Administration Division
U Kan Sint	Director, Aerial Survey Division
U Myint Sein	Director, Aerial survey Division
U Nyo Win	Director, Boundary Division
U Than Hlaing	Deputy Director, Geodetic Division

Study Team

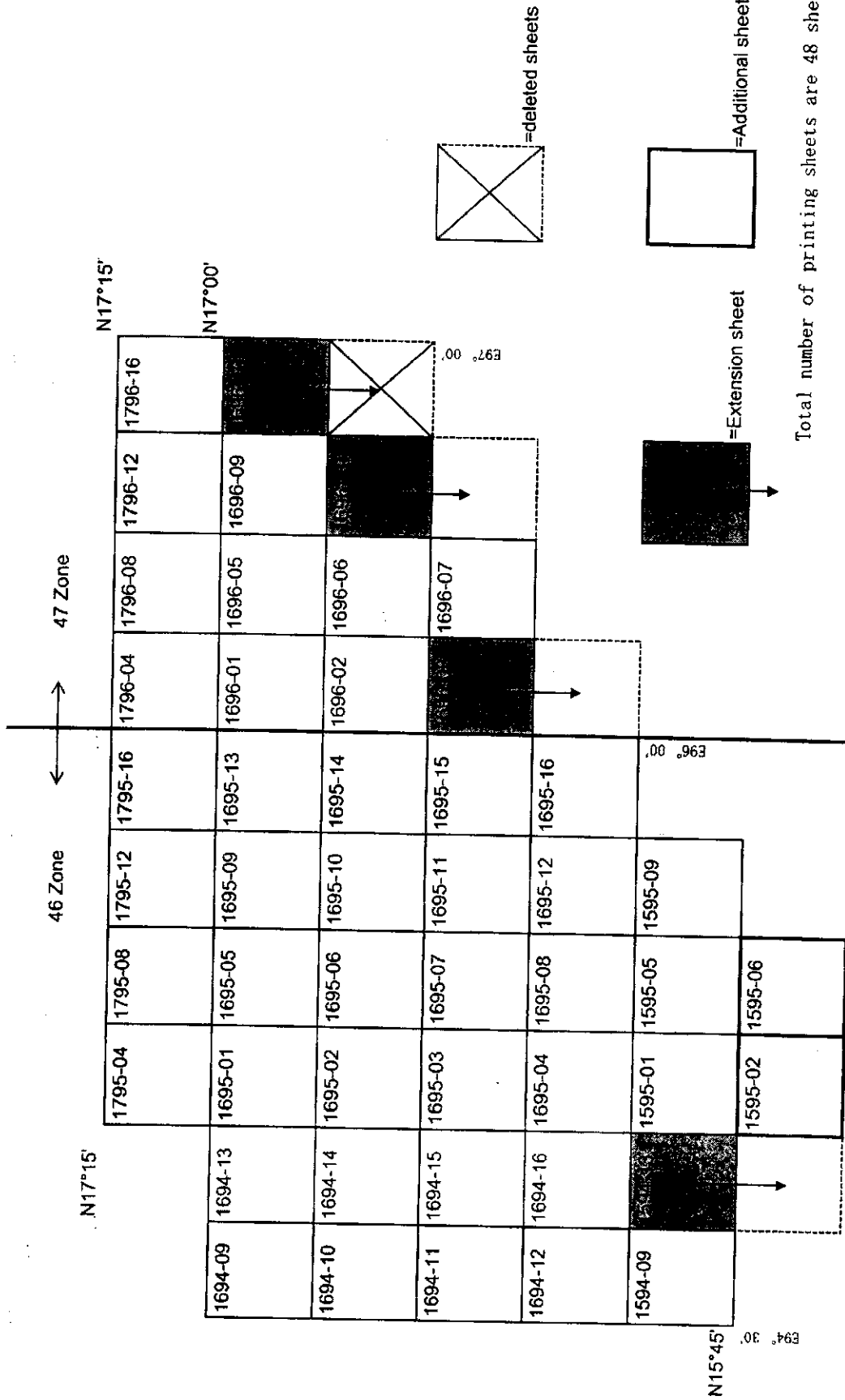
Mr. Junichi Koseki	Leader
Mr. Shinichi Kono	Supervisor for GPS survey
Mr. Tsuneo Terada	Supervisor for Digital plotting
Mr. Nobuo Shimizu	Supervisor for Field verification
Mr. Michi Hayasi	Administrator

JICA

Mr. Kosei Otoi	Technical advisor
Mr. Toshiya Sato	JICA Myanmar Office

Mapping sheet index

20, Jan., 2003



Total number of printing sheets are 48 sheets

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Programme

Time	Contents	Presenter
10:00-10:10	Opening Greeting	Director General of SD: U Maung Maung Tin
10:10-10:50	Outline of JICA Project	Director of SD: U Kan Sint
10:50-11:00	Tea break	
11:00-11:30	Final results and Interoperability	Leader of JICA Team: Mr. Koseki
11:30-12:15	Application of GIS in Japan	JICA Special presenter: Mr. Irisawa
12:15-13:00	Buffet	
	Presentation of Survey Manual	
13:00-13:20	Ground control survey	Counterpart of SD: U Than Hlaing (Deputy Director)
13:20-13:40	Aerial triangulation	Counterpart of SD: U Sein Min (Staff Officer)
13:40-14:00	Digital plotting	Counterpart of SD: U Thant Sin Oo (Staff Officer)
14:00-14:20	Field identification	Counterpart of SD: U Ko Latt (Staff Officer)
14:20-14:40	Tea break	Tea break
14:40-14:55	Question	Chairperson: U Kan Sint
14:55-15:00	Closing Greeting	JICA Myanmar office Mr. Sato

**Appendix 7 Minutes of meeting on the Plan of operations of the third year work for
The Study on the establishment of geographic database for national
rehabilitation and development programme in the Union of Myanmar**

**MINUTES OF MEETING
ON
THE PLAN OF OPERATIONS OF THE THIRD YEAR WORK
FOR
THE STUDY
ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR
NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN
THE UNION OF MYANMAR**

AGREED UPON BETWEEN

**SURVEY DEPARTMENT, MINISTRY OF FORESTRY
AND
JAPAN INTERNATIONAL COOPERATION AGENCY**

YANGON, 14 AUGUST, 2003



U Maung Maung Tin
Director General
Survey Department
Ministry of Forestry



Mr. Junichi Koseki
Leader, Study Team
Japan International Cooperation Agency

JR

The Study Team headed by Mr. Junichi Koseki visited Myanmar to discuss and confirm the third year's work plan, and other relevant issues to the Survey Department (SD), Ministry of Forestry.

The meeting was held on from August 6 to 14, 2003. The list of the attendants is attached hereto as Appendix.

Following items were explained, discussed and confirmed.

- 1) The Study Team presented the Plan of Operation of the third year work using Powerpoint slides.

The SD consented to the plan.

The Study Team submitted the draft of Survey manual Part 2 for operation of digital mapping that specified detail procedures of digital plotting, field identification, digital compilation and field completion works.

- 2) The Study Team and SD discussed details of the map symbols and application rules based on the old version. In this meeting, the definition of acquired geographic features was discussed carefully.

The result of discussion was modified as the 4th edition of Map symbols and application rules.

- 3) The Study Team and SD discussed marginal information based on the draft of topographic map which was prepared by the Study team in advance.

The SD accepted design, layout and contents of marginal information basically.

- 4) The Study Team received equipment introduced by JICA in last fiscal year, which were kept by SD. The Study team confirmed that the equipment worked normally.

These instrument were used technology transfer from 11th of August for digital compilation work.

- 5) The Study Team requested SD to assign five(5) counterparts for transferring of digital compilation technology.

The SD accepted it and assigned 5 experienced engineers soon.

The technology transfer of digital compilation has started by experts of the Study

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team for these assigned counterparts.

