Appendix 11 **Slides of whole works for The Study on the establishment of geographic database for national rehabilitation and development programme in the Union of Myanmar**

Slides

Slides 1: Presentation of Inception Report

Slides 2: Presentation of Progress Report 1

Slides 3: Aerial triangulation

Slides 4: Presentation of Interim Report

Slides 5: Progress Report 3

Slides 1: Presentation of Inception Report

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

Presentation of Inception Report

5 Feb. 2002

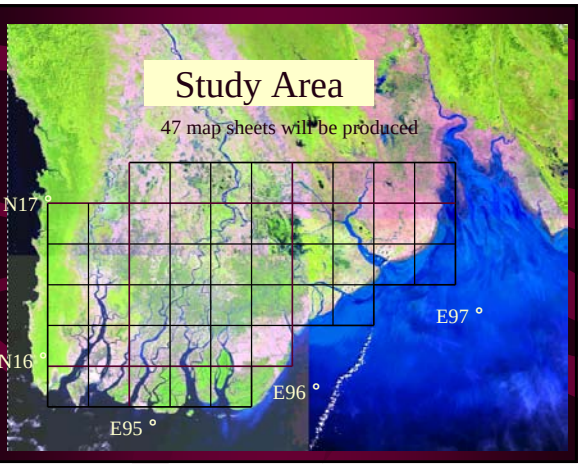
Yangon, Myanmar

Objective of the Study

- To prepare topographic database
- To make a Guideline of GIS
- To transfer modern mapping technology

Targets of the Study

- To put forward the national rehabilitation and development programme using products of this Study.
- To utilize topographic maps produced by this Study for the construction of GIS in each related organization.
- To execute UTM project successfully by SD, since an ability of Survey Department is reinforced by technology transfer.



Final results

- Aerial photos
  - Negative Film, Positive Films, Index Map
  - Contact Prints, 2 times enlarged Photos
- Printed Maps
  - Offset Printed Maps with 6 colors : 47 sheets
  - Edition films for print
- Digital data
  - GIS basic digital data file
  - Topographic data files

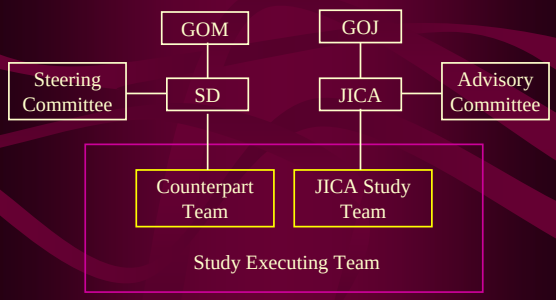
Final results (Continued)

- GIS database : 1 set
- Operation Manual for topographic mapping : 30 copies
- Technical Specifications for survey and topographic mapping : 30 copies
- Guideline for GIS : 50 copies

Report Submission

- Inception Report — January 2002
- Progress Report 1 — May 2002
- Progress Report 2 — November 2002
- Interim Report — February 2003
- Progress Report 3 — February 2004
- Draft Final Report — June 2004
- Final Report — July 2004

Study Organization



Steering Committee

Proposed Members of Steering Committee

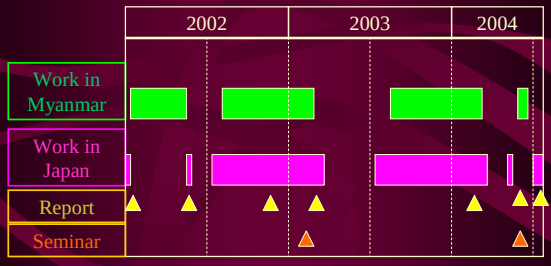
- Survey Department
- Forest Department
- Planning Department, MAI
- Myanmar Agriculture Service, MAI
- Settlements and Land Record Department,MAI
- Planning Department, Yangon City Council

Counterpart Team

Proposed Members of Counterpart Team in charge of each work item

- Geodetic and Survey Division
- Aerial Survey and Photo Division
- Map Reproduction Division
- Survey Training Division

Study Work Flow



Policies for Study Methodology

Execution after understanding the present Status of SD

- SD is responsible to make GIS data infrastructure.
- SD has basic mapping technology enough.
- SD is weak to understand operation of new type of instrument and digital technique.
- The Study team will examine organization, structure and technical level of SD.

Preparation of the Technical specifications for survey and mapping

- This booklet is useful to subsequent mapping project.
- This booklet is indispensable to produce high quality products in public works.
- The Geodetic elements for mapping should be defined for public works.

Definition of Elements in Survey and Mapping

- Reference ellipsoid : Everest 1830
- Horizontal Datum : 1st Order Control
- Vertical Datum : 1st Order Benchmark
- Map Projection : UTM (zone 46,47)
- Map Symbols : Myanmanese Spec.*

* The specifications for mapping will discuss to define.

Height observation by GPS

- Elevation of control point will be determined by leveling.
- Vertical controls in southern part of the study area will be observed by GPS survey.
- Geoid undulation will be estimated by observing both ellipsoidal height and leveling height.
- Height derived by GPS survey will be corrected by Geoid undulation.

Preparation of Guideline for GIS

- This booklet is useful to construct GIS in the the government agencies or private sectors.
- Data prepared in accordance with the Guideline will be interoperable among the government agencies.
- Duplicated investment will be avoided by preparation of interoperable data.

The guideline for GIS

The guideline includes following items.

