

3.3.2 Contents of ARRIS

The formation of ARRIS had been completed in December 2005. Finally, ARRIS contains the various kinds of maps and data. A set of the data for ARRIS (excluding the IKONOS satellite images) can be written into a 700MB CD-R (ARRIS Data CD). The contents of an ARRIS Data CD are mentioned below.

(1) Category of Information

The map information in ARRIS is mainly divided into the following two categories.

- Digital topographic maps of Banda Aceh City with a nominal scale of 1:2,000
- Thematic maps showing rehabilitation and reconstruction plans for Banda Aceh City (prepared by the JICA Study Team)

(2) File Format and Required Software for ARRIS

The following data format were used or applied to comprise of the thematic maps in ARRIS (Table 3.3.2). Users of ARRIS are required to use the relevant software to manipulate the files of the maps included in ARRIS.

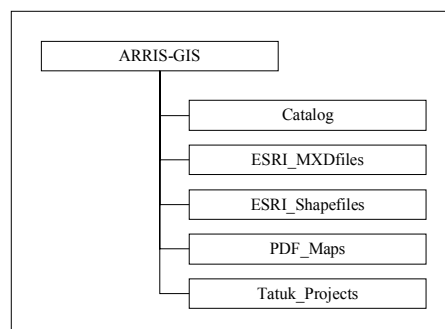
Table 3.3.2 File Formats for Information and Data in ARRIS

Format	Relevant/Required Software	Target Information/Data
MXD	ArcGIS (8.3 and later)	Thematic maps for planning
PDF	Acrobat and Acrobat Reader	Digital topographic maps of Banda Aceh City with a nominal scale of 1:2,000, thematic maps for planning with various scales (fixed for A3 paper)
Ttkgp	TatukGIS	Thematic maps for planning, a sample view of the digital topographic map of Banda Aceh City
SHP	ArcGIS, ArcView	Digital topographic maps of Banda Aceh City, thematic maps for planning
GeoTIFF	ArcGIS, ArcView, ENVI, Imagine	IKONOS satellite images

Source: JICA Study Team

(3) Arrangement of Maps and Data

The maps and data for ARRIS have been arranged in structural data folders as shown in Figure 3.3.1.



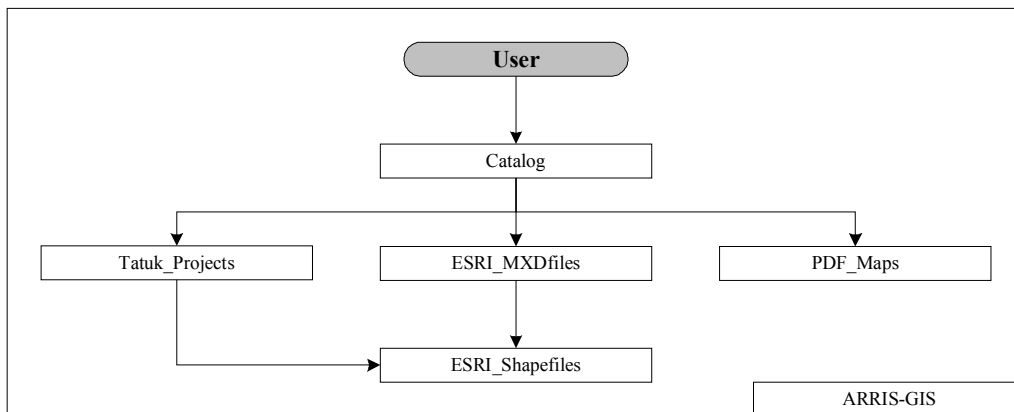
Source: JICA Study Team

Figure 3.3.1 Data Arrangement Scheme for ARRIS

All the files for ARRIS are included in the folder named “ARRIS-GIS”. “ARRIS-GIS” contains the five (5) data folders named “Catalog”, “ESRI_MXDfiles”, “ESRI_Shapefiles”, “PDF_Maps”, and “Tatuk_Projects”.

- Catalog: includes the data for the catalog of the thematic maps.
- ESRI_MXDfiles: includes MXD files of the thematic maps.
- ESRI_Shapefiles: includes shapefiles (GIS data) of the digital maps of Banda Aceh City with a nominal scale of 1:2,000, and the thematic maps with various scales.
- PDF_Maps: includes PDF files of the digital topographic maps of Banda Aceh with a nominal scale of 1:2,000, and the thematic maps.
- Tatuk_Projects: includes Ttkgp files of the thematic maps.

Figure 3.3.2 shows how the five (5) folder functions for the user.

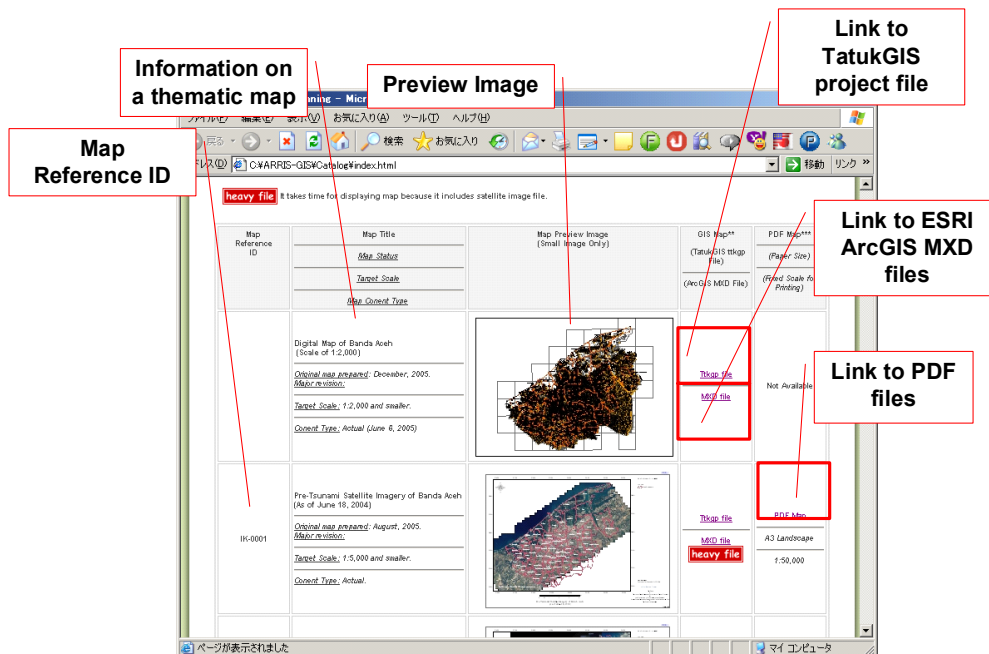
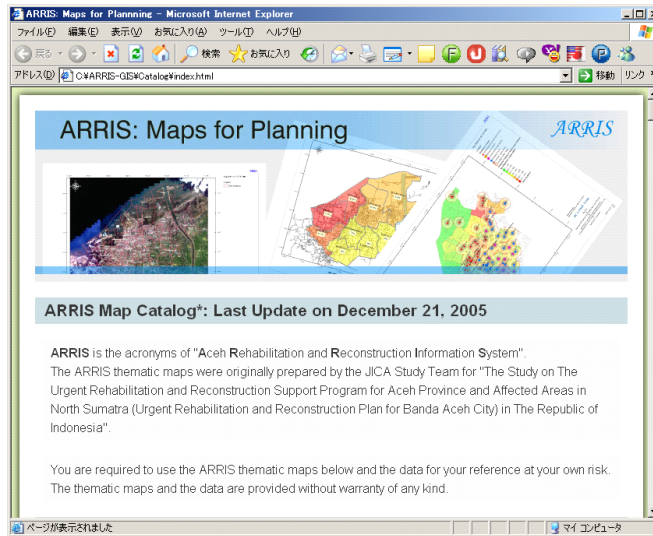


Source: JICA Study Team

Figure 3.3.2 Function of Data Folders

“Catalog” folder includes a hyper text mark-up language file (html) that are named “index.html” for the catalog of the maps included in ARRIS. Other files in “Catalog” are used as materials for “index.html”. Figure 3.3.3 shows a sample image of “index.html” in “Catalog”. Users can access to the digital maps and the thematic maps by opening “index.html” with browser software (Internet Explorer version 6.0 or later versions are recommended). Users can also access the files of the digital maps or the thematic maps with relevant software shown in Table 3.3.2 directly.

The files included in the five (5) data folders above are arranged in subfolders based on the contents or theme of each file.



Source: JICA Study Team

Figure 3.3.3 Sample View Images of ARRIS Map Catalog

3.3.3 Maps for Planning

A set of 49 thematic maps, showing actual condition or plans for Banda Aceh City, were prepared in The Study, and incorporated in ARRIS. Table 3.3.3 shows the list of 49 thematic maps. The prepared thematic maps were divided into ten (10) categories as shown in Table 3.3.4.

Table 3.3.3 Map Reference IDs and Titles of Maps

Map ID	Title of Map (Remark)	Condition
IK-0001	Pre-Tsunami Satellite Imagery of Banda Aceh	Actual
IK-0002	Post-Tsunami Satellite Imagery of Banda Aceh	Actual
DA-0001	Tsunami Damage Assessment Map (Maximum Tsunami Water Height)	Actual
DA-0002	Tsunami Damage Assessment Map (Tsunami Water Flow)	Actual
DA-0003	Tsunami Damage Assessment Map (Buildings)	Actual
DA-0004	Tsunami Damage Assessment Map (Electricity Supply)	Actual
DA-0005	Tsunami Damage Assessment Map (Drainage System Integrity)	Actual
DA-0006	Tsunami Damage Assessment Map (Telephone Services)	Actual
DA-0007	Tsunami Damage Assessment Map (Roads and Bridges)	Actual
DA-0008	Tsunami Damage Assessment Map (Demography as of April 12, 2004)	Actual
DA-0009	Tsunami Damage Assessment Map (Landuse in 2004, as of June 18, 2004)	Actual
DA-0010	Tsunami Damage Assessment Map (Landuse immediately after the tsunami)	Actual
HP-0001	Hazard Potential Map (Earthquake; Liquefaction)	Actual
HP-0002	Hazard Potential Map (Tsunami; Inundation)	Actual
HP-0003	Hazard Potential Map (Flood; Drainage)	Actual
HP-0004	Hazard Potential Map (Fire Spreading)	Actual
HP-0005	Hazard Potential Map (Escaping Activity)	Actual
HP-0006	Topographic Zoning Map	Actual
CP-0001	Post-Tsunami Landuse Map	Actual
CP-0002	Post-Tsunami Vacancies in Banda Aceh	Actual
ED-0001	Tsunami Damage Map for Elementary School	Actual
ED-0002	Tsunami Damage Map for Junior High School	Actual
ED-0003	Tsunami Damage Map for Senior High School	Actual
TR-0001	Road Classification	Actual
TR-0002	Number of Road Lane	Actual
TR-0003	Width of Road	Actual
TR-0004	Damage Rate of City Roads by Kecamatan	Actual
TR-0005	Damage Rate of Streets by Kecamatan	Actual
WS-0001	Existing Water Distribution Network	Actual
DM-1001	Disaster Management Resource Plan and Evacuation/Relief Plan	Plan
CP-1001	Banda Aceh City Plan Concept	Plan
CP-1002	Landuse Plan for Banda Aceh City	Plan
CP-1003	Estimated Population Increase (by Desa) from 2005 to 2009	Plan
ED-1001	Map for Elementary School Plan	Plan
ED-1002	Map for Junior High School Plan	Plan
HM-1001	Map for Health Center and Sub Health Center Plan	Plan
TR-1001	Banda Aceh Road Network Framework Plan	Plan
WS-1001	Improved Water Distribution Network based on Water Demand in 2009	Plan
ML-1001	Location on Case Study for Micro Landuse Plans	Plan
ML-1002	Case Study for Landuse Plan in Syiah Kuala (Option 1)	Plan
ML-1003	Case Study for Landuse Plan in Syiah Kuala (Option 2)	Plan
ML-1004	Case Study for Landuse Plan in Ulee Lheue	Plan
ML-1005	Case Study for Landuse Plan in Meraxa	Plan
ML-1006	Case Study for Landuse Plan in Kuta Alam	Plan
ML-1101	Locations on Case Study for Micro Landuse Plan in the Southeast of Banda Aceh City	Plan
ML-1102	Case Study for Landuse Plan in /around the Southeast of Banda Aceh City ("A" Area)	Plan
ML-1103	Case Study for Landuse Plan in /around the Southeast of Banda Aceh City ("B" Area)	Plan
ML-1104	Case Study for Landuse Plan in /around the Southeast of Banda Aceh City ("C" Area)	Plan
ML-1105	Case Study for Landuse Plan in /around the Southeast of Banda Aceh City ("D" Area)	Plan

Source: JICA Study Team

Table 3.3.4 Category and Number of Thematic Maps

Category of Thematic Map	Number of Maps	
	Actual	Plan
IKONOS Satellite Images	2	0
Damage Assessment	10	0
Hazard and Risks	6	0
Disaster Management Plan	0	1
City Concept/Spatial Plan	2	3
Transportation Plan	5	1
Water Supply Plan	1	1
Education (School) Plan	3	2
Health Center Plans	0	1
Case Studies (Micro Landuse Plan)	0	11
Total	29	20