And furthermore, the Study Team requested SD to assign a chief engineer, four (4) counterparts and four (4) assistants for field completion work until November when field completion would start.

The SD promised it.

The Study team asked SD to get traveling permission for field work in the delta area.

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Appendix

List of Attendants

Survey Department, Ministry of Forestry

U Maung Maung Tin	Director General
U Myint Thein	Deputy Director General
U Kan Sint	Director
U Myint Sein	Director
U Min Sein Lwin	Director

Study Team

Mr. Junichi Koseki	Leader
Mr. Minoru Onaka	Supervisor for Digital compilation
Mr. Yositeru Matsushita	Supervisor for Digital compilation
Miss Michi Hayashi	Administrator

JICA

Mr. Toshiya Sato	JICA Myanmar Office
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Mr. Yoshimitsu Yoshimura	Technical advisor
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Appendix 8 Minutes of meeting on the Progress report 3 for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar

MINUTES OF MEETING
ON
THE PROGRESS REPORT 3
FOR
THE STUDY
ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR
NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN
THE UNION OF MYANMAR

AGREED UPON BETWEEN

SURVEY DEPARTMENT, MINISTRY OF FORESTRY
AND
JICA STUDY TEAM

YANGON, February 11, 2004



U Maung Maung Tin
Director General
Survey Department
Ministry of Forestry



Mr. Junichi Koseki
Leader, Study Team
Japan International Cooperation Agency

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The JICA Study team headed by Mr. Junichi Koseki visited Myanmar from January 26 to February 18, 2004, to discuss the issues stated below and to confirm the Progress Report 3.

The discussion was held on February 10, 2004. The list of the attendants is attached hereto as Appendix 1. Following items were explained, discussed and confirmed.

1. Change in the Procedure in the Forth Year Study

(1) Printing Maps in Myanmar

The SD requested to execute map printing in Myanmar in order to master map printing techniques and to exploit equipments possessed by the SD. The Study Team surveyed the skill of map printing and equipments in the SD to see if it is possible to conduct and finish map printing in Myanmar by June. The Study Team conveyed this request and the result of survey that the SD has sufficient skill for map printing.

JICA accepted this request as it suits one of the purposes of the Study to enhance the techniques of the SD, and the Study Team conveyed this approval to the SD.

Therefore, the SD will be in charge of map printing which will be conducted in Myanmar, and the Study Team will be responsible only for preparation of the datafile for the printing and checking the quality and quantity of the maps which will be printed by the SD by June.

(2) Printing Materials

The SD has requested the Study Team to provide necessary printing materials because of the shortage of the budget that the SD is facing although the printing itself will be conducted by the SD in Myanmar. The Study Team conveyed this request to JICA. JICA understood the necessity to provide printing materials before March for the smooth implementation of the printing by June and approved to provide materials such as printing papers, ink, film, plate, and so on, which are necessary to print 500 maps. The SD is responsible to utilize these materials only for printing maps of this Study, and the Study Team will check the quality and quantity of printed maps in June.

(3) Land Use Map

The SD has requested the Study Team to transfer techniques to make a thematic map using GIS and to prepare a land use map as an additional output of the Study since a land use map is the most useful map among thematic maps as a basis for future national development. The Team conveyed this matter to JICA and discussed the necessity of the land use map. JICA approves this request as it understands the necessity.

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(4) Confirmation of the Forth Year Study

Following work items will be executed in the forth year study.

- 1) Building of basic GIS dataset (conducted by the Study Team)
- 2) Map printing in Myanmar (conducted by the SD)
- 3) Technology transfer of correction of drawing data
- 4) Preparation of land use map
- 5) Seminar to apply final results of the JICA Study and promote GIS

2. Disclosure of Maps to the Public in Myanmar

The Study Team and JICA has requested the SD to disclose the output of the Study (maps and database) to the public and to clarify the procedure for the public user to go through to obtain the maps and database. The SD stated that the result of the Study will be open to the public when the user takes the necessary steps written below and obtain permission from the Ministry of Defense.

- 1) Obtaining map index number at the Survey Department
- 2) Application to the Ministry of Defense by notifying the map index number as well as the purpose of the usage of the map to obtain permission from the Ministry of Defense
- 3) Request to the SD to obtain the map after getting approval from the Ministry of Defense

3. Utilization of Maps among related organization and Ministries

The Study Team and JICA has requested the SD to utilize the output of the Study to meet the purpose of future development of the Union of Myanmar, and the SD confirmed that the maps and database are going to be utilized among related Ministries by holding GIS map session and training among Steering Committee consisting of Ministry of Forestry, Ministry of Agriculture, Ministry of Education, etc. The purpose of the GIS session is to share information of the output of the Study (maps and database) so that the related Ministries will be able to utilize the result of the Study for the future development plans which each Ministries are in charge of.

4. Disclosure of Maps to the Public in Japan

With regard to the request of the JICA to disclose the maps produced as a result of the Study to the public in Japan, the SD confirmed that it would not allow the maps to be used abroad due to the security reasons.

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5. Explanation and discussion with the Progress Report 3

The Study team informed the SD that the third year work had been finished smoothly and submitted the draft of the Progress Report 3.

Furthermore, the Study team explained the Progress Report 3 to the SD and discussed in detail.

- 1) Digital compilation and supplementary compilation after field completion have been executed successfully in Myanmar.
- 2) Field completion has been finished jointly.
- 3) Supplementary compilation will be finished by the end of February.
- 4) The SD requested to eliminate several military facilities on maps.

The study team accepted the request after consulting to and getting approval of JICA.

Therefore, marked facilities are going to be eliminated.

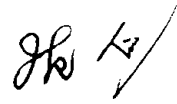
6. Technology transfer of the third year study

The original plan of technology transfer related to digital compilation, field completion and supplementary compilation after field completion was achieved successfully by joint operation of the engineers of the SD and the Study Team.

The SD expressed appreciation for the results of technology transfer.

7. Confirmation of the specification of final products

- 1) The final specifications of map symbols and application rules called Ver.5 were confirmed by both the Study team and SD.
- 2) The final detail of marginal information layout was also confirmed by both sides.



Appendix 1

List of Attendants

Survey Department, Ministry of Forestry

U Maung Maung Tin	Director General
U Myint Thein	Deputy Director General
U Kan Sint	Director, Aerial Survey Division
U Myint Sein	Director, Reproduction Division
U Nyo Win	Director, Boundary Division

The Study Team

Mr. Junichi Koseki	Leader
Mr. Minoru Onaka	Supervisor for Digital compilation
Mr. Yoshiteru Matsushita	Supervisor for Digital compilation
Mr. Ichiro Nonaka	Administrator

JICA

Ms. Momoko Hotta	JICA Headquarters
Mr. Toshiya Sato	JICA Myanmar Office

Appendix 9 Minutes of meeting on the Plan of map printing operation and land use mapping for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar

MINUTES OF MEETING
ON
THE PLAN OF
MAP PRINTING OPERATION AND LAND USE MAPPING
FOR
THE STUDY
ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR
NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN
THE UNION OF MYANMAR

AGREED UPON BETWEEN

SURVEY DEPARTMENT, MINISTRY OF FORESTRY
AND
JICA STUDY TEAM

YANGON, 5 May 2004



U Maung Maung Tin
Director General
Survey Department
Ministry of Forestry



Mr. Junichi KOSEKI
Leader
Study Team
Japan International
Cooperation Agency

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The JICA Study Team headed by Mr. Junichi KOSEKI visited Myanmar to discuss the Plan of map printing operation and land use mapping which is undertaken from March 29 to May 6, 2004.

The meeting was held on April 20, 2004. The list of the attendants is attached hereto as Appendix.

1. Map printing

- 1) The Study team and the Survey Department (SD) confirmed that map printing will be executed by SD.