- Generic explanation of GIS
- Description of necessary specifications for hardware and software
- Description of geographic database
- How to expand geographic database
- How to integrate with existing geographic database

Technology Transfer

Technology transfer

- Modern and efficient technology for preparation of digital topographic data will be transferred.
- Technology for preparation of specifications, confirmation of quality and process management will be transferred .
- OJT training with Japanese Engineers
- Introduction of new mapping technology to improve quality of products

Documents for Technology transfer

- Preparation of the operation manual for topographic mapping
- Preparation of the specifications for survey and mapping

Preparation of Operation Manual for Topographic Mapping

- This manual is useful to prepare high quality topographic data in SD.
- This manual will be prepared by SD's counterparts in corporation with Japanese engineers.

Operation Manual for Topographic Mapping

The operation manual includes following items.

- Objectives to prepare an operation manual
- Work flow to prepare topographic data
- Definition of work items
- Details of each work item
- Explanation of alternative technique

Confirmation and Evaluation of the Technology Transfer

- The Workshops will be held, when each work item will be started and finished.
- The Seminar will be held, when the interim and the draft final report will be prepared.

Workshop

- Counterparts will be divided into groups to discuss each work item.
- Current operation will be examined in each group.
- Drafts of operation manual will be prepared.
- Suitable operation will be discussed after the execution of a work.
- Operation manual will be improved.

Seminar 1

- Presentation of the Interim report
- Explanation of the draft of specifications for survey and mapping
- Explanation of the operation manual for Topographic mapping
- Discussion of technical enforcement to digital mapping in SD.
- Presentation of applications of GIS

Seminar 2

- Presentation of the draft final report
- Explanation of the operation manual for topographic mapping
- Explanation of the specifications for survey and mapping
- Workshop of Guideline for GIS
- Presentation of final results
- Presentation of GIS database produced in this study

Method to administrate final products

- Aerial photos will be administrated by geographic coordinates of principal point of each photo.
- Control points will be administrated by geographic coordinates.
- Annotations will be administrated by geographic coordinates as gazetteer.
- Topographic data and basic database for GIS will be administrated in block of map sheet.

Suggestion

Following items will be discussed and suggested in the final report

- Proposal of organization and structure of SD for further enforcement of mapping technology.
- Preparation of the law to open maps and digital data to public use.
- Action plan to produce newly and update maps in future
- Assignment and Training to execute above items for SD engineer
- Reinforcement for financial aspect.
  (included methods of map selling, map price and storage)

Survey Instruments procured by JICA

- 3 sets of precise GPS receiver
- 3 sets of digital level with rods
- 5 sets of radio transceiver

Preparation of Topographic data

Preparation of Topographic data

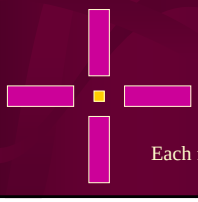
- Dataset for topographic maps
- GIS basic database as a spatial data infrastructure in Myanmar

Preparation of Topographic Data using Aerial Photogrammetry

- Ground control survey
- Aerial photography
- Data Acquisition
- Preparation of Topographic data
- Preparation of GIS database

Signalization for ground controls

- Signals should be set on the ground controls before taking aerial photographs
- Size of panel is depend on the scale of aerial photos



Each flag size : approx. 5m x 1m

Aerial photography

- Aerial photographs will be taken to cover an area of 27,000km2

27 flight courses

Specifications of Aerial Photography

- Photo scale : 1/50,000
- Type of film : Panchromatic
- Covered area : 27,000km2
- Over-lap : 60%
- Side-lap : 30%
- Number of flight course : 27 courses
- Number of photos : about 1100 photos

Vertical Control Survey

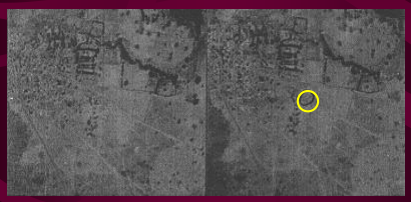
- Conventional leveling will be carried out for vertical control.

Horizontal Control Survey

- About 100 ground controls will be established using GPS survey.

Pricking of Ground Controls

•Topographic feature will be pricked on photographs to identify ground controls



Aerial triangulation

- Coordinates and elevation of pass-points and tie-points will be adjusted using ground controls.
- Aerial triangulation will be executed by suitable block adjustment program
- Aerial triangulation will executed using digital image data.

Field Identification

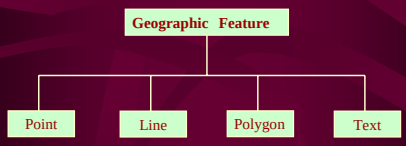
- Photo interpretation will be carried out prior to field identification.
- Keys for photo interpretation will be prepared.
- Field identification will be carried out in order to solve some doubts and collect annotations.

Digital plotting

- Digital plotting will be carried out to acquire topographic features using digital plotters

Digital compilation

- Digital compilation will be carried out to build Topographic database

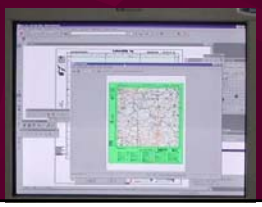


Field completion

- Doubt or unclear items expressed on compiled map will be cleared in the field completion.
- Geographic features changed after taking aerial photos will be updated.
- Topographic data file will be completed.

Preparation of Edition Films

- Topographic data will be represented with symbols given by the specifications for survey and mapping.
- Marginal information will be added.



Printing

- Maps with 6 colors will be printed using printing plates.

Preparation of Database

- Topographic data will be converted to geographic database to apply for GIS.

Preparation of CD-ROM

- Compiled data file for printing will be recorded on CD-ROM
- GIS basic database with metadata will be also recorded on CD-ROM
- 10 sets of GIS basic database will be copied.

Thank you for listening !