Source: JICA Study Team

3.3.4 Recommendation on Operation and Maintenance

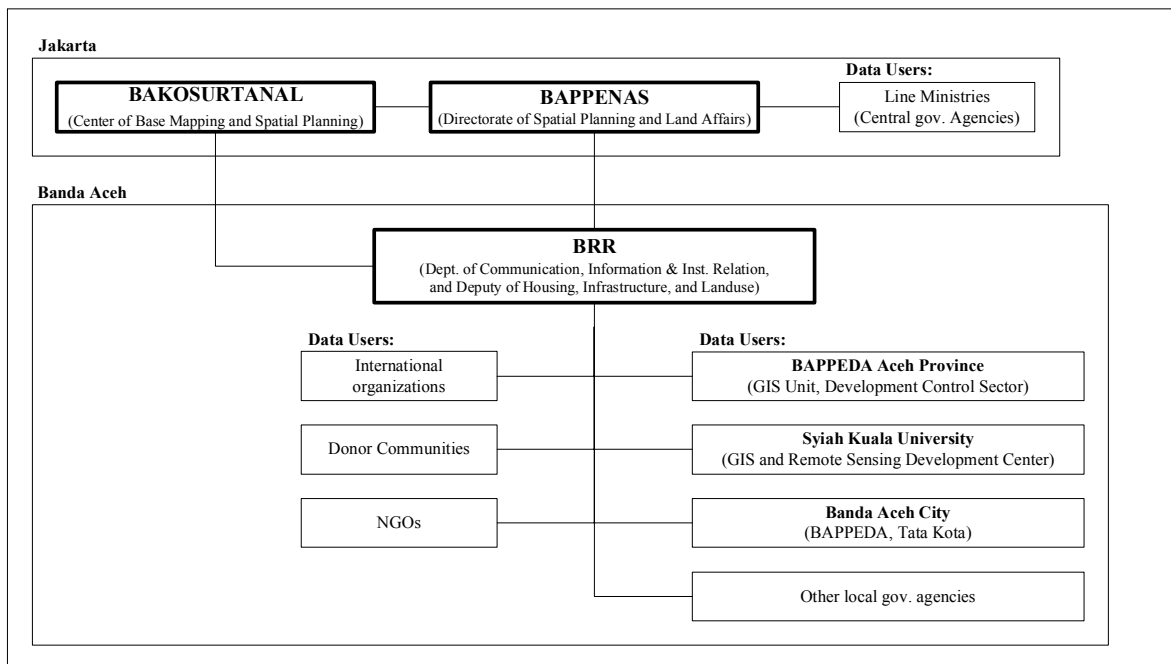
(1) Organizational Framework

The following three (3) governmental institutions are considered to be the most important organizations in formulating the schemes of operation and maintenance of ARRIS (Figure 3.3.4).

- BAKOSURTANAL (Center of base mapping and spatial planning)
- BAPPENAS (Directorate of spatial planning and land affairs, Deputy of regional autonomy and regional development)
- BRR (Deputy of Housing, infrastructure and land use)

- 1) BAKOSURTANAL shall be the most important institution as the coordination of the national spatial data infrastructure (NSDI) including ARRIS data (the topographic maps of Banda Aceh City with a nominal scale of 1:2,000 and the thematic GIS layers), the (data) production house, the technical supporter for the central and local governmental institutions, and an ARRIS hub in Jakarta.
- 2) BAPPENAS shall be another important ARRIS hub in Jakarta, especially for the central government institutions (the line ministries).
- 3) BRR shall be the ARRIS hub in Aceh, and the main governmental organization for formulating and executing the operation and maintenance of ARRIS.

The three (3) organizations above shall be required to cooperate with each other closely.



Source: JICA Study Team

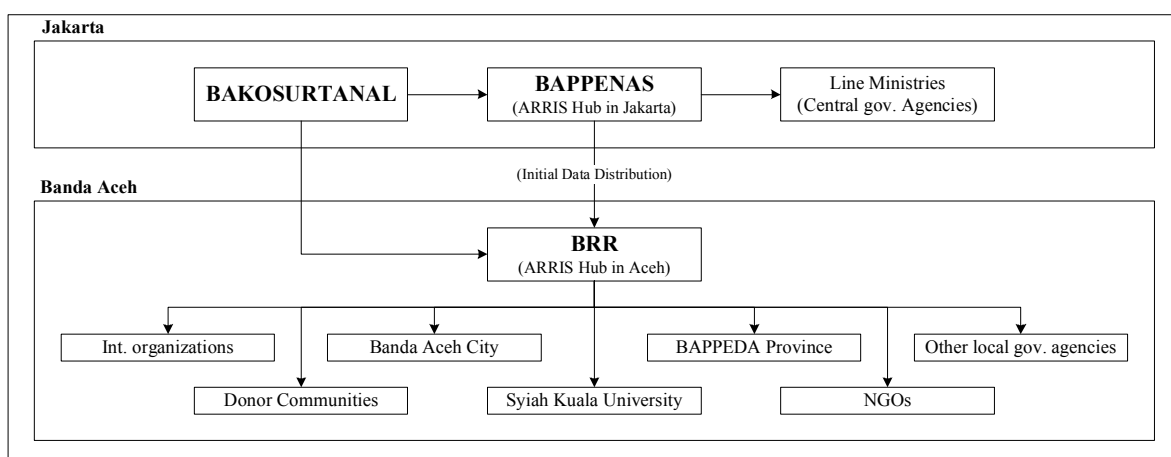
Figure 3.3.4 Organizational Framework for Operation and Maintenance of ARRIS (Recommendation)

It is proposed that the plan of the operation and maintenance of ARRIS is divided into the following four aspects: 1) Data Dissemination; 2) Operation; 3) Maintenance; and 4) Technical Support; as mentioned below.

(2) Operation and Maintenance

1) Data Dissemination

Figure 3.3.5 shows a plan of data dissemination originally planned by BAPPEANS in January 2006.



Source: BAPPENAS, revised by JICA Study Team

Figure 3.3.5 Data Dissemination Flow (Originally Planned by BAPPENAS)

- The original data (all data for ARRIS) that were prepared by the JICA Study Team shall be kept and managed by BAKOSURTANAL.

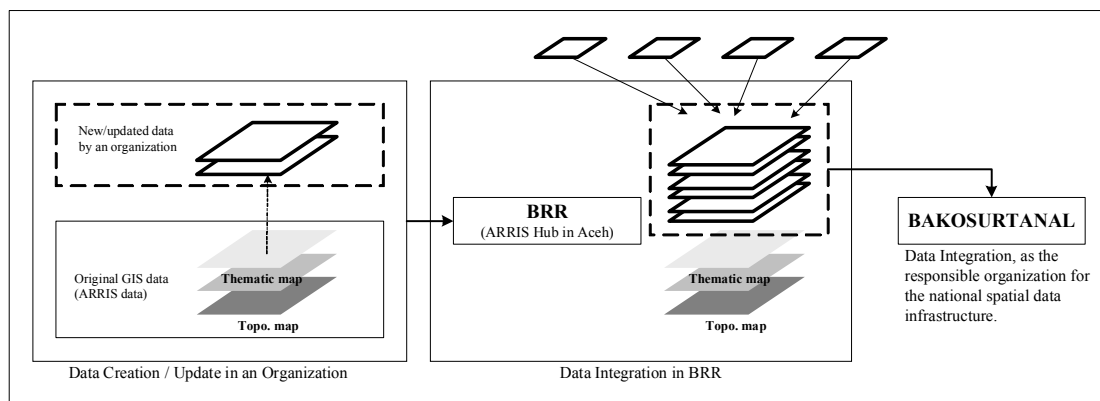
- BAPPENAS shall be a data distribution center as an ARRIS hub in Jakarta for the central governmental institutions (the line ministries).
- BRR shall be the data distribution center as the ARRIS hub in Banda Aceh for the local governmental institutions, international organizations, donor communities, NGOs, and universities.
- ARRIS hubs shall distribute one (1) CD, which includes the ARRIS data, to each organization, based on the request from the organization (one CD for one organization).

2) Operation

- Digital Topographic Maps of Banda Aceh City

The data for the digital topographic maps of Banda Aceh City with a nominal scale of 1:2,000 shall be updated and maintained by BAKOSURTANAL, periodically.
- Thematic GIS data

The thematic GIS data, which are used in the thematic maps for the rehabilitation and reconstruction plans for Banda Aceh City prepared by the JICA Study Team, shall be basically utilized and maintained by each data user (organization) because the data will be modified, revised, or updated by each organization based on its need (Figure 3.3.6).

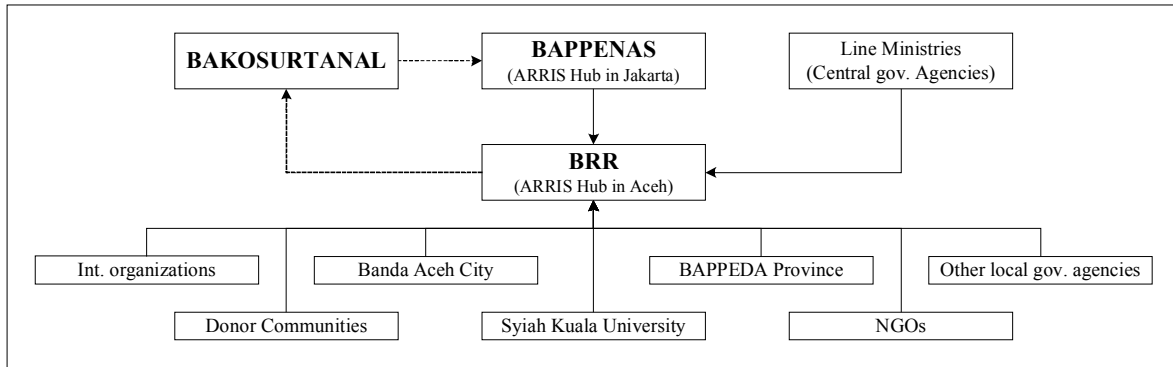


Source: BAPPENAS, revised by JICA Study Team

Figure 3.3.6 Concept on Data Update/Maintenance (Recommendation)

3) Maintenance

- The thematic GIS data shall be maintained in each data user (organization) basically.
- BRR shall collect and compile the new/modified thematic GIS data from each data user periodically (e.g., annually), in case of need. Periodically collected data shall be directly sent to BAKOSURTANAL, and to BAPPENAS through BAKOSURTANAL (Figure 3.3.7).
- Collected/compiled data to be shared shall be periodically re-distributed to the data users through ARRIS hubs, in accordance with the plan of the data dissemination flow shown in Figure 3.3.7.
- BAKOSURTANAL is expected to be a technical advisor for BRR.



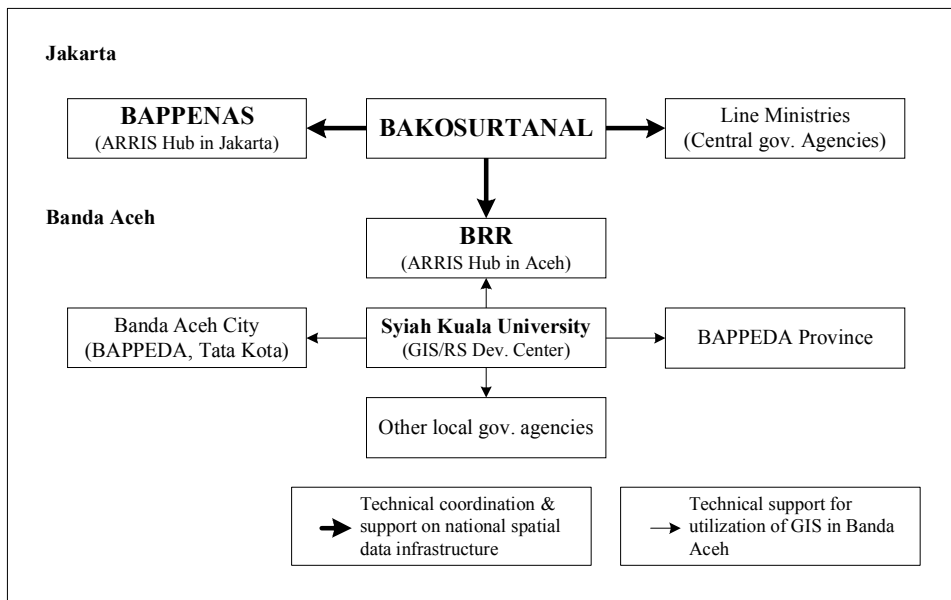
Source: JICA Study Team

Figure 3.3.7 Data Integration Flow (Recommendation)

4) Technical Support

- BAKOSURTANAL shall play an important role on preparation on GIS data formats and technical supports to central/local governmental institutions, especially for BRR and BAPPENAS, as the responsible organization for the NSDI in the Republic of Indonesia.
- The GIS and Remote Sensing Development Center of Syiah Kula University shall also play an important role on technical support for the ARRIS data users in Banda Aceh City, as the local supporter. Currently the GIS and Remote Sensing Development Center of Syiah Kuala University is the only one institution that knows the technology and the utilization of GIS than other organizations in Banda Aceh.

Figure 3.3.8 shows a concept on the technical supports concerning ARRIS.



Source: JICA Study Team

Figure 3.3.8 Technical Support Plan on ARRIS (Recommendation)

In order to build the operation and maintain the framework on ARRIS, BRR shall play a central role as the execution agency as for the rehabilitation and reconstruction of Banda Aceh City. In addition, BAKOSURTANAL and BAPPENAS shall support BRR in technical and administrative aspects on ARRIS.

3.4 INFORMATION FOR APPENDIX

The detailed contents of this chapter on “GIS for ARRIS” are contained in APPENDIX 7.

3.4.1 Contents of APPENDIX 7

APPENDIX 7 contains the following seven (7) chapters concerning “GIS for ARRIS”.

CHAPTER 1: Introduction

CHAPTER 2: Obtained Geographic Information

CHAPTER 3: Formulation of ARRIS

CHAPTER 4: Utilization of ARRIS and MAPS for Planning

CHAPTER 5: Plan of Operation and Maintenance of ARRIS

CHAPTER 6: Data Structure

CHAPTER 7: Planning Tools for ARRIS User

3.4.2 Information on ARRIS Data CD

Information on an ARRIS Data CD (to be delivered to stakeholders) is shown in CHAPTER 3, 4, 6, and 7.