The study team requested that SD assign two counterparts who will be in charge of executing map printing such as outputting drafts of topographic map from CD-ROM and performing final inspection of drafts.

SD agreed to assign two counterparts and to organize a map inspection group.

- 2) SD asked the study team to prepare materials for map printing by the study team.
The study team answered that materials needed were already ordered.
- 3) The study team requested SD that the topographic map printing should be finished by the end of June.

In this regard, SD agreed to inform the Study team the progress of map printing.

2. Land use mapping

- 1) The study team informed SD that the Team will prepare 11 sheets of land use map.
The study team requested that SD assign counterparts for land use surveying in the field when land use mapping starts in May.
SD agreed to assign two engineers as counterparts.

3. Disclosure of topographic maps in Japan

SD stated that the Maps shall not be disclosed without prior permission of the concerned authorities of the Union of Myanmar.

4. Second Seminar on Technical Transfer

- 1) The seminar on the technical transfer will be held in the International Business Center in the middle of July in order for SD and other related organizations to be able to apply final result of the JICA Study and utilize GIS.
- 2) The Study team requested that SD invite relevant participants from various organizations.
- 3) GIS of the study area will be demonstrated by SD engineers in the seminar.

List of Attendants

Survey Department, Ministry of Forestry

U Maung Maung Tin	Director General
U Myint Thein	Deputy Director General
U Kan Sint	Director, Planning & Administration Division
U Myint Sein	Director, Reproduction Division

Study Team

Mr. Junichi Koseki	Leader
Mr. Nobuteru Matusita	Supervisor for land use mapping

JICA

Mr. Toshiya Sato	JICA Myanmar Office
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Appendix 10 Agreement for Aerial photography for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar

JAPAN INTERNATIONAL COOPERATION AGENCY

**AGREEMENT
FOR
AERIAL PHOTOGRAPHY
FOR
THE STUDY
ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR
NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN
THE UNION OF MYANMAR**

DATE: February, 2002

**ASIA AIR SURVEY CO., LTD
And
SUNTAC TECHNOLOGIES**

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This Contract made entered into the 19th of February, 2002 by and between the **JICA Study Team**, having its project office at JICA Study Team c/o Survey Department, Ministry of Forestry, in the Union of Myanmar and **SUNTAC TECHNOLOGIES** which shall include its legal successors and assigns), having its principal office at 151 (B) Thirimingalar Lane, Mayangone Township Yangon in the Union of Myanmar.

WITNESSETH that the parties covenant, promise, and agree each with the other as follows:

(1) The Contractor agrees to do and complete Aerial Photography for The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar (hereinafter referred to as "the Works" in accordance with the terms, conditions and requirements of this Contract.

(2) The JICA Study Team agrees to pay the Contractor in consideration of the fulfillment of the Works, the Contract Price in US\$ Four Hundred Eighty Six Thousand and Two Hundred Ninety Five only- (US\$486,295.00 only) in accordance with the terms and conditions specified in the General Conditions. It is agreed that the terms, conditions and requirements of the Contract shall prevail except to the extent that they are expressly modified or altered by this Contract.

IN WITNESS WHEREOF, each of the parties hereto has caused this Contract to be executed in duplicate as of the date first above written by its duly authorized representative.

FOR AND ON BEHALF OF
CONTRACTOR

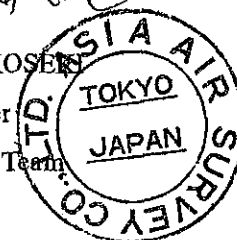
FOR AND ON BEHALF OF
THE JICA STUDY TEAM

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Maung Maung Khim
Director
SUNTAC TECNOLOGIES

J. K. S.

JUNICHI KOSEKI
Team Leader
JICA Study Team



The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar

JAPAN INTERNATIONAL COOPERATION AGENCY

**CONDITIONS OF CONTRACT
FOR
AERIAL PHOTOGRAPHY
FOR
THE STUDY
ON
THE ESTABLISHMENT OF GEOGRPHIC DATABASE
FOR
NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN
THE UNION OF MYANMAR**

DATE: February, 2002

ASIA AIR SURVEY CO., LTD

The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar

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1.1 DEFINITIONS

The following words and expressions shall have the meaning herein assigned to them, except where the context otherwise requires:

- (1) The "Consultant Team" shall mean the Employer and the person or persons assigned by ASIA AIR SURVEY., LTD. to carry out "Aerial Photography for The Study on the Establishment of Database for National Rehabilitation and Development Programme in the Union of Myanmar".
- (2) The "Engineer" shall mean Team Leader or the Consultant Team for "Aerial Photography for The Study on the Establishment of Database for National Rehabilitation and Development Programme in the Union of Myanmar" where Contract has been carried out or is in progress to be carried out.
- (3) The "Study" shall mean" The Study on the Establishment of Database for National Rehabilitation and Development Programme in the Union of Myanmar".
- (4) The "Work" shall mean Aerial Photography to be done by the Contractor under the Contract, as a part of "The Study on the Establishment of Database for National Rehabilitation and Development Programme in the Union of Myanmar" under the Consultant Team.
- (5) The "Contractor" shall mean any person, firm, or company whose tender has been accepted by the Engineer and approved by the Consultant Team and shall include the Contractor's personnel, representative(s), and its legal successors and assigns.
- (6) The "Contract" shall mean the agreement between the Consultant Team and the Contractor, and shall include the Letter of Intent, the Conditions of Contract, the General Specifications, the Technical Specifications, the Bill of Quantities annexed hereto or to be provided or approved by the Consultant Team, the Letter of Intent for the Contract, and such further documents that may be expressly incorporated in the Contractor.
- (7) "Contract Price" shall mean the sum stated in the Contract as the contract price.
- (8) "Bill of Quantities" shall mean the price schedule appended to or issued under the Contract.
- (9) "Unit Price" shall mean the unit price(s) quoted in the Bill of Quantities appended to the

The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar

Contract.

- (10) "Specifications" shall mean the general and technical specifications or the specifications annexed to or issued under the Contract.
- (11) "Drawing" shall mean the drawing referred to in the Specifications and any modification of such figures and drawings approved in writing by the Consultant Team and such other drawing as may from time to time be furnished or approved in writing by the Consultant Team
- (12) "Site" shall mean the place where the Work is required to be done under the Contract.
- (13) "Day, Week, Month, Year" shall mean calendar day, calendar week, calendar month and calendar year, respectively.
- (14) "Approval" or "Approved" shall mean approval or approved in writing by the Consultant Team.
- (15) "Writing" shall mean any manuscript, typewritten, or printed statement under seal or signed by hand.
- (17) "Work Schedule" shall mean the work schedule appended to or issued under the Contract.
Words importing the singular only also include the plural and vice versa where the context requires. The fact that the words defined under this Clause are or not captioned in the Contract shall not affect their meaning.

1.2 CONTRACTOR TO INFORM HIMSELF SUFFLY

The Contractor who submits his cost proposal for the Work shall be deemed to have satisfied himself as to all the conditions and circumstances affecting the Contract Price, and to have fixed his prices according to his own view for these as no additional allowances, except as otherwise expressly provided, will afterwards be made beyond the Contract Price. The Contractor shall be responsible for any misunderstanding or incorrect information whatever obtained, except information in writing by the Consultant Team.

1.3 VALIDITY OF CONTRACT AND COMMENCEMENT OF THE WORK

The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar

The Contract shall become effective on the date it has been approved by the Consultant Team and verified by JICA. The Contractor shall commence the Work upon receipt of the "Notice to proceed" which will be issued by the Consultant Team.

1.4 MANNER OF EXECUTION

- (1) All the Work to be done under the Contract shall be executed in accordance with the Specifications, or where not specified therein, in accordance with such instructions and orders as the Consultant Team may give.
- (2) If the Contractor shall, by written notice to the Consultant Team within seven (7) days after receiving any decision, instruction or order of the Consultant Team, intimate that he disputes or questions the decision for so doing, either party shall be at liberty to refer the matter to arbitration pursuant to Clause 1.23, Arbitration, but such an intimation shall not relieve the Contractor of his obligation to proceed with the Work in accordance with the decision, instruction, or order in respect of which the intimation has been given.

1.5 INFORMATION AND OFFICIAL PERMISSION

- (1) The Consultant Team shall make the information available to the Contractor, for the purpose of performing the Work.
- (2) Official permission from the authorities concerned for the execution of the Work at the site shall be arranged by the Contractor at his own expense.
- (3) The Contractor shall make arrangements for free access to land required in performing the Work, whether the land is owned by the Government of Myanmar or third parties, and shall assume liability for damage to land and associated properties due to such access.

1.6 CONTRACTOR'S REPRESENTATIVE AND PERSONS

- (1) The Contractor shall make his own arrangements for the engagement of all engineers, technicians and laborers necessary for the execution of the Work. The Contractor shall submit to the Consultant Team for approval a complete list of principal staff showing names, functions, personal histories and periods of assignments prior to commencement of the Work.
- (2) The Contractor shall appoint one or more competent representatives among the Contractor's

The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar

engineers assigned to the Work to superintended the carrying out of the Work at the Site. The names, training and experience of the Contractor's representatives shall be submitted to the Consultant Team for approval before they are appointed. The said representative, or if more than one shall be appointed, at least one of such representatives shall be present at the Site during all work period and working hours, and any order or instruction which the Consultant Team may give to such representative of the Contractor shall be deemed to have been given to the Contractor by the Consultant Team.

- (3) The Contractor shall be responsible for observation of all regulation and safety precautions imposed by labor legislation and authorities.

- (3) The Consultant Team shall be liberty by notice in writing to the Contractor to object to any representative or other persons employed by the Contractor in the execution of the Work shall, in the opinion of the Consultant Team, misconduct himself or being incompetent or negligent or being sick, and the Contractor shall remove such person or persons from the Work and provide an acceptable replacement(s) at the Contractor's expense.

1.7 WORKING DAY AND HOURS

The Contractor shall carry out the Work at the Site continuously during the normal working hours generally recognized in Myanmar. The Contractor may, with his arrangement, carry out the Work in other times, if it shall be practicable in the circumstances for work to be so done.

1.8 EQUIPMENT, MATERIALS AND FACILITIES TO BE PROVIDED BY THE CONTRACTOR

The Contractor shall at its own expense supply and provide all the equipment, materials, laborers and other things of every kind required, for the execution and completion of the Work.

1.9 PROGRAM TO BE FURNISHED

- (1) The Contractor shall submit to the Consultant Team for approval, his proposed time schedule and field/indoor operations programs for each section of the Work. After approval by the Consultant Team of such time schedule and field/indoor operation program, the completion time for the Work stipulated in the same time schedule shall be considered as the "Guaranteed Time for Completion of the Work", and the Contractor shall adhere to the order of procedure, method and time schedule stated unless he obtained the written permission of the Consultant

The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar

Team to vary such order or method or time schedule.

- (2) Such time schedule and field/indoor operations program shall be supplemented by the Contractor by monthly progress reports indicating the actual state of progress of all work times during the course of the Work. The form and substance of such monthly reports shall be satisfactory to the Consultant Team.
- (3) In the course of the Work, any time the Consultant Team calls a meeting with the Contractor, the Contractor and/or his representative(s) shall at all times and at his own expense attend the meeting and shall report all actual progress of the Work.

1.10 INSURANCE

- (1) The Contractor shall, at his expense, effect accident and injury insurance for engineers, technicians and laborers employed by him for the execution of the Work, and shall keep the Consultant Team free from any claim for compensation of such accident and injury.
- (2) The Contractor shall at his expense insure the equipment, materials and facilities to be provided by him and keep each part thereof insured for its full value against loss, damage and fire.

1.11 FORCE MAJEURE

- (1) If either party is temporarily unable by reason of force majeure on the law or regulation of Myanmar to meet any of its obligation under the Contract, and if such party gives to the other party written notice of the event within seven (7) days after its occurrence, such obligations of the party as it is unable to perform by reason of the event shall be suspended as long as the inability continues.
- (2) The neither party shall be liable to the other party for loss or damage sustained by such other party arising from any event referred to in Clause 1.11 (1) or delays arising from such event.
- (2) The term "Force Majeure" as employed herein shall mean Acts of God or natural calamities, strikes, lock-outs, or other industrial disturbance, acts of the public enemy, war, blockades, earthquakes, storm, lightning, floods, wash-outs, civil disturbances, explosions and any other similar events, beyond the control of either party and which by the exercise of sue diligence neither party is able to overcome.

The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar

1.12 TERMS OF PAYMENT

- (1) Payment for the Work shall be made by the Consultant Team to the Contractor in the following manner.
- (a) The Contractor shall submit an invoice, which shall be ascertained to the unit prices and their work quantity specified in the Bill of Quantities and approved by the Consultant Team.
 - (b) Advance Payment (30 % of the Contract Price)
The Contractor shall submit an invoice of advance payment (thirty percent (30 %) of Contract Price) after the field survey team arrives to the Site. An advance payment shall be paid within thirty (30) days after the Consultant Team received the invoice of advance payment from the Contractor.
 - (c) Final Payment (70 % of the Contract Price)
The remaining seventy- percent (70 %) of the Contract Price shall be paid within thirty (30) days after issuance of the certificate of Completion of the Work by the Consultant Team and the Consultant Team received the invoice of final payment from the Contractor.
- (2) No extra payment in respect of overtime, holiday work, additional equipment, materials and facilities, or special conditions of hardship shall be claimed by the Contractor beyond the Contract Price, unless such payment shall have been authorized in writing by the Consultant Team to the extra cost concerned being encountered.
- (a) No adjustment of the Contract Price shall be made even if the actual quantities completed are more than the quantities shown on the Bill of Quantities in the Contract. In case that an increase or decrease in the quantities shown on the Bill of Quantities are forecasted in the course of execution of the Work, quantity adjustment shall be timely made between the Consultant Team and the Contractor within the Contract Price.
 - (b) Unit prices stated in the Bill of Quantities shall be fixed and shall be used in determining any adjustment within the Contract Price where applicable.
 - (c) Any fluctuation in the price of wages, materials or any other items shall not be the

subject of any adjustment.

1.13 TAXES AND RELATED CHARGES

All income and other taxes, levies, impositions, deductions, charges, fees and similar assessments whatsoever imposed, assessed, levied or collected by the Government of the Socialist Republic of Myanmar, or any subdivision thereof or any tax authority therein, upon the Contractor and his staff, shall be paid and/or borne by the Contractor.

1.14 VARIATIONS AND OMISSIONS

- (1) The Contractor shall not alter any of the Work except as directed in writing by the Consultant Team. The Consultant Team shall have full power, from time to time, during the execution of the Contract, to direct the Contractor to alter, amend, omit add to or otherwise vary any of the Work, by notice in writing, and the Contractor shall carry out such variations. In case the Consultant Team directs, on the spot, the Contractor to change areas to be surveyed area from the originally proposed areas, the Contractor shall at that instance obey such directions and later obtained written confirmation from the Consultant Team.
- (2) If decrease the Work ordered by the Consultant Team, such orders shall no constitute any ground for claim for damage or loss of anticipated profits on the Work. All additional work, if any, shall be performed with the same material and workmanship as employed for works of similar character in the original work as far as they applicable hereto.
- (3) If increase in the Work is requested by the Contractor, no additional budget will be issued even if there are charges in the Scope of Work proposed by the Contractor.