An ARRIS Data CD contains the metadata of the ARRIS thematic GIS layers and the list of files comprising of the data for ARRIS.

3.5 CONTENTS OF THE TOPOGRAPHIC SURVEY

Table 3.5.1 below shows the contents of the work that was originally planned concerned with digital mapping, generation of relevant data, and use of ARRIS throughout the Study.

Table 3.5.1 Contents of Work for Topographic Survey

Output	Work Item	Detailed Item
Ortho-rectified IKONOS images	A. Generation of natural color ortho-rectified IKONOS satellite images.	A-1) Procurement of IKONOS raw data A-2) Ortho-rectification
Digital maps and GIS layer with a nominal scale of 1:2,000	B. Field surveys for digital mapping.	B-1) Bench marking and pricking for 29 points B-2) GPS survey: 29 points in total B-3) Leveling: 210 km in total B-4) Spot height leveling: 68 km ² in total B-5) Field verification: 68 km ² in total B-6) Supplementary survey: 68 km ² in total
DTM	C. Provisional digital mapping.	C-1) Digitizing existing maps C-2) Data editing: 68 km ² in total
	D. Finalization of digital maps.	D-1) Digital stereo plotting: 68 km ² in total D-2) Digital editing: 68 km ² in total D-3) Data editing (DXF format data)
	E. Formation of GIS layers.	E-1) Data format conversion (DXF to Shapefile) E-2) Data checking (Shapefile format data)
	F. Preparation of DTM.	F-1) Preparation of DTM (Study area)

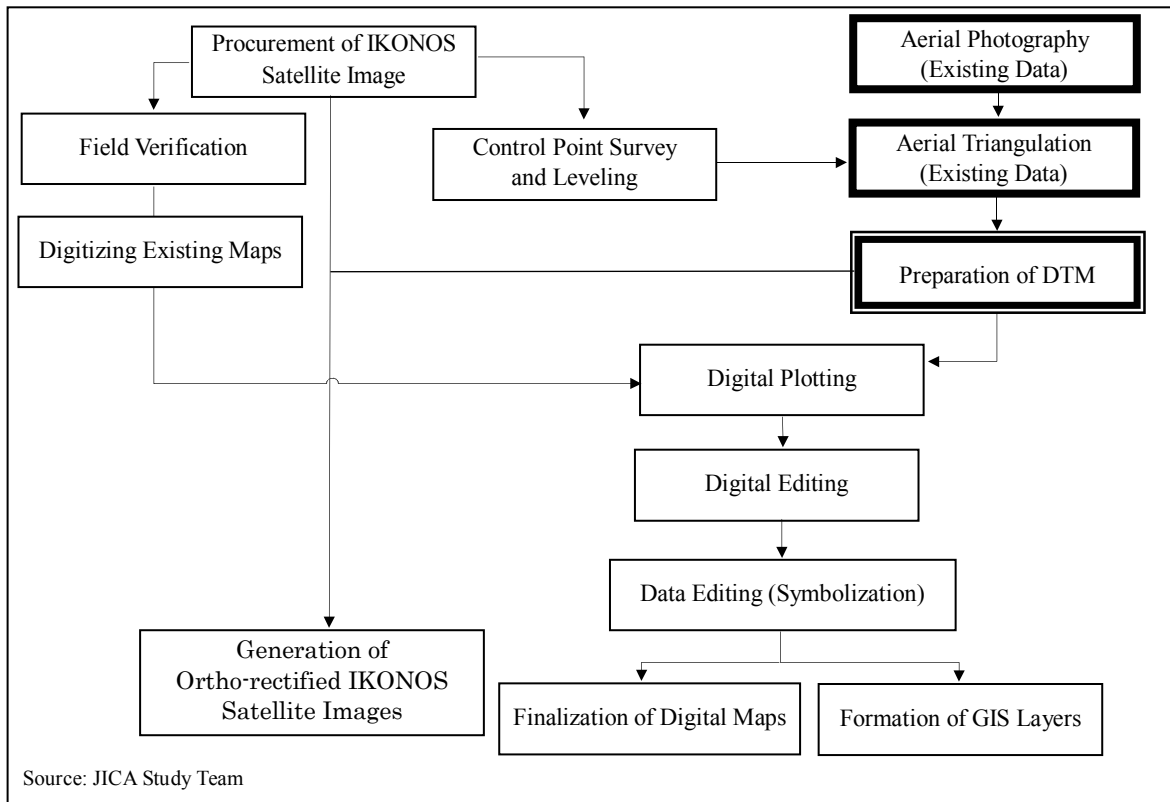
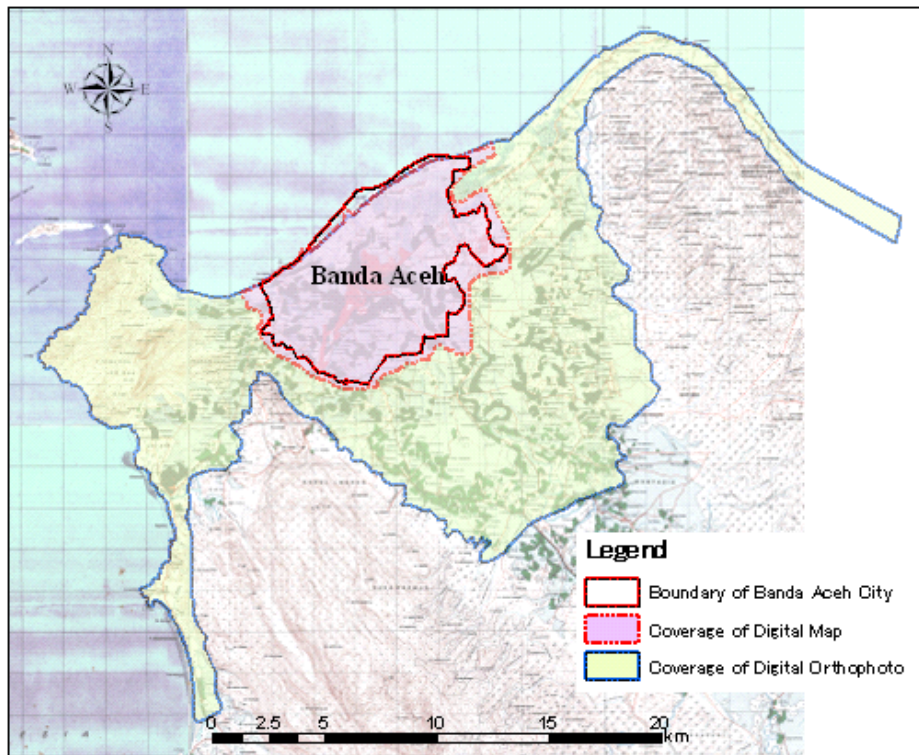


Figure 3.5.1 Work Flow for Topographic Survey

3.6 COVERAGE OF DIGITAL TOPOGRAPHIC MAPPING

Digital topographic maps (DM) having a nominal scale of 1:2,000 covered an area of 68 km² which is including the Banda Aceh City. The IKONOS satellite image of a natural color covers the area of 350km² which contains an area interesting as shown in the following Figures 3.6.1. The Satellite image was rectified to orthonormalized image in using digital terrain model (DTM) and ground control point (GCPs) to use them for a multiple purpose which related to Project.

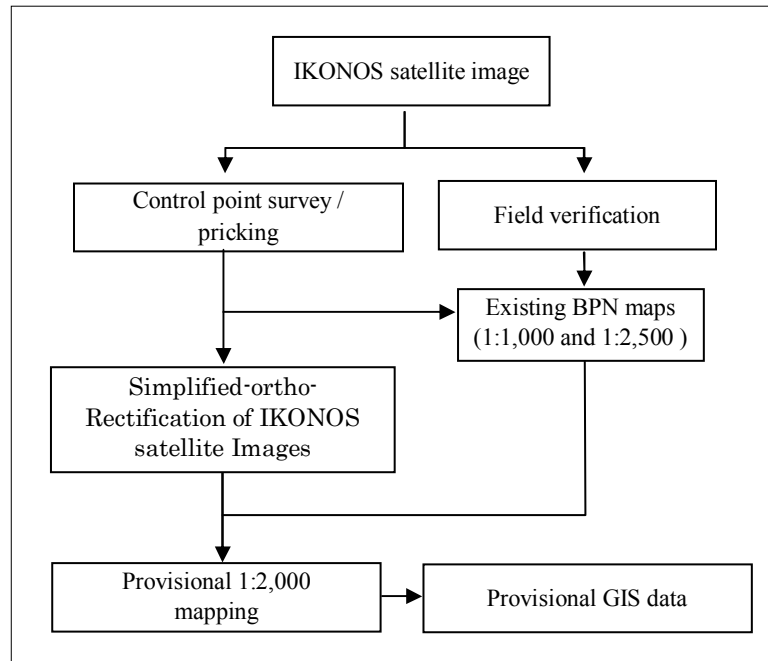


Source: JICA Study Team

Figure 3.6.1 Coverage of Digital Maps and Ortho-Rectified Images

3.7 PROVISIONAL DIGITAL MAPPING

The provisional digital maps were prepared using the data which had been obtained by the field surveys, existing topographic maps covering Banda Aceh City and provisional ortho-rectified IKONOS satellite images. The work flow of the map preparation is shown in Figure 3.7.1 below.



Source: JICA Study Team

Figure 3.7.1 Workflow for Provisional Digital Maps

The details of work implemented for preparing the provisional digital maps are mentioned below.

3.7.1 IKONOS Satellite Images

The JICA Study Team procured natural color satellite images that were acquired by the IKONOS satellite, as listed in Table 3.7.1 below. These images were used for digital mapping and also for various other purposes in the Study.

Table 3.7.1 List of Procured IKONOS Satellite Images

Target	Area	Acquisition	Date of Acquisition
Coastal areas of Banda Aceh	100 km ²	Before the tsunami on Dec. 26, 2004	18 June 2004
Coastal areas of Banda Aceh	100 km ²	After the tsunami on Dec. 26, 2004	29 December 2004
Suburbs of Banda Aceh	250 km ²	After the tsunami on Dec. 26, 2004	29 December 2004
Suburbs of Banda Aceh	75 km ²	After the tsunami on Dec. 26, 2004	29 January 2005
West coast of northwestern Sumatra	62 km ²	After the tsunami on Dec. 26, 2004	29 December 2004
East coast of northeastern Sumatra	22 km ²	After the tsunami on Dec. 26, 2004	15 June 2005

Source: JICA Study Team

3.7.2 Field Surveys

Field verification and control point surveys for digital mapping were carried out by field surveys. The survey area covers about 68 km² and coincides almost to the territory of Banda Aceh City. The items of the survey and their quantities are as follows:

- (a) Benchmarking and pricking (29 points in total)
- (b) Global Positioning System (GPS) survey (29 points in total)
- (c) Leveling (210 km in total)
- (d) Spot height leveling (68 km² in total)
- (e) Field verification (68 km² in total)
- (f) Supplementary survey (68 km² in total)

3.7.3 Verification of Existing Control Points

Prior doing the field surveys, existing control points supplied by the National Coordination Agency for Survey and Mapping (BAKOSURTANAL) were selected and verified by the JICA Study Team. The verified control points are shown in Table 3.7.2 below.

Table 3.7.2 BAKOSURTANAL's Control Points Verified by JICA Study Team

Type	No	Location	Condition
Bench Mark	TTG 001	Kantor PDAM Banda Aceh	Out of Order
Bench Mark	TTG 002	Kantor Bappeda Banda Aceh	Out of Order
Bench Mark	TTG 003	Jembatan Krueng Out	Unknown
Bench Mark	TTG 004	SD Lambada Klieng	Out of Order
Bench Mark	TTG 005	Jembatan Krueng Angan	Good
Bench Mark	TTG 006	Madrasah Ibtidaiyah Negeri (MIN) Duron	Good
Bench Mark	TTG 007	Masjid Ludong	Good
Bench Mark	TTG 008	SD Ruyung	Good
Bench Mark	TTG 009	Halaman pelabuhan Malahayati	Out of Order
Bench Mark	TTG 010	Dermaga pelabuhan Malahayati	Good
Bench Mark	TTG 026	Madrasah Ibtidaiyah Negeri (MIN) Bukloh	Out of Order
Bench Mark	TTG 027	Kantor PDAM Tirta Daroy Lambaro	Out of Order
Bench Mark	TTG 145	Reruntuhan SD di Lhok Nga	Good
Bench Mark	TTG 146	Pinggir jalan dekat pantai Lhok Nga	Out of Order
Bench Mark	TTG 147	Jembatan Krueng Raba, Lhok Nga	Out of Order
Bench Mark	TTG 148	SD Keude Bieng	Out of Order
Bench Mark	TTG 149	Sasana Budaya / Rumah Cut Nyak Dien	Good
Bench Mark	TTG 150	Balai Taman Budaya, Jl. Teuku Umar B. Aceh	Good
GPS	K504	Near Jembatan Krueng Out	Unknown
GPS	K505	Kantor Perpustakaan	Good
GPS	K510	JL. T. Arief	Unknown
GPS	K515	Sekolah Pertanian	Good

Source: JICA Study Team

Grid coordinate system of Universal Transverse Mercator (UTM) based on "WGS 84" ellipsoid system which BAKOSURTANAL adopts was used as a grid data concerning the control point. A datum of elevation from the mean sea level named "ID74" in Indonesia was used as data of height.

In addition to these BAKOSURTANAL control points, the JICA Study Team installed new control points based on the "ID74".

The coordinate framework that was specified by BAKOSURTANAL, as listed in Table 3.7.3 below.