1.15 CONTRACTOR'S DEFAULT

- (1) If the Contractor shall neglect to execute the Work diligently and expeditiously or shall refuse or neglect to comply with any reasonable instructions or other given in writing by the Consultant Team in connection with the Work, or shall contravene the provisions of the Contract, the Consultant Team may give notice in writing to the Contractor to make good failure, neglect or contravention complained of.
- (2) Should the Contractor fail to comply with the notice within a reasonable time from the date thereof, then and in such case, the Consultant Team shall be at liberty to employ other

The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar

workmen and forthwith execute such part of the Work as the Contractor may have neglected to so, or, if the Consultant Team shall think fit, it shall be lawful for him, without prejudice to any other rights he may have under the Contract, to make the work wholly or in part of the Contractor's hands and re-contract with any other person or persons to complete the Work or any part thereof.

- (3) The Consultant Team shall be entitled to retain and apply any balance which may be otherwise due from him to the Contractor, or such part thereof as may be necessary to payment of the cost of executing the said part of the Work or completing the Work as the case may be. If the cost of completing the Work or executing part thereof as aforesaid shall exceed the balance due to the Contractor, the Contractor shall pay such excess upon request in writing by the Consultant Team.

1.16 REJECTION

At any time before the Work is accepted by the Consultant Team, the Consultant Team shall decide that any work done by the Contractor is defective or not in accordance with the Contract or that the Work or any portion thereof is defective or do not fulfill the requirements of the Contract, then the Contractor shall, with dispatch of personnel with equipment at his own expense, make good the defects so specified. In case the Contractor shall fail to do so, the Consultant Team may, provided he does so without undue delay, take at the cost of the Contractor.

1.17 TIME FOR COMPLETION

- (1) The whole shall be completed within the time guaranteed by the Contractor or such extended time as may be allowed under the following paragraph.
- (2) The Contractor shall not be held responsible for failure to carry out his obligations, in case of force majeure, stipulated in Clause 1.11, which should be notified by him in writing to the Consultant Team within seven (7) days of the commencement of force majeure condition. Depending on the submittal of satisfactory evidence and if the existence of force majeure conditions is accepted by the Consultant Team, the Consultant Team will grant extension of the Guaranteed Time for Completion of the Work sufficient to compensate for the delay due to force majeure without penalty.

1.18 DELAY IN COMPLETION

The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar

If the Contractor fails to complete the Work in accordance with the Contract within the time specified by the Contract, these shall be deducted from the Contract Price as and for liquidated and ascertained damages a sum of money equal to one tenth of one percent (0.1 %) of the Contract Price for each day between the Guaranteed Time for Completion of the Work and the actual date of completion. Such deduction shall be in full satisfaction of the Contractor's liability for the said failure.

The Consultant Team may request the Contractor to employ additional labor or use additional equipment and materials, and the Contractor shall do so at his expense in case a delay in the completion of the Work expected.

1.19 AMENDMENT AND MODIFICATION

Any amendment or modification, if necessary, may be negotiated between the parties hereto and shall be agreed by a written document signed by both parties.

1.20 SUSPENSION OF THE WORK

The Contractor shall, on the written of the Consultant Team, suspend the progress of the Work or any part thereof for time or times and in such manner as the Consultant Team may consider necessary and shall doing such suspension properly and secure the Work so far as is necessary in the opinion of the Consultant Team.

All expenses incurred by the Contractor by reason of suspension to the Work by the Consultant Team will be at the sole responsibility of the Contractor if the suspension is:

- (a) Otherwise provided for in the Contract, or
- (b) Necessary for the proper execution on the Work or by reason of weather condition affecting the safety or the quality of the Work or by some defaults on the part of the Contractor, or
- (c) Necessary for the safety of the Work or any part thereof.

1.21 CERTIFICATE OF COMPLETION OF THE WORK

As soon as possible, after the whole Work has been satisfactorily completed, the Consultant Team shall issue a Certificate of Completion of the Work after receiving a written application thereof from the Contractor. Upon issuance of such Certificate of Completion of the Work, the

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Contractor shall cease to be under further obligation under the Contract.

1.22 BANKRUPTCY

If the Contractor shall become bankrupt or insolvent or have a receiving order made against him, or compound with his creditors, or being a corporation commence to be wound up, not being a member's voluntary winding up for the purpose of amalgamation or reconstruction, or carry out its business under a receiver for the benefit of its creditors or any of them, the Consultant Team shall be at liberty:

- (1) To terminate the Contract forthwith by notice in writing to the Contractor or to the receiver, or liquidator, or to any person in whom the Contract may become vested, and to act in the manner provided in Clause 1.15, Contractor's Default, as though the last mentioned notice has been the notice referred to in such Clause and the Work has been taken out from the Contractor's hand, or
- (2) To give such receiver, liquidator or other person the opinion of carrying out the Contract subject to his providing of a guarantee for the due and faithful performance of the Contract up to an amount to be agreed.

1.23 ASSIGNMENT AND SUBLETTING OF THE CONTRACT

The Contractor shall not, without the prior consent in writing of the Consultant Team, assign or transfer the Work or the benefits or obligations thereof or any part thereof to any other person.

The Contractor shall not, without the prior consent in writing of the Consultant Team, which shall not be unreasonably withheld, sublet the Contract or any part thereof or make any subcontract with any person or persons.

Any such consent, if given, shall not relieve the Contractor from his obligations under the Contract. The subcontractor shall be regarded as employee of the Contractor. The Contractor shall be solely responsible for the performance of the Subcontractor and for all payments to the subcontractor.

1.24 ARBITRATION

- (1) If any dispute or difference of any kind whatsoever shall arise between the Consultant Team and the Contractor in connection with the interpretation or application of the Contract, it shall

The Study on the Establishment of Geographic Database for National Rehabilitation and Development Programme in the Union of Myanmar

be settled as much as possible by amicable arrangement between both parties. If such arrangement cannot be realized, the dispute or difference shall be settled by arbitration as provided herein.

- (2) All question, disputes or differences arising out of or in relation to the interpretation of the Contract which cannot be settled by mutual accord shall be submitted to a committee for arbitration consisting of three arbitrators, one to be nominated by the Consultant Team, another by the Contractor and the third as chairman by the two arbitrators mentioned above, and shall be finally settled in conformity to the rules and procedures of conciliation and arbitration of the Japan Commercial Arbitration Association. Any decisions, opinion, direct certificate or valuation given by the arbitrators shall be obeyed by both parties and be final.

1.25 NOTICE AND CORRESPONDENCE

Any notice to be given to the Contractor shall be served by sending the same by post to or leaving the same at the Contractor's principal place of business or to the address of his representative at the Site. Any notice to be given to the Consultant Team shall be served by sending the same by post to or leaving the same at the Team's address as stated in the Contract.

1.26 DOCUMENTS

- (1) All correspondence, figures, drawings and other documents shall be made in English and in the metric system.
- (2) The several documents have to be taken as mutual evidence of one another, but in case of ambiguities or discrepancies, the same shall be adjusted in accordance with the provisions of Clause 1.23 hereof.

1.27 INSPECTION OF THE WORK

The Consultant Team shall at all times have access to the Work wherever it is in preparation or in progress, and the Contractor shall provide necessary facilities for such access and inspection at Contractor's expense.

Where the Specifications require any work to be specially tested or approved, the Contractor shall give the Consultant Team timely notice of his readiness for inspection and, if the inspection is by an authority other than the Consultant Team, of the date fixed for such

inspection.

TECHNICAL SPECIFICATIONS

1.1 GENERAL

1.1.1 Area

The area to be covered by the aerial photos at a scale of 1:50,000 is approx 27,000km² in Yangon Division and Ayeyarway division. The area to be taken by aerial photo at a scale of 1:50,000 is approx 2,200km², which use for The study on integrated mangrove management through community participation in the Ayeyawady delta in the union of Myanmar The location of aerial photography area is shown in Map-1“ Plan of Aerial Photography”.

1.1.2 Scope of Work

- Scale : 1:50,000
- Aerial photography area : approx.27,000km²
- Film : Kodak 2402 or similar Black and White aerial Film
- Flight Runs : 27 courses
- Contact prints and positive films : each 1216 pcs (including each116 pcs Mangrove project use)
- 2 (two) times enlargement photo : 782 pcs (including 232 photos Mangrove project use)
- DGPS : Differential GPS coordinates of projection for each photo center
- Photo scan : 1216 pcs. (including 116 pcs Mangrove project use)
- Others : The estimated flight hours covering 27,000km² is 80 hours. In case that actual flight hours covering 27,000km² is less than 80 hours, the contractor will endeavor to take aerial photos at the adjacent area of 27,000km². In this case, total flight hours will not exceed 80 hours including actual flight hours covering 27,000km². However, when AAS judge that the suitable aerial photography season for this work is already passed, the aerial photography for adjacent area of 27,000km² will be terminated after discussion with JICA, even though the total flight hours is less than 80 hours.

1.1.3 Plan of Operation

A plan of operation with a time schedule shall be submitted by the Contractor to the Employer for his approval prior to the commencement of the Work.

2.1 Aerial Photography

2.1.1 Area and Scale

The area to be covered by the DGPS aerial photography at a scale of 1:50,000 is approx.27,000km². The locations are shown in Map-1“ Plan of Aerial Photography ”.

2.1.2 Type of Photographs

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Black and white panchromatic photographs shall cover the whole area stereoscopically with a quality and precision suitable for the photogrammetric mapping.

2.1.3 Camera

The camera to be used for the aerial photography shall be Wild RC-30 or equivalent, and has a calibrated focal length between 150 mm and 155 mm.

2.1.4 Camera Calibration

A valid calibration certificate of the camera to be used shall be submitted to the Employer before the commencement of the aerial photography.

2.1.5 Flying Direction

The direction of flight lines will be basically east-west along the Project area as shown in Map-1 " Plan of Aerial Photography ".

2.1.6 Overlap and Sidelap

The fore and aft overlap between successive exposures in each strip shall be 60+5%(Standard) and the sidelap between adjacent strips shall be 30+5%(Standard) .

2.1.7 Crab and Tilt

Crab shall not exceed 5° when measured between the base line and a line parallel to the frame of the negative, nor create stereoscopic gaps in the photography.

2.1.8 Conditions of Aerial Photography

Cloud and dense cloud shadow or smoke shall not lie over the principal point of any photograph or its homologues in adjacent photographs. Nor shall any single mass of cloud and dense cloud shadow or smoke obscure more than three percent (3%) of the total area of any negative. Nor shall the aggregate of cloud, dense cloud shadow or smoke obscure more than five percent (5%) of the total area of negative.

Aerial photography shall only be accepted when the altitude of the sun is higher than 25 degrees.

2.1.9 Aerial Film

The type of aerial film to be used for the photography shall be Kodak 2402 or equivalent. The Film should be handled and stored in accordance with the manufacturer's recommendation.

2.1.10 Processing

All processed negatives shall be substantially free of blisters, bubbles, inclusions, coating lines, stress or

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static marks, bar marks, pin holes, abrasions, streaks, strains and dying marks.

Some tolerance in this respect shall be allowable where processing has to be carried out in the standard conditions, provided the intended purpose of the negatives is not impaired.

2.1.11 Documentation and Annotation

a) Film Annotation

The following information shall be supplied as leaders at the start and the end of each film:

- Start or end (as appropriate)
- Project name
- Client name
- Film number
- Date of photography
- Effective negatives number and run number
- Approximate scale of photography
- Calibrated focal length of the lens
- Contractor's name

b) Negative Numbering and Annotation

Numbering of negatives shall be carried out using heat foil or indelible ink. The number shall be printed in a near and clearly legible type.

Each film shall be provided with the following annotation, which shall appear on the prints:

- Project name
- Contractor identification
- Client name
- Year, month and day of aerial photography
- Flying altitude above mean sea level or ground level or nominal level
- Scale of photography
- Focal length of the lens

c) Processing Film

Each processed film shall be supplied in roll form on a spool and in a metal or plastic container as supplied by the film manufacturer. The outside of each film container shall bear the following information:

- Project name
- Client name
- Film number

Date of photography
 Effective negative number and run number
 Scale of photography
 Contractor's name
 Focal length of the lens

d) Flight record and Film Report

A report shall be attached to each film, giving the following information:

Film number
 Camera type or number, lens number, filter type and magazine number or cassette and cassette hold unit number
 Film type and manufacturer's emulsion number
 Lens aperture and shutter speed
 Date of photography
 Start and end time for each run in local time
 Negative number of all of the photographs
 Indicated flying height
 Computed flying height above sea level
 Scale of photography
 Outside air temperature
 Weather conditions; clouds, visibility, turbulence
 Date of processing
 Developer and dilution
 Time and temperature of development or film transport speed
 Length of film processed
 General comment of quality

2.2 Digital Photo Image Data Preparation

Digital aerial photo image data shall be prepared by direct scanning from the original negative films. Leica Herava, Zeiss ACAI or equivalent photogrammetric scanner shall be used. The scanning resolution shall be 20microns, approx.1200dpi, which makes each photo file to approx.130 megabytes in size. Digital photo image data shall be stored in CD-ROM; approx 4 photo images in each CD-ROM. Format of the scanned digital photo image shall be uncompressed TIFF (not use LZW compression algorithm)

2.3 FINAL REPORT

The Study on the Establishment of Geographic Database for National Rehabilitation and Development programme in the Union of Myanmar

The Contractor shall prepare two (2) copies of Final Report in English on the completion of the Work. The Final Report shall include the following matters:

- 1) Brief description of methodology
- 2) Final results of survey works
- 3) Actual schedule
- 4) Finding
- 5) Other important information

2.4 Final Products to be delivered

The following materials shall be delivered to the employer before 20th of March 2002.

- | | |
|--------------------------------------|-------------|
| 1) 1:50,000 scale negative films | : 1,216 pcs |
| 2) 1:50,000 scale diapositives films | : 1,216 pcs |
| 3) 1:50,000 scale contact prints | : 1,216 pcs |
| 4) 2 times enlarged photo | : 782 pcs |
| 5) Flight index map plotted by DGPS | : 2 sets |
| 6) Digital photo image data | : 1,216 pcs |

**Aerial Photography
for
The Study on the Establishment
of
Geographic Database for National Rehabilitation
and
Development Programme
in
the Union of Myanmar**

Bill of Quantity

Work Item	Q'ty	Unit	Unit Price(US\$)	Amount
1. Aerial photo acquisition	27,000	km2	15	405,000
2. Photo processing	1,216	pcs	8	9,728
3. Positive film	1,216	pcs	8	9,728
4. Contact print	1,216	pcs	4	4,864
5. (two)times enlargement photo	782	pcs	29	22,678
6. Flight Index map	2	sets	125	249
7. Poto scanning	1,216	pcs	28	34,048
Total (US\$)				486,295

Remark : Necessary materials and chemical fee including on each work items

**Aerial Photography
for
The Study on the Establishment
of
Geographic Database for National Rehabilitation
and
Development Programme
in
the Union of Myanmar**