Table 3.7.3 Coordinate System for Provisional Digital Map

Item	Parameter or Specification
(A) Name of ellipsoid system	WGS 84
1) Semi major axis	6,378,137.000 m
2) Semi minor axis	6,356,752.3124 m
3) Flattering (1/f)	298.25722
(B) Name of Grid	UTM (Universal Transverse Mercator)
1) Latitude of origin	0 degree North (N)
2) Longitude of central meridian	93 degrees East (E)
3) Projection system	UTM Zone 46 N
4) False northing	0 m
5) False easting	500,000 m
6) Scale factor at central meridian	0.9996

Source: JICA Study Team

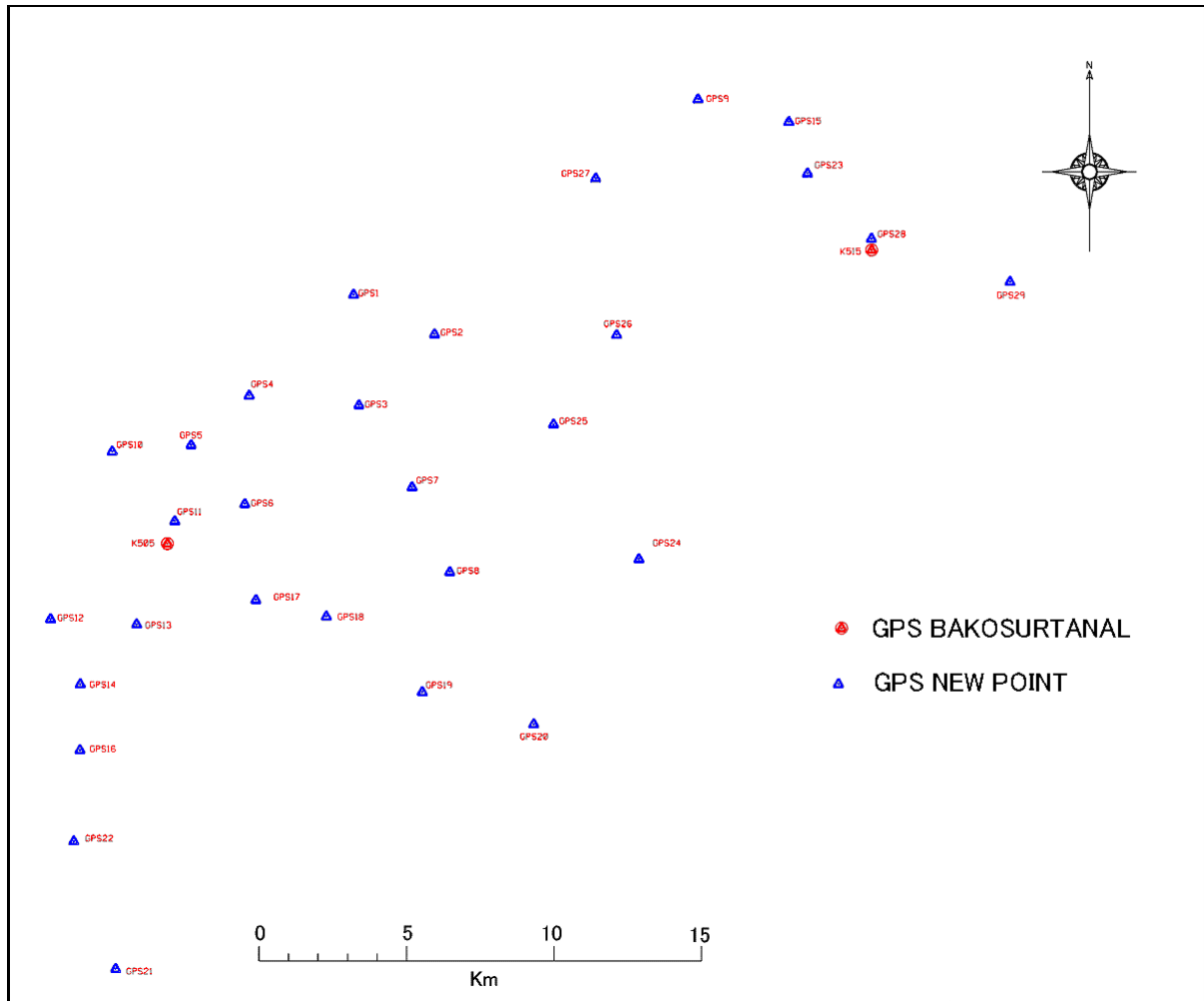
3.7.4 GPS Survey

Leica SR299 and SR9400 GPS instruments were used for execution of the GPS survey. Simultaneous data acquisition of four GPS satellites or more was done for one hour or longer. Data of GPS satellite with an angle above the horizon of 15 degrees or less were not used.

Leica SKI-Pro version 3.0 software was used for the baseline analysis and net-adjustment calculations for processing the GPS data. The control point from the BAKOSURTANAL list, K505 at Kantor Perpustakaan was fixed as the reference point. The positions of the 29 control points were surveyed and the GPS data was calculated in UTM Zone 46N, related to the WGS84 ellipsoid and "ID74" height datum coordinates. The precision of observation was verified to 1:100,000 or better.

The distribution of the 29 GPS control points is shown in Figure 3.7.2 below.

(Refer to APPENDIX-8 for the details of the GPS Survey.)



Source: JICA Study Team

Figure 3.7.2 Distribution of the GPS Points

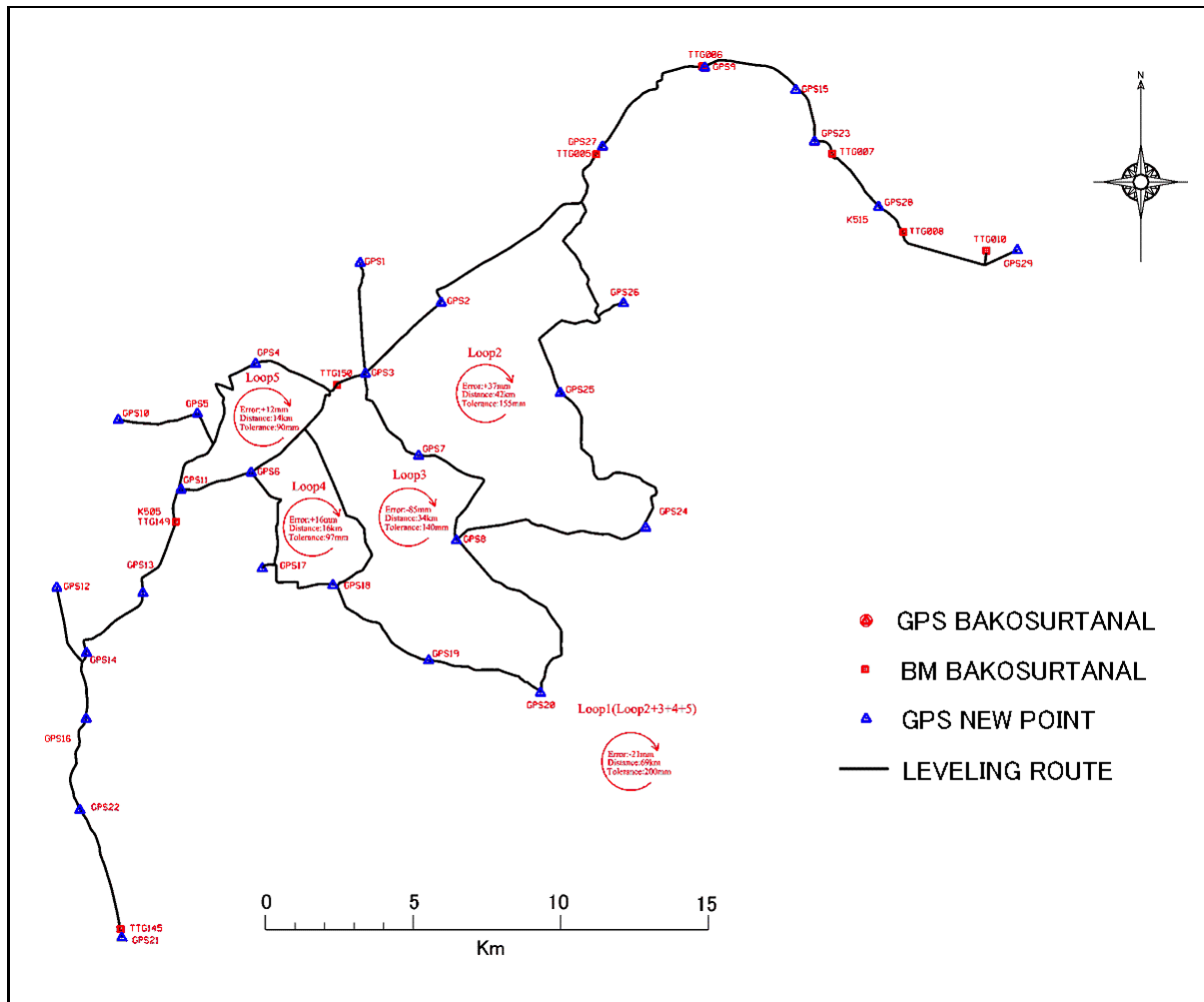
3.7.5 Leveling and Spot Height Survey

Leveling was carried out using a SOKKIA B-2 Auto Level passing through all 29 control points including new points been installed previously. BAKOSURTANAL's bench mark TTG 149 (Sasana Budaya / Rumah Cut Nyak Dien) was used as a vertical fixed point. The leveling route was made into a closed loop as much as possible. In case of open route, double running observations were carried out. Mis-closure of leveling between control points was not exceed $\pm 24 \text{ mm} \times \sqrt{D}$ (D: measured distance in kilometer).

Spot height observations were conducted at intervals of 200 to 300 meters along a leveling route. The observation points were marked onto hardcopies of the IKONOS satellite images.

The leveling route map is shown in Figure 3.7.3 below.

(Refer to APPENDIX-8 for the details of the Leveling and Spot Height Survey.)



Source: JICA Study Team

Figure 3.7.3 Leveling Route Map

3.7.6 Field Verification

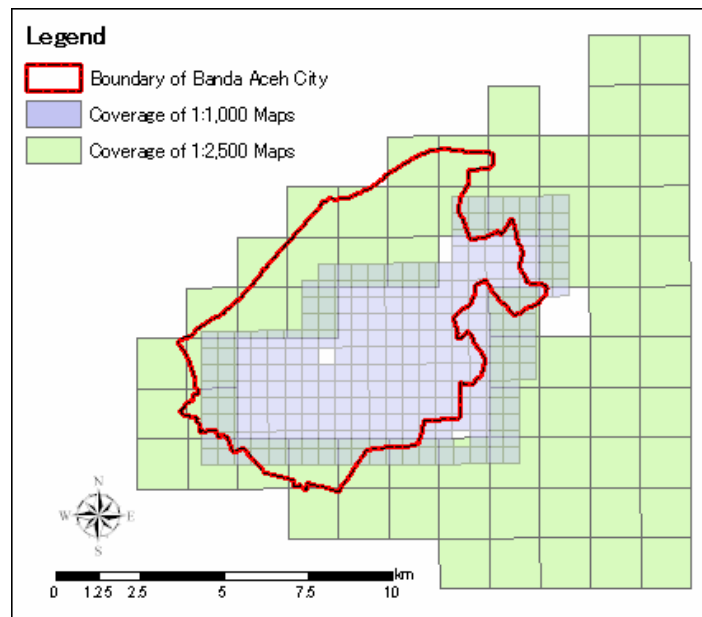
The field verification was conducted using hardcopies of the IKONOS satellite images. The target features to be verified such as rivers and roads were investigated and plotted onto the hardcopies. Names of the target features were confirmed as much as possible on site. The surveyed features were listed using spreadsheet software.

3.7.7 Preparation of Provisional Ortho-Rectified IKONOS Satellite Images

The GCPs (Ground Control Points) were acquired from the results of the control point survey and the data extracted from the digitized versions of existing topographic maps. The ortho-rectified IKONOS satellite images were generated using these GCPs, in conjunction with a DTM (provisional version) that was created from contour line data that had been digitized from the BPN maps.

3.7.8 Digitizing Existing Maps and Data Editing

The existing topographic maps with scales of 1:1,000 and 1:2,500 covering the target area were obtained by the JICA Study Team as base maps, and used as the geographic reference for preparation of GIS data. These maps were supplied as digital images scanned by BPN. The original maps were prepared by BPN in 1994 and 1998. Aerial photographs used for preparation of those maps were acquired from 1975 until 1996. Figure 3.7.4 below shows the coverage of the BPN maps for Banda Aceh City and its suburbs, and Table 3.7.4 below show the numbers of the map sheets.



Source: JICA Study Team

Figure 3.7.4 Coverage of BPN Topographic Maps

Table 3.7.4 Number of BPN Maps

Nominal Scale	Number of Sheet	Base Aerial Photographs	Published
1:2,500	35 sheets	1975	1994
1:1,000	240 sheets	1996	1998

Source: JICA Study Team

The scanned map images were adjusted to UTM zone 46 N (WGS84) that is the standard map projection system specified in Indonesia. All the GIS data for ARRIS Simplified version were prepared in the same projection.

The IKONOS provisionally ortho-rectified images were prepared using GCPs acquired from the digitized topographic maps, the results from the control point survey, and by using a DTM derived from the contour line data shown on the existing 1:1,000 and 1:2,500 topographic maps.

Digital plotting work for a nominal scale of 1:2,000 was made over an area of 68 km², which is almost equivalent to the coverage of 240 x 1:1,000 map sheets and the 35 x 1:2,500 map sheets, and

based on the data from the provisionally ortho-rectified IKONOS images. The work of extracting roads, rivers, and other features from the ortho-rectified images was done by on-screen digitizing. The scanned images of the existing topographic maps were overlaid onto the rectified images on the computer screen for digital plotting as well. The existing maps only show the features that existed at the time the source aerial photography was acquired, which is well before the tsunami event. However, a number of the IKONOS images were acquired after the tsunami disaster. Therefore, the features on the existing topographic maps could be updated based on the IKONOS images. This allowed a provisional edition of the JICA Study Team digital maps to be prepared at a nominal scale of 1:2,000.

3.7.9 Supplementary Surveys for Topographic Mapping

Supplementary field surveys were carried out by using 1:2,000 scale hardcopies of the JICA Study Team provisional digital maps in combination with handheld GPS and others reference material. These supplementary surveys were done in order to check and correct errors of the vector data that comprise the digital maps.

3.8 DIGITAL PHOTOGRAMMETRIC MAPPING

3.8.1 Change of Methodology

The digital mapping using Airborne SAR data has been difficult to implement due to the security clearance issue. Therefore, the methodology for the digital topographic mapping at a scale of 1:2,000 was changed from the original plan. Instead of using airborne SAR data, as originally planned, the new plan was used recent digital aerial photography acquired by a Norwegian company as part of another aid project, as shown in Figure3.8.1 below.

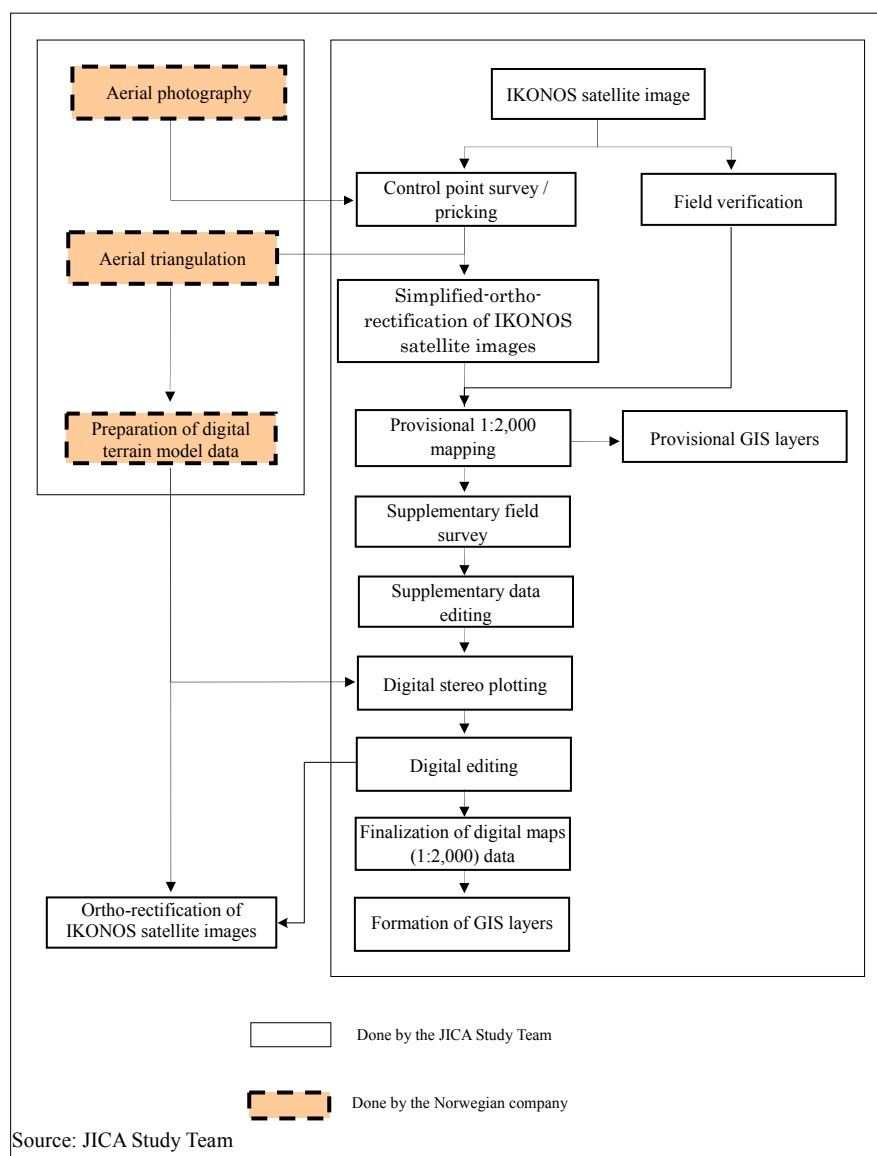


Figure 3.8.1 Workflow for Digital Mapping Using Aerial Photographs

3.8.2 Digital Stereo Plotting

The specification of existing aerial photograph image data and an aerial triangulation format used for digital mapping is as follows:

- Digital aerial photo image data : (approx. 1: 10,000)
- Digital Camera: UltraCamD_Version20
 F:101.4mm,
 Pixel size: 9 micron
 Image format: 11,500 x 7,500 pixel
 Flight altitude: 1, 000 m
 Overlap: 60 % (30% overlap between flight strips)
 Date of photography: 6 June 2005

- Aerial triangulation data: Pat-b format

Digital stereo plotting was carried out for 55 models of stereo photo image using two digital plotters (Summite Evol and KLT).

The feature catalog which shows acquisition object needed for the mapping was decided after conferred with BAKOSURTANAL. Digitalizing was carried out according to the feature catalog which consisted of about 100 kinds of CAD layer for the stereo plotting.

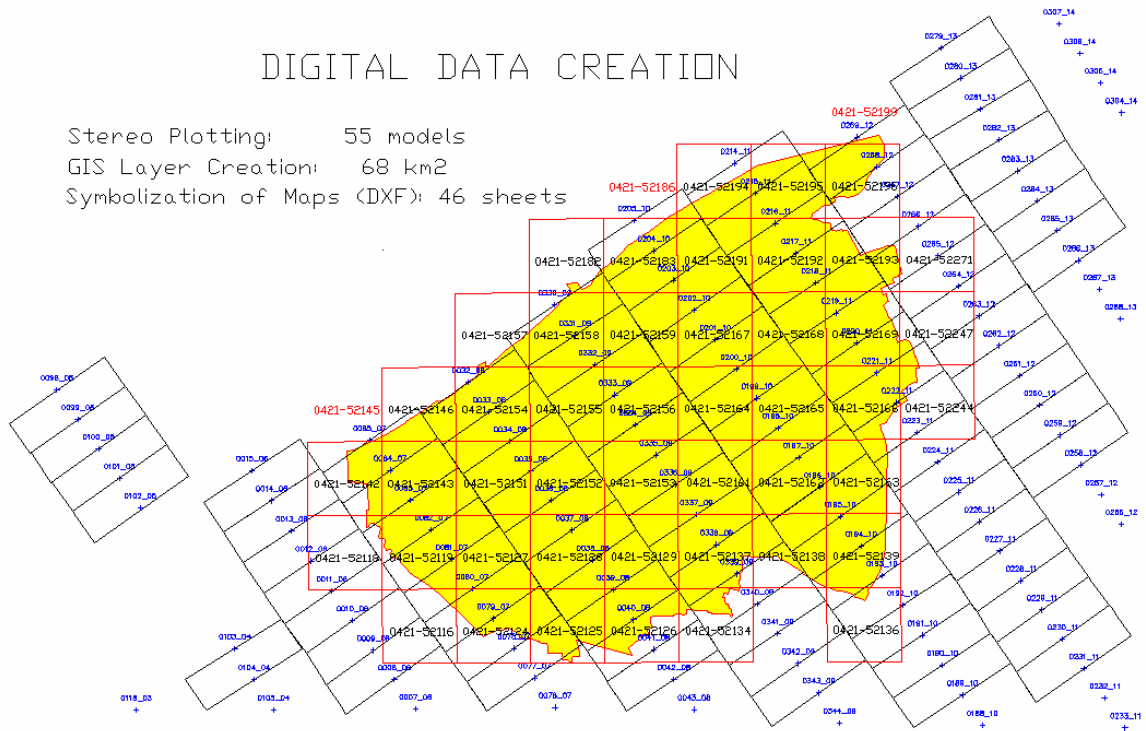


Figure 3.8.2 Digital Stereo Plotting

3.8.3 Digital Editing

Acquired feature in digital stereo plotting was restructured to the digital vector data composed of 233 CAD layer after editing the feature information from data of field verification and supplementary field survey.

The data structure error was found as follows when the editing work execution and these were corrected.

- Small objects (line and polygon)
- Closed polygon
- Continuous line

- Duplicated objects
- Undershoots
- Code number during photo-interpretation
- Feature type during photo-interpretation

ArcGIS of the ESRI Co. was used for the check of the above-mentioned data structure error, and Auto CAD Map of the Autodesk Co. was used for the correction of the error.

3.8.4 Finalization of Digital Maps (Symbolization)

The symbolization of the feature which composed in point, line, and polygon was executed using the Auto CAD Map software of the Autodesk Co. by the under mentioned specification.

Symbolization of a line used a line symbol of the different color and different line types. The point symbol was replaced with the symbol made with BLOCK command. Alphabet symbols (using two or three characters) were inserted in the polygonal features at the center of each symbol.

Marginal design of the 1:2,000 scale topographic maps was applied by BAKOSURTANAL standards.

Specification for prepared topographical maps:

- Scale to output with plotter: 1:2,000, 46 sheets
- Contour line intervals
 - Index contours: 50 m
 - Intermediate contours: 1.0 m
 - Supplemental contours: 0.5m
- Accuracy
 - Planimetric features 1.0 mm on the map
 - Spot height: 2/3 of contour line interval

3.8.5 Formation of GIS Layers

By using ArcGIS of ESRI, the vector data of the DXF format, which were made by the above (5.4.3), were converted into the SHAPE files.

On the occasion of the data format change, by the features of the data, the data were divided into 19 groups of SHAPE files shown as follows.

Table 3.8.1 Type of SHAPE File

Name of SHAPE File	Data Type	Contents	
1) Admn_pol	Polygon	Administrative information	#1
2) Bridge	Polygon	Road bridge	
3) Building	Polygon	Building information	#2
4) Contour	Line	Contour line	
5) Cultiv_area	Polygon	Cultivated area	

6) Electric	Point	Utility pole	
7) Footbridge	line	Footbridge	
8) Foundation	Polygon	Ruined building only of foundation	
9) Hydro_lin	Line	Centre line of stream (river, canal)	
10) Hydro_pol	Polygon	Lake, pond, river canal	
11) Land_form	Line	Land form	
12) Land_use	Polygon	Cemetery only	
13) New_cp	Point	Control point and spot height	#3
14) Nonculture	Polygon	Non Cultivated area	
15) Port	Polygon	Port	
16) Residential	Polygon	Residential area	
17) Road_centre	Line	Centre line of road	
18) Road_pol	Polygon	Road	
19) Vegetation	Polygon	Vegetation area	

(Refer to APPENDIX-8 for the details of the Formation of GIS Layers)

#1: Administrative information (boundary and name) was acquired from each Kabupaten office.

#2: Building information (annotation for facility name) was investigated on the site.

#3: Elevation of the control points were measured by leveling. Spot heights were observed by photogrammetric mapping.

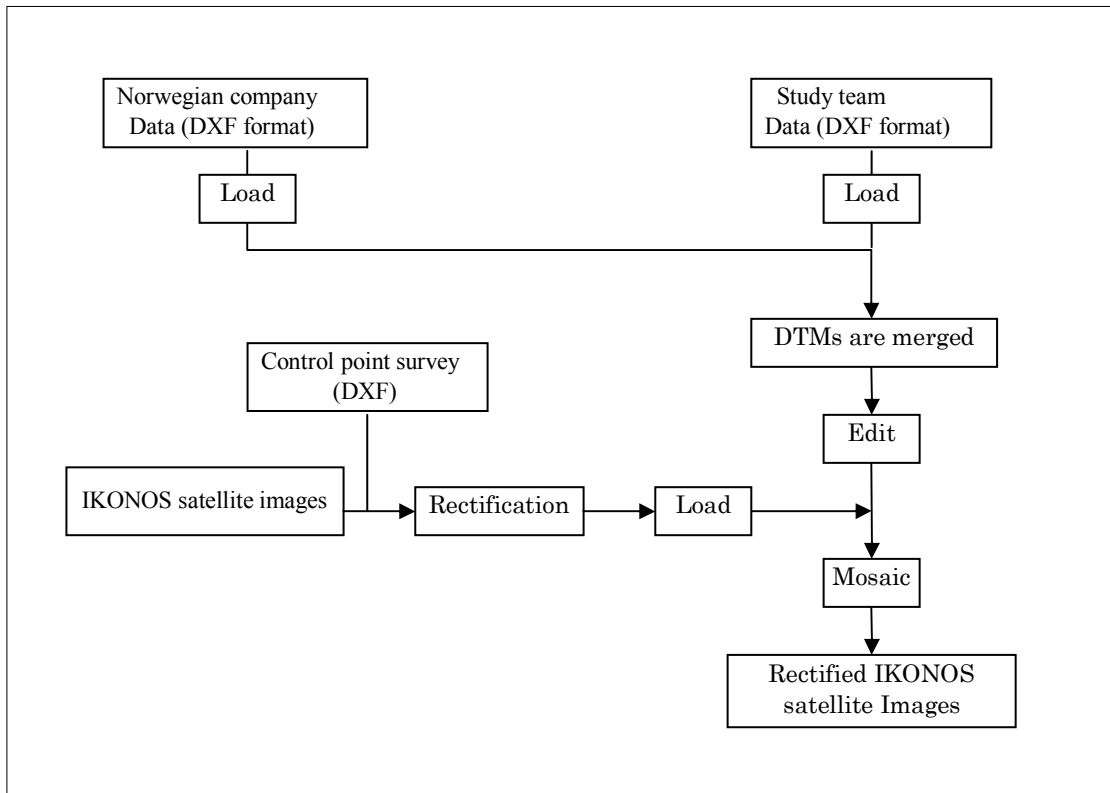
Source: JICA Study Team

3.8.6 Ortho-Rectified IKONOS Images (350 km²)

Ortho-rectified IKONOS images were produced using following DTMs by Socet Set:

- Existing data created by a Norwegian company (DXF format)
- Prepared by Study team using above mentioned aerial photographs and results of the aerial triangulation (DXF format)
- Digital Elevation Data of SRTM (used as a reference data)

GCPs which were extracted from the results of control point survey by sub-contracted parties were also used in the process. The area covered by the ortho-rectified images (Tiff format) comprises 350 km² of built-up areas in Banda Aceh City and surrounding localities. The work flow of the Ortho-rectified IKONOS images preparation is shown in Figure 3.8.3 below.