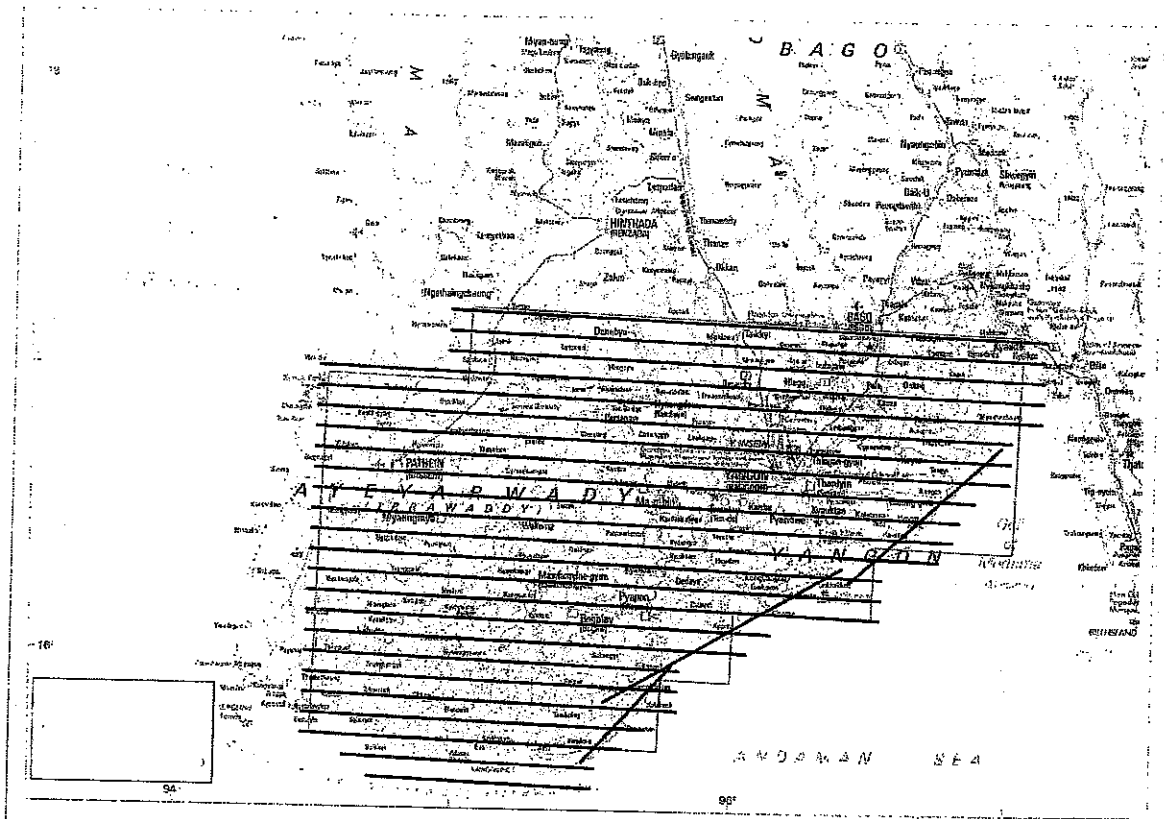
Work Schedule

Work Item	JAN	FEB	Mar	Remark
1. Preparation		█		
2. Aerial photo acquisition		█		
3. Photo processing		█	█	
4. Positive film		█	█	
5. Contact print		█	█	
6.2 (two)times enlargement photo		█	█	
7. Flight Index map		█		
8. Photo scanning			█	

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Map-1 Plan of Aerial Photography



Legend

— Flight courses
27 courses, approx. 1100 models

Handwritten signatures and initials, including 'Mach' and 'Jk'.

Appendix 12 Request letter from the Survey Department

Appendix 12-1 Propose for execution of printing work in Myanmar



MINISTRY OF FORESTRY
SURVEY DEPARTMENT
PYAY-DAW-AYE YEIKTHA LANE, KABA AYE PAGODA ROAD
YANKIN P.O, YANGON
MYANMAR.

Phone - 95-01-667851
Fax: 95-01-667848
E-Mail - UMMT@mpt Mail.net.mm

Date - 4.12.2003

JICA Myanmar Office
Yangon.

Subject: Propose for execution of printing work in Myanmar

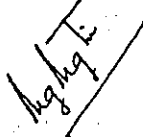
The Myanmar Survey Department introduced recently Digital film plotter (image setter) to make printing films. Accordingly, we have developed digital printing technology by ourselves to combine image setter with printing machine.

To master this technique and exploit our resource effectually, we strongly request to execute production of printing films and printing work of the JICA Mapping Study by Survey Department in Myanmar.

Additionally, we will like to request JICA Study Team to dispatch one expert who instruct and supervise quality control of digital printing data, although printing work is excluded from technology transfer items. Furthermore we will request to be supplied materials for printing such as chemical, films, mapping papers and ink, etc.

Your kind cooperation and consideration of above matter is highly appreciated.

With Regards,


(Maung Maung Tin)
Director General
Survey Department
Ministry of Forestry

CC: Mr. Junichi Koseki
Asia Air Survey Co.,Ltd

Appendix 12-2 Request for technology transfer to prepare land use map



MINISTRY OF FORESTRY
SURVEY DEPARTMENT
PYAY-DAW-AYE YEIKTHA LANE, KABA AYE PAGODA ROAD
YANKIN P.O, YANGON
MYANMAR.

Phone – 95-01-667851
Fax : 95-01-667848
E-Mail –UMMT@mpt Mail . net.mm

Date: February 10, 2004

To: JICA Headquarters and JICA Myanmar Office

Subject: Request for technology transfer to prepare land use map

The Myanmar Survey Department (SD) was transferred a technology for building of Geographic database by JICA study team. Accordingly geographic database in the area of Yangon and its vicinity was completed in cooperation with them. SD really appreciates what JICA has done. This geographic database will be applied to work out programs for rehabilitation and development in this area.

In order for national development, various kinds of thematic maps are necessary. A land use map which is prepared from geographic database is the most useful map among thematic maps. However SD does not have a techniques to produce thematic maps using GIS, despite GIS systems were introduced by JICA.

Therefore, in order for the SD to master how to make use of GIS, we strongly request JICA to transfer techniques to make a land use map which is one types of various thematic maps, using GIS through working in cooperation with JICA study team.

Your kindly cooperation and consideration of above matter is highly appreciated.

With best regards,

(Maung Maung Tin)
Director General
Survey Department
Ministry of Forestry

CC: Mr. Junichi KOSEKI, JICA study team


Appendix 13 Minutes of meeting on the Draft final report for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar

MINUTES OF MEETING
ON
THE DRFT FINAL REPORT
FOR
THE STUDY
ON
THE ESTABLISHMENT OF GEOGRAPHIC DATABASE
FOR
NATIONAL REHABILITATION AND DEVELOPMENT PROGRAMME
IN
THE UNION OF MYANMAR

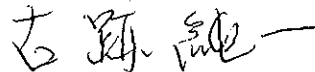
AGREED UPON BETWEEN

SURVEY DEPARTMENT, MINISTRY OF FORESTRY
AND
JICA STUDY TEAM

YANGON, 15 July, 2004



U Maung Maung Tin
Director General
Survey Department
Ministry of Forestry



Mr. Junichi Koseki
Leader, Study Team
Japan International Cooperation Agency

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The JICA Study team headed by Mr. Junichi KOSEKI visited Myanmar to discuss and confirm the Draft Final Report of the Study from 1 to 20 July 2004.

The discussion was held on 9 July 2004. The list of the attendants is attached hereto as Appendix 1. Following items were explained, discussed and confirmed.

1. Final works of the third year have completed

The Study team reported the successful completion of following works to SD.

- 1) Preparation of the drawing file for map printing
- 2) Preparation of the topographic data
- 3) Preparation of the spatial data framework for construction of GIS
- 4) Construction of GIS database in the study area
- 5) Production of CD-ROM
- 6) Production of 11 sheets of the Land use map

2. Completion of Map printing

The SD reported the completion of printing 48 sheets of topographic maps on July 26.

The Study team certainly confirmed that 48 sheets of topographic maps as well as 500 duplicated sheets of each map were printed.

3. Technology transfer

The following technology transfer have successfully been done in the course of the Study.