Source: JICA Study Team

Figure 3.8.3 Workflow for Ortho-Rectified IKONOS Images Preparation

CHAPTER 4 COMMUNITY EMPOWERMENT PROGRAM (CEP)

4.1 MONITORING AND EVALUATION FOR 12 CEP

4.1.1 Objective and Approach

Community Empowerment Program (CEP), particularly in the earthquake and tsunami disaster affected areas, has been planned and implemented with objectives to revitalize people's lives and community activities, and to directly benefit to the local people including Internally Displaced Persons (IDPs), through enhancement of livelihood and welfare in 12 project areas.

Taking into account of the tragic situation after the disaster and conflicts in the past, following three (3) approaches are adopted as main pillars in the program;

- 1) Support on livelihood,
- 2) Support on community-based trauma/PTSD healing, and
- 3) Support on rehabilitation of communal water supply/sanitation system.

Capacity development of the communities is also key issue in planning and implementation of community based activities/projects.

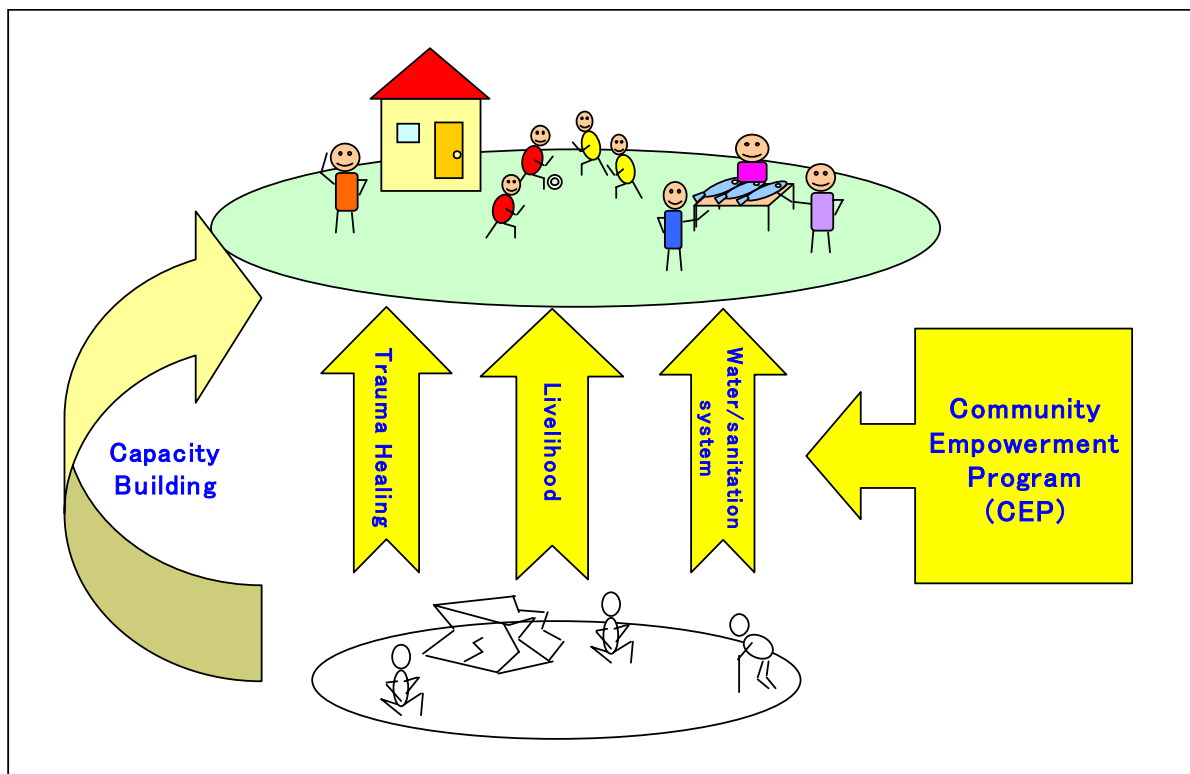


Figure 4.1.1 Conceptual Picture of CEP with 3 Main Approaches

4.1.2 Components of CEP and Key Issues

Components of CEP are categorized into 3 main approaches as presented in the table below.

Table 4.1.1 Components of CEP in Accordance with the 3 Main Approaches

Approach	Components of CEP
Support on Livelihood	- Provision of materials and equipments for supporting livelihood
	- Training for skill development and business management (Fishery, fish processing, poultry, livestock breeding, agriculture (horticulture, cash crops), household industry (dress making, traditional cake making, etc.)
	- Institutional development for Micro-finance
Support on community-based trauma/PTSD healing	- Healing through combination of psychological, social and religious activities
	- Training of community leaders on above mentioned healing method
Support on rehabilitation of communal water supply/sanitation	- Rehabilitation of selected water supply/sanitation facilities
	- Training for operation and maintenance on the facilities
	- Education on sanitation and environment (including mangrove plantation)

In addition, capacity development of the target communities is attained by facilitating following activities during the implementation of CEP.

- 1) Planning and implementing village development projects with people's participation
- 2) Cooperative activities for the communities
- 3) Involvement of women in community development

In planning and implementation of CEP, special attention was paid to the following key issues;

(1) Reviving livelihood as a core of the program

Among three approaches, first priority is given to enhancement of livelihood since it is vital for the people in target communities to restart their lives. At the same time, equitable and transparent development in the communities is considered in order to avoid unnecessary envy among people having negative impact on unity of the communities.

(2) Respect on religion and culture

Acehnese religion and culture are respected in planning and implementation process, since Aceh area has an important religious and cultural histories and religious leaders have strong influence on the communities.

(3) Regional balance of project areas

Locations of the project areas were selected considering regional balance. Although many projects were selected in and around Banda Aceh City, projects in other rural areas, such as west and northern coastal areas, were also selected.

(4) Gender Issues

Many of the beneficiaries for the program are fishermen in the coastal areas, since fishery is the main economic activity in this region. However, many female family heads are also found in these areas because of the long conflicts between Indonesia government and GAM. Supports for these female family heads on livelihood and trauma/PTSD healing were included in the program.

4.1.3 Procedure for Implementation

CEP has been implemented on the following procedure.

- 1) Memorandum of Understanding was concluded between JICA Indonesia Office and GOI represented by SEKNEG (*Sekretaris Negara*).
- 2) Local/National NGOs prepared proposal and obtained approval from SEKNEG or local government agency.
- 3) Proposal was sent to JICA Office for selection.
- 4) Projects were selected by JICA Indonesia Office and made agreements with local/national NGOs.
- 5) Projects were implemented by local/national NGOs in cooperation with community people.
- 6) JICA provided technical supports for local/national NGOs and community people.

The above procedure is illustrated in the following figure:

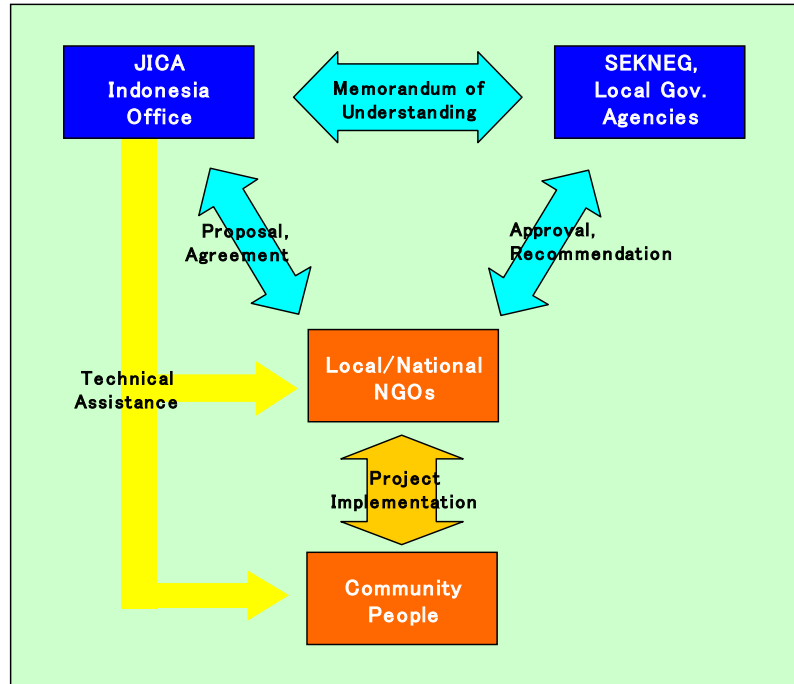


Figure 4.1.2 Procedure for Implementation of CEP

4.1.4 Role of JICA Study Team

In accordance with the Scope of Works, following works were undertaken by JICA Study Team as technical assistance to 12 CEP.

- 1) To establish framework on realization of project implementation based on needs of the target community, which will be obtained from local/national NGOs.
- 2) To advise SEKNEG regarding procurement process of local/national NGOs in invitation, assessment and approval stages.
- 3) To advise local/national NGOs regarding provision of project fund, progress control, accounting activities and effective implementation of the projects.
- 4) To monitor and evaluate 12 CEP.

As for the item 1), baseline survey was carried out by the study team to realize projects based on local needs. The results were presented in the Final Report (1). However, technical assistance on establishment of framework has not been undertaken by JICA Study Team since this framework had been already established by JICA Indonesia office with due consultation with Indonesia Government. Based on discussions with JICA Indonesia Office, work item 2) and 3) were also decided to be carried out by JICA Indonesia Office since they are in the better position to provide advice to each organization.

Therefore, JICA Study Team mainly carried out the work item 4) of monitoring and evaluation of 12 CEP. It is noted that the role of JICA Study Team is to provide technical assistance to

local/national NGOs who have contract with JICA Indonesia Office for implementation of 12 CEP. Relationship among JICA Indonesia Office, local/national NGOs and JICA Study Team, together with more detailed work activities, is described in the figure below.

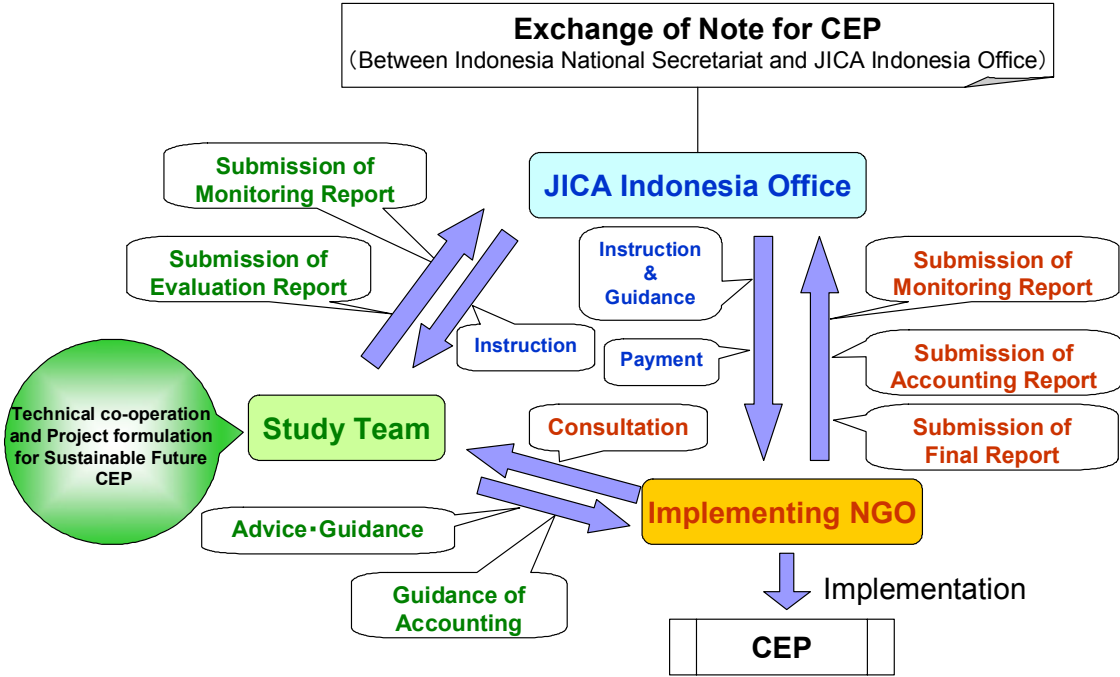


Figure 4.1.3 Relationship among JICA Indonesia Office, Local/National NGOs and JICA Study Team

4.1.5 Outline of the Selected 12 CEP

Based on the approaches and framework described in the previous chapters, 12 projects were selected to be implemented under CEP scheme.

Outline of 12 CEP is summarized in the following table:

Table 4.1.2 Outline of 12 CEP

No. 1	Title: Rehabilitation, Economic Development and Sanitation Development for Tsunami Victims in Kemkiman Lampageu	
Location: Desa; Lam Pageue, Lam Baro Nijid, Lam Badeuk, Lam Guron (Kem.; Lampageu) Kec.; Pekan Bada Kab.; Aceh Besar		
Implementing NGO: YADESA (Acehnese NGO)		Duration: Mar. 2005 – Feb. 2006
Activities: 1) Boat building and provision 2) Development of livelihood (cake making, dress making, agriculture/ livestock breeding, fishery and small business/trading) 3) Trauma counseling 4) Construction of public toilet, wells, bath room and washing place		
No. 2	Title: Provision of Communal Waster and Sanitation in Nueheun	
Location: Desa; Neunheun, Durug, Ladong, Ruyun Kec.; Mesjid Raya Kab.; Aceh Besar		
Implementing NGO: Yayasan Dian Desa (Indonesian NGO) with Acehnese partner of LSM Forum Aceh		Duration: Mar. 2005 – Feb. 2006
Activities: 1) Reconstruction of facilities for water supply and sanitation 2) Training on operation and maintenance		
No. 3	Title: Provision of Communal Waster and Sanitation in Lhoong	
Location: Kec.; Lhoong Kab.; Aceh Besar		
Implementing NGO: Yayasan Dian Desa (Indonesian NGO) with Acehnese partner of LSM Forum Aceh		Duration: Mar. 2005 – Feb. 2006
Activities: 1) Reconstruction of facilities for water supply and sanitation 2) Training on operation and maintenance		
No. 4	Title: Rehabilitation of People Community after Earthquake and Tsunami in Kec. Peukan Bada	
Location: Desa; Lam Teungoh, Lamtutui Kec.; Peukan Bada Kab.; Aceh Besar		
Implementing NGO: Yayasan PUGAR (Acehnese NGO)		Duration: Mar. 2005 – Feb. 2006
Activities: 1) Facilitation on village planning 2) Repairing /purchasing small boats and fishing nets 3) Support for income generation activities 4) Conducting social events 5) Training on health and environment 6) Reconstruction of facility for fish landing and sales 7) Reconstruction of a shop for fishermen 8) Mangrove plantation		
No. 5	Title: Rehabilitation of People Community after Earthquake and Tsunami in Kec. Baitussalam	
Location: Desa; Lambada Lhok, Lampineung Kec.; Baitussalam Kab.; Aceh Besar		
Implementing NGO: Yayasan PUGAR (Acehnese NGO)		Duration: Mar. 2005 – Feb. 2006
Activities: 1) Facilitation on village planning 2) Repairing /purchasing small boats and fishing nets 3) Support for income generation activities 4) Conducting social events 5) Training on health and environment 6) Reconstruction of facility for fish landing and sales 7) Reconstruction of a shop for fishermen 8) Mangrove plantation		

No. 11	Title: Children Trauma Healing Center (Fun House)	
Location: Meulaboh Kab.; Aceh Barat		
Implementing NGO: Yayasan Nandra Dian Nusantara (YNDN, NGO from Jakarta) with Acehese partner of MUI		Duration: Jun. 2005 – Mar. 2006
Activities:		
1) Training of trainers for potential local mentors 2) Provision of playing facilities/equipment/materials 3) Conduct of Mother-children sharing game and other activities 4) Healing through painting, dancing, etc. 5) Provision of additional nutrition, vitamins and medical services		

No. 12	Title: Supporting Program for Fishery Community by Providing Boats and Training for Productivity Improvement in Kec. Afulu and Lahewa	
Location: Kec.; Afulu, Lahewa Kab.; Nias, Province; North Sumatra		
Implementing NGO: PKBI (Local NGO in Medan), BPWN (Local partner in Nias)		Duration: Jun. 2005 – Mar. 2006
Activities:		
1) Provision of boats and fish processing machines 2) Training		



Project No.1 YADESA: Support in Livelihood



Project No.2 YDD: Training for O&M



Project No.3 YDD: Sanitation Facility



Project No.4 Provision of New Boats



Project No. 5: Plantation of Mangrove



Project No. 6 YADESA: Provision of New Boats



Project No.7 YASINDO:
Training for Skill Development



Project No.8 YND with YKP:
Workshop on Small Scale Business



Project No.9 Pulih:
Capacity Building of Women in Community



Project No.10 YAB:
Provision of Nutrious Food for Children in School



Project No.11: Provision of Playing Facilities



Project No.12 PKBI & BPWN:
Provision of New Boats

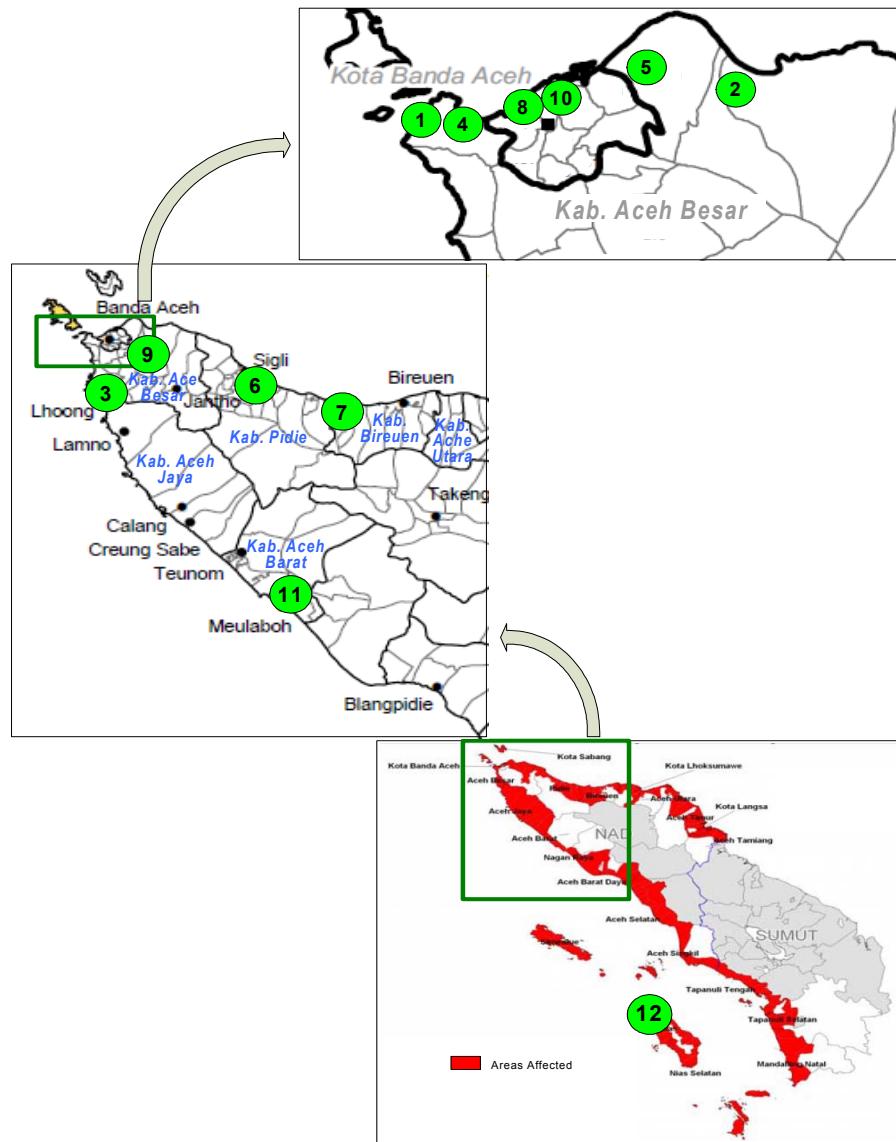


Figure 4.1.4 Location of CEP Project Sites

4.1.6 Monitoring and Evaluation for 12 CEP

(1) Monitoring Method

Objective for monitoring is to confirm the actual progress of the project and put necessary feed-back to the future activities so that the project will consequently achieve the Outputs and Project Purpose originally set in the planning stage. Unified form of monitoring sheet was prepared in cooperation with implementing NGOs. On preparation of monitoring sheet, responsible persons/implementers were appointed, required inputs/costs were decided, and implementation schedules were set with detailed activities. Achievement of expected Outputs was also monitored with planned targets. Unified form of the monitoring sheet is presented on the table below.

Table 4.1.3 Unified Form of Monitoring Sheet

Activities	Target (indicator of expected results)	Responsible Person/ Implementer	Required Inputs/ Costs	Schedule	Issues
1. Activities described in Project Documents	(Planned Target, Staffing, Input/Cost and Schedule)				Important things to be noted and reported.
	(Actual Achievement, Staffing, Input/Cost and Schedule)				
1-1. Broken down activities					
1-1-1. Further broken down activities					

Monitoring staffs in JICA Study Team regularly visited project sites and confirmed actual progress and achievement on each activity and Output. Results are summarized into above mentioned form and reported to JICA Indonesia Office every month. Necessary technical assistance on project implementation, as well as financial and schedule management, was provided by the study team to NGOs based on the regular monitoring results.

(2) Monitoring Results

Monitoring results on 12 CEP at the end of January 2006 is summarized on the following table.

Table 4.1.4 Summary of Monitoring Results on 12 CEP (1/2)

Project No. and Title	Progress on Activities	Planned Outputs (Main indicator)	Achievement of Outputs	Outcome to Community Empowerment	Sustainability
1. Rehabilitation, Economic Development and Sanitation Development for Tsunami Victims in Kemukiman Lampageu	<ol style="list-style-type: none"> 1. Technical and management training to 200 family heads. 2. Provision of capital to 200 family heads (155 until Jan. 2006), including 5 boats and 2 tricycle for home industries, small businesses, livestock breeding, etc., for revolving fund. 3. Trauma counseling (80-group counseling, individual-from time to time) 4. Construction of 2 sanitation facilities (on going, out of planned 10) 	<ol style="list-style-type: none"> 1. 200 family heads reorganize economic activities. (Investment for economic activities, average monthly income for family) 2. Health problems are solved. (Decrease in disease) 3. Trauma/PTSD is healed. (Conditions of healing) 	<ol style="list-style-type: none"> 1. 155 family heads has started economic activities, and gained average monthly income of Rp. 0.3-1.5 million for small business and Rp. 1.2 million for fishery. 2. Information on health problem of villagers was not available. 3. Trauma/PTSD almost seemed to be disappeared. 	<ol style="list-style-type: none"> 1. Dependency on external aids is decreased. 2. Young village leader in Lamguron is active for fund management. 	Monitoring and follow up on revolving fund management is needed.
2. Provision of Communal Waster Supply and Sanitation Facilities in Neuheun Zone	<ol style="list-style-type: none"> 1. Construction of water supply facilities for 1,840 people and a camp (600 IDPs). 2. Construction of sanitation facilities for 1,840 people. 3. Supports for establishment of O&M committees. 	<ol style="list-style-type: none"> 1. Villagers use, operate and maintain water supply and sanitation facilities. (Frequency of uses of sanitation facilities, Condition of O&M) 	<ol style="list-style-type: none"> 1. 1,840 people used water and sanitation facilities (50-70 L/persons/day) 2. O&M committees are well operated. 	Participation to construction works might lead to communal activities, such as cleaning the roads.	As O&M committees were well trained, sustainability of the project is expected high.
3. Provision of Communal Waster Supply and Sanitation Facilities in Lhoong	<ol style="list-style-type: none"> 1. Construction of water supply facilities for 5,570 people. 2. Construction of sanitation facilities for 5,570 people. 3. Supports for establishment of O&M committees. 		<ol style="list-style-type: none"> 1. 5,570 people used water and sanitation facilities (60 L/persons/day) 2. O&M committees are well operated. 		
4. Rehabilitation of Community in Coastal Villages after Earthquake and Tsunami in Peukan Bada	<ol style="list-style-type: none"> 1. Facilitation for village development planning 2. Provision of 13 boats and fishing gear, and building a kiosk 3. Environmental health training to 30 health cadres 4. Social (religious) events 5. Mangrove planting (4 ha) and expansion (2 ha) 6. Micro-finance facilitation 	<ol style="list-style-type: none"> 1. Fishermen expand fishing activities. (Average monthly income) 2. Cooperative is established and contributes fishermen's activities. (Investment by cooperative, management of kiosk) 3. Environment and sanitation conditions are kept well. (Conditions of drainage, growth of planted mangrove) 	<ol style="list-style-type: none"> 1. Average income (Nov.-Jan.) was Rp. 50-380 thousand/month for captain, and Rp. 50-300 thousand/month for crew. (Data for the target group before project is not available. Large fluctuation on monthly income was observed.) 2. Cooperative started collection of money from members for micro-finance organization but lending activity has not started. Management of kiosk goes well. 3. Drainage is kept clean. Mangroves are growing well. 	<ol style="list-style-type: none"> 1. Trained cadres are encouraged on communal activities for health improvement. 	Participatory approach adopted by the NGO enhanced sustainability of the project.
5. Rehabilitation of Community in Coastal Villages after Earthquake and Tsunami in Baitussalam	Almost same activity as Project No.4, except, number and type of boats (2 large boats and 7 boats), and area of mangrove planting (3 ha)		<ol style="list-style-type: none"> 1. Average income (Oct.-Jan.) was Rp. 420-1830 thousand/month for captain, and Rp. 360-420 thousand/month for crew. (Data for the target group before the project is not available) 2. Same as project No.4. (Project is managed by same NGO.) 3. Same as project No.4. (Project is managed by same NGO.) 		
6. Recovery of Economic Capability of Fishermen and Women of Tsunami Victims in Costal Area in Kembang Tanjong	<ol style="list-style-type: none"> 1. Provision of boats (1 large boat, 3 night fishing boats and 6 boats) for 54 fishermen. 2. Provision of 40 huts and tools for salt making for 40 women 3. Provisions of 40 huts and equipments, facilities for fish processing for 40 women. 4. Product marketing. 5. Follow-up for micro-finance institution. 	<ol style="list-style-type: none"> 1. Fishermen expand fishing activities. (Average monthly income, contribution to cooperative) 2. Women groups develop group business. (Average monthly income with women family head, investment for economic activities by women.) 	<ol style="list-style-type: none"> 1. Income of fishermen, (Jan) was Rp. 4.1 million/month for captain, Rp. 0.7 million/month for crew. (Data for the target group before the project is not available). Three (3) micro-finance organizations were planned but only two (2) have been established. Only one (1) organization succeeded money collection of cooperative. None of them has started lending activity. 2. Income of salt making women; Rp. 0.75-1.5 million/month. No contribution was made to micro-finance organization by women's group. 	Salt making women in Ara/Kruen Dhoe established micro-finance organization in cooperation with women in other village.	Monitoring and follow up on micro-finance organization are required.