- 1) Field work such as GPS survey, Leveling, Signalization, Pricking, Field verification and field completion works was carried out in cooperation with SD through OJT.
- 2) Indoor work such as Digital plotting, Digital compilation and symbolization and sturcturization of topographic data was carried out using procured instruments supervised by the Study team.
- 3) The procedures of field work and indoor work were compiled as Survey manual.
- 4) Two SD engineers of Mr. Sein Min and Mr. Myo Min Min Lwin participated in technical training in Japan.
- 5) The first seminar was held on February 14th 2003 in order for the evaluation of technology transfer, and counterparts conducted presentation using descriptive slides, which revealed the successful transfer of mapping technology from the Study team to SD.
- 6) The second seminar will be held on July 16th to show the results of technology transfer of Digital compilation, Map printing and Land use mapping.

4. Draft final reports

The Study team submitted 20 copies of the Draft Final Report composed of a main report and a Supplement Report and explained the contents of the Draft Final Report.

The Study team requested SD to send any comments concerning the contents of the Draft

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Final Report by the end of July.

The management systems of aerial photographs and ground control points were demonstrated by the Study team.

The GIS to manage information in the Delta area was also demonstrated by the Study team.

5. Provision of equipments procured in the course of the Study

The SD requested JICA Study Team to convey the request of donation of equipments supplied by JICA to JICA Headquarters after the completion of the Study.

List of Attendants

Survey Department, Ministry of Forestry

U Myint Thein	Deputy Director General
U Kan Sint	Director, Planning & Administration Division
U Myint Sein	Director, Reproduction Division
U Nyo Win	Director, Boundary Division
U Myo San	Director, Town planning Division

Study Team

Mr. Junichi Koseki	Leader
Mr. Shinichi Kono	Supervisor for GPS Survey
Mr. Nobuo Shimizu	Supervisor for land use mapping
Mr. Yoshitaka Gomi	Supervisor for Digital compilation
Mr. Yoshiteru Matsushita	Supervisor for Map printing
Mr. Ichiro Nonaka	Administrator

JICA

Mr. Kosei Otoi	Technical Advisor
Mr. Yoshihisa Masanaga	JICA Myanmar Office

Attached 1: List of reference books collected in the Study

Attached 1 List of the reference books collected in the Study

Bibliography	Name of books	Author	Publisher	Published	ISBN Code
GIS	ARC Macro Language : Developing ARC/INFO Menus and Macro with AML	ESRI	ESRI	1997	1-879102-18-8
GIS	Connecting Our World, GIS :Web Services	ESRI	ESRI	2003	1-58948-075-9
GIS	Enterprise GIS for Energy Companies	Christian Harder	ESRI	1999	1-879102-48-X
GIS	Extending ARCVIEW GIS	Tim Ormsby et al	ESRI	1999	1-879102-05-6
GIS	Getting to know ArcView GIS	Pat Breslin et al	ESRI	1999	1-879102-46-3
GIS	GIS means Business	Christian Harder	ESRI	1997	1-879102-51-X
GIS	GIS for Everyone:Exploring your neighborhood and your world with a GIS	David E.Davis	ESRI	2003	1-879102-91-9
GIS	GIS for Landscape Architects:GIS FROM LANDSCAPE ARCHITECTS	Karen C.Hanna	ESRI	1999	1-879102-64-1
GIS	Managing Natural Resources with GIS	Laura Laug	ESRI	1998	1-879102-53-6
GIS	The ESRI Guide to GIS Analysis: Voll Geographic Patterns & Relationship	Andy Mitchell	ESRI	1999	1-879102-06-4
GIS	Transportation GIS	ESRI	ESRI	1999	1-879102-47-1
GIS	Understanding GIS :The ARC/INFO Method	ESRI	ESRI	1997	1-879102-01-3
GIS	The Global Positioning System and GIS:An Introduction	Michael Kennedy	TAYLOR & FRANCIS		0-415-28608-5
GIS	A System for Survival:GIS and Sustainable Development	ESRI	ESRI	2002	1-58948-052-X
GIS	Modeling our World:The ESRI Guide to Geodatabase Design	Michael Zeiler	ESRI	1999	1-879102-62-5
GIS	Interoperating Geographic Information Systems	Andrej Vokovski et al	Springer	1999	3-540-65725-8
GIS	Geographic Information and Geographic Information System Standards	CCTA	HMSO	1994	0-11-330628-8
GIS	Web Cartography : Developments and Prospects	Menno-Jan KRAAK et al	TAYLOR & FRANCIS	2001	0-7484-0869-X
Photo-grammetry	Digital Photogrammetry	Michel Kasser et al	TAYLOR & FRANCIS	2002	0-748-40944-0
Photo-grammetry	Digital Photogrammetry	Michel Kasser et al	TAYLOR & FRANCIS	2002	0-748-40945-9
Photo-grammetry	Digital Photogrammetry: Theory and Application				
Photo-grammetry	Geoinformation: Remote Sensing, Photogrammetry and GIS	GOTTFRIED KONECNY	TAYLOR & FRANCIS	2003	0-415-23795-5
Photo-grammetry	Introduction to Modern Photogrammetry				
GIS	MANUAL OF GEOSPATIAL SCIENCE ANE TECHNOLOGY	John D.Bossler et al	TAYLOR & FRANCIS	2002	0-7484-0924-6
Photo-grammetry	INTRODUCTION TO MODERN PHOTOGRAMMETRY	Edward M.Mikhail et al	JOHN WILLY & SONS,INC	2001	0-471-30924-9
GIS	Statistics and Data Analysis	John C. Davis	John Wily & SON, Inc.	1973	
Surveying	Geodesy	Wolfgang Torge	Walter de Gruyter	1980	
Surveying	Plane and geodetic surveying for engineers	J.E. Jackson	Constable	1973	
Surveying	Science of the Earth		Harper & RowA. J. Eardley	1972	
Surveying	Surveying with GPS	R. W. King et al	The university of new South Wales	1985	
GIS	Intrudoriey readings in Geographic Information Systems	Donna J. Peuquet and Duane F. Marble	TAYLOR & FRANCIS	1990	0-85066-857-3
Surveying	Surveying with GPS	Bouchard and Moffitt	International Textbook	1961	
Photo-grammetry	AERO-PHOTO SURVEY AND MAPPING OF THE FOREST OF THE IRRAWADDY DELTA	R. C. KEMP et al	MAYMYO	1925	
Photo-grammetry	Photogrammetry (a part)	Francis H. Moffitt	International Textbook Company		

Attached 2: List of education CD collected in the Study

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	Title	Author	Organization
CD-1	Principles of Remote Sensing and Geographic Information Systems		ITC
CD-2	Introduction to Visualization of spatial data	Koert Sijmons	ITC
CD-3	How to create an orthophote	Koert Sijmons	ITC
CD-4	Multimedia Tutorial on Multispectral Image Processing		ITC
CD-5	Application of Satellite and Airborne Image Data to Coastal Management		ITC
CD-6	Multimedia tutorial R/S Image and data Fusion	Prof. John van	ITC
CD-7	Map makng from Space		ITC
CD-8	Guidline of Technical Transfer on Geographic Information System		ITC
CD-9	Drafts of the standard for Geographic information / Geomatics	ISO/TC211	GSI
CD-10	GIS Application		IDI
CD-11	Global Mapping Forum in Okinawa 2003		GSI
CD-12	Global Map "play it now!" kit		GSI
CD-13	CEOS SAR Workshop 2001 Proceeding		NASDA
CD-14	Global Rain Forest Mapping Project 1996. JERS-1 SAR Amazon Basin		NASDA
CD-15	Global Rain Forest Mapping Project 1996-7. JERS-1 SAR West Africa		NASDA
CD-16	Global Navigation Satellite System		GNSS
CD-17	Distance Education GIS		JICA
CD-18	Distance Education Remote Sensing		JICA