Table 4.1.4 Summary of Monitoring Results on 12 CEP (2/2)

Project No. and Title	Progress on Activities	Planned Outputs (Main indicator)	Achievement of Outputs	Outcome to Community Empowerment	Sustainability
7. Reconstruction of Micro Economic Businesses for Village Women groups after the Earthquake and Tsunami in Samalanga	<ol style="list-style-type: none"> 1. Training 138 women group (plan-150) 2. Provide capital to 145 women (plan-150) for home industry, livestock/poultry breeding and small businesses 3. Alternative education for 96 women for religion, reading writing and simple arithmetic 	<ol style="list-style-type: none"> 1. Women-based economic activities are developed. (Average monthly income, contribution to the micro-finance organization) 	<ol style="list-style-type: none"> 1. Cake making; Rp. 440,000/month Kiosk; Rp. 550,000/month Egg salting; Rp. 260,000/month Herb tonic making; Rp.1,000,000/month Soybean cake making; Rp. 300,000. Micro-finance organization has not established by the end of Jan. 2006. 	No significant outcome to community empowerment is observed, since economic activities by women have started from Dec. 2005.	Due to the late deliver of capital by implementing NGO, some women started economic activity by using their own capital. It shows the strong intension by women.
8. Economic Empowerment of the Victims of the Earthquake and Tsunami in Kampung Jawa through Participatory Development of Fishing Boats	<ol style="list-style-type: none"> 1. Establishment of a community organization (Yayasan Nurani Nerayan) 2. Building a warehouse for fishermen 3. Purchase of machinery and tools for boat making 4. Workshop on boat building and small-scale business 5. Participatory development of 4 fishing boat (on going) 	<ol style="list-style-type: none"> 1. Fishermen foundation manages boats operation. (Monthly income of target fishermen, contribution to the community organization) 	<ol style="list-style-type: none"> 1. Boats are not operated. Fishermen's participation except some leaders, looks not active as expected. 	No significant outcome to community empowerment is observed.	Leader of Yayasan Nurani Nelayan is active. Suitability can be expected to some extent. Follow-up by local NGO is necessary.
9. Community-based Psychological Program Focusing Women Living in IDP's Camps	<ol style="list-style-type: none"> 1. Identification of needs and initial approaches to facilitate recovery of women with psychological problem. 2. Conducting psychological intervention for women through development of psycho-educational materials, vocational training, religious activities, discussion, theater performance, individual counseling 3. Ensuring capacity building of women in the community though identification of potential women leader and peer facilitation 	<ol style="list-style-type: none"> 1. Opportunity for women to discuss about psychological and gender sensitive issues is increased. (Frequency of individual counseling and meeting by women) 2. Psychological damage of women is lessened. (Frequency of women to go out and join social events) 3. Women start actions for improving their position in the society. (Participation to vocational training, and other activities aiming at improving their present situation.) 	<ol style="list-style-type: none"> 1. Women had started talking about their psychological problem in their regular individual counseling (twice a week). Women started discussions on gender problems in their IDP camps. 2. Women go out more frequently than before and joined social events. 3. Totally more than 350 women participated vocational skill trainings on bag, clothes and cake making training sessions held in 4 IDP camps. One women group (in Kandan camp) succeeded to hold election of a camp coordinator and replaced the person who conducted unfair delivery of basic daily goods. 	Influence of women in social and economic activity in IDP camps has been enhanced.	Local partner and women's leaders are empowered through project activities. Sustainability of the project is expected high because of these new leaders and peer facilitations by women themselves.
10. Psychosocial Assistance and Recovery Program for Children of Specific Circumstances in Banda Ache	<ol style="list-style-type: none"> 1. Provision of a mobile library service 2. Provision of nutritious food for 138 children and health services 3. Establishment of Children Recovery and Creativity Center (CRCC) and activities in CRCC (religion, art, sports, library service) 4. Assistance to get access to formal education 	<ol style="list-style-type: none"> 1. Children are active and physically grow well. (Height and weight of children, attendance of students in target schools) 2. Children have opportunity to read books. (No. of students use library services.) 3. Children regain self-confidence and creative thinking. (Skill for communication, results of training etc.) 	<ol style="list-style-type: none"> 1. Attendance of students in the school of food provision is increasing (head masters). Weight of children has increased 15% since August 2005. 2. Most of students (80 to 90%) used library service. Each students borrow 1 to 2 books on each service day (once a week) 3. Dancing team of CRCC participated in many events and got awards. 	Outcome to community empowerment within the project implementation period is limited, since the project was focused on children's activities. However, positive impact is expected in the future. Children are growing up in physical and mental health	Sustainability of the project is ensured in good cooperation with the schools, supporting NGOs and local people.
11. Children Trauma Healing Center (Fun House) – "Rumoeh Ceria Aneuk Aceh" in Meulaboh	<p>Managing 6 fun houses</p> <ol style="list-style-type: none"> 1. Training local volunteer 2. Sports, Games/plays, art religious activities 3. Story telling 4. Focus group discussion with local volunteers 5. Free therapy 6. Children counseling <p>Managing 3 mobile library</p>	<ol style="list-style-type: none"> 1. Children have more fun. (No. of children come to the facility.) 2. Trauma/PTSD of children is healed. (Openness of children to talk to other people. Attitude against their fear, i.e. beach and thunder, etc.) 	<ol style="list-style-type: none"> 1. Totally, about 230 children regularly joined activities in 6 fun houses. 2 Children who have attended the fun house look different from other children and looked cheerful. Children no more fear beach, thunder etc. 		Sustainability of the project would be high because local volunteer have been well trained and motivated.
12. Supporting Program for the Fishery Community by Providing Motorboat and Training the Community for Productivity Improvement, in Afulu and Lahewa of Nias	<ol style="list-style-type: none"> 1. Provision of 60 boats 2. Provision of fish 2 grinding and 2 drying machines 3. Training for 60 fishermen families 	<ol style="list-style-type: none"> 1. Target fishermen restart fishing. (Monthly income, contribution to cooperative.) 2. Fishermen families develop home industry of fish processing. (Monthly income, contribution to micro-finance organization.) 	<ol style="list-style-type: none"> 1. Fishermen got Rp. 1.6 million/month (average) in two target villages. 2. Fish processing has not fully operated. 	Community empowerment has been attained in some degrees through activities for establishment of micro-finance organizations and common use of drying machines.	Since project activities have just started, follow up by implementing NGO is necessary to ensure achievements and sustainability of the project.

4.1.7 Summary of 12 CEP

Table 4.1.5 Project Summary of Project No.1

Project Title: Rehabilitation, Economic Development and Sanitation Development for Tsunami Victims in Kemukiman Lampageu
Project Site: Desa; Lampageue, Lambaro Nijid, Lambadeuk, Lamguron (Kem.; Lampageu) Kec.; Pekan Bada Kab.; Aceh Besar
<p>Necessity/Relevancy: The target area was one of the most seriously damaged areas. Out of 10,217 people in the area before the earthquake and tsunami, only 913 people survived. Survivors had fatal health problems caused by lack of food, medicine, water and sanitation facilities. They lost most of the properties and means for economic activities. Although the villagers from the target areas were displaced in some camps and basic requirements were fulfilled by relief assistance, it was better for them to reorganize their lives rather than continuously waiting for help. Many of them had psychological problems because they lost their family members.</p>
<p>Target Group (Beneficiary): 200 Family Heads or 913 Persons of the tsunami victim of communities in Kemukiman Lampageu.</p> <p>Project Purpose: Victim families in Kemukiman Lampageu are rehabilitated from food sensitive, health problems, mental ill, and nutrition related diseases.</p> <p>Outputs:</p> <ol style="list-style-type: none"> 1. Economic activities are reorganized. 2. Two hundred (200) family heads reorganize economic activities. 3. Health problems are solved. 4. Trauma/PTSD of the target group, are healed. 5. Villagers use, operate and maintain communal toilets, bathing and washing places properly. <p>Activities:</p> <ol style="list-style-type: none"> 1) Problem identification of the target group 2) Socialization of the project to the target group and relevant local authorities 3) Formulation of working programs and program arrangement 4) Training for economic activities 5) Trauma counseling 6) Sanitation development (construction of communal toilets, bathing and washing places, and establishment of local committees) 7) Implementation of economic productive activities 8) Monitoring 9) Evaluation and follow-up 10) Reporting
Budget: JPY 9,032,000-
Duration: March 2005 - February 2006
Implementing NGO: Rural Community Development Foundation (YADESA)
<p>External Factors:</p> <ul style="list-style-type: none"> * As a precondition for sanitation development in the development as well as for some economic activities, such as fishing, livestock/poultry breeding and agriculture, timing of the return of the villagers, i.e., timing housing development was important. * To achieve to the outputs related to economic activities, rehabilitation of transportation infrastructure and telecommunication networks was important for access to the markets.

Table 4.1.6 Project Summary of Project No.2

Project Title: Provision of Communal Waster Supply and Sanitation Facilities in Neuheun Zone
Project Site: Neuheun Zone (Indrapatra sub-village, Ujung Kareng sub-village, Ladong Camp, Cot Riwet sub-village, Keude Meria sub-village, Lambada Lhok village), Kec. Baitussalam and Mesjid Raya, Kab. Aceh Besar
<p>Necessity/Relevancy:</p> <p>In the target area, temporary shelters were located. Many people were evacuated from areas around the shelters, and most of the people had decided to live permanently there. Waster was carried to the shelters from locations far away, available water was quit limited. Most of toilets were just pit holes. In case of heavy rain, it leaded to terrible sanitation conditions due to bad drainage as well.</p>
<p>Target Group (Beneficiary): The situation in the field is very dynamic. The project covers 1 village, 4 sub-villages and 1 camp with population around 1,840 persons.</p> <p>Project Purpose: Villagers get safe water and good sanitation conditions.</p> <p>Outputs: Villagers use, operate and maintain water supply and sanitation facilities.</p> <p>Activities:</p> <ol style="list-style-type: none"> 1) Background study 2) Agreement and formality 3) Social preparation 4) Mobilization 5) Facility Construction 6) Community training on operation and maintenance
Budget: Financial support from JICA, JPY. 10,609,000-
Duration: March 2005 – February 2006
Implementing NGO: Yayasan Dian Desa (YDD)
<p>External Factors:</p> <p>For implementation of water and sanitation projects, population distribution or progress of housing projects was key factor to be monitored. After the earthquake and tsunami, population movement was dynamic. Water and sanitation projects have had to respond to the dynamically changing situation.</p>

Table 4.1.7 Project Summary of Project No.3

Project Title: Provision of Communal Waster Supply and Sanitation Facilities in Lhoong
Project Site: 22 villages in Kec.; Lhoong Kab.; Aceh Besar
<p>Necessity/Relevancy:</p> <p>In Lhoong, majority of the coastal areas were totally devastated. Many people were evacuated to higher places and decided to live there permanently. Their previous waster sources, i.e., wells were ruined or disappear. Survivors use their water on run off, which was contaminated and dangerous. There was no sanitation facility. They use pit holes or just did in bush. These unhygienic conditions leded people to diseases.</p>
<p>Target Group (Beneficiary): The Project covers 22 villages in Lhoong</p> <p>Project Purpose: Villagers get safe water and good sanitation conditions.</p> <p>Outputs: Villagers use, operate and maintain water supply and sanitation facilities.</p> <p>Activities:</p> <ol style="list-style-type: none"> 1) Social preparation 2) Mobilization 3) Detail plan 4) Procurement of working tools and materials 5) Facility Construction 6) Community training on operation and maintenance
Budget: Financial support from JICA; JPY. 10,480,000-
Duration: March 2005 – February 2006
Implementing NGO: Yayasan Dian Desa
<p>External Factors:</p> <p>For implementation of water and sanitation projects, population distribution or progress of housing projects was a key factor to be monitored. After the earthquake and tsunami, population movement was dynamic. Water and sanitation projects have had to respond to the dynamically changing situation.</p>

Table 4.1.8 Project Summary of Project No.4

Project Title: Rehabilitation of Community in Coastal Villages after Earthquake and Tsunami in Peukan Bada
Project Site: Desa; Lamteungoh, Lamtutui Kec.; Peukan Bada Kab.; Aceh Besar
<p>Necessity/Relevancy:</p> <p>Since the time survivors had got assistance for emergency needs, people had started to think about new life. They lost most of properties as well as infrastructure required for economic activities. For example, many of fishermen in the target area lost their fishing boats and gears. Supports for provision of boats and fishing gears, and rehabilitation of related infrastructure to the fishermen community were necessary. To start better life means for the recovery of social life should also be included in supports.</p>
<p>Target Group (Beneficiary): Villagers of the Lamteungoh and Lamtutui</p> <p>Project Purpose: Societies of Lamteungo/Lamtutui are activated.</p> <p>Outputs:</p> <ol style="list-style-type: none"> 1. Fishermen expand fishing activities. 2. Target fishermen do fishing as before. 3. Environment and Sanitation conditions are kept good. 4. Trainees (health cadres) of the environmental health training implement activities for better health of the villagers. 5. Protection area (green belt) is prepared. <p>Activities:</p> <ol style="list-style-type: none"> 1) Facilitation on village development plan 2) Repairing and buying fishing boats and catching tools 3) Environment health training 4) Repairing fish landing jetty and market building 5) Building a store (kiosk) for daily needs of fishermen 6) Social events 7) Mangrove rehabilitation 8) Micro-finance facilitation for fishermen community 9) Training for beginner captains of fishing boats 10) Publication of books and bulletins 11) Monitoring 12) Evaluation
Budget: JPY 9,877,000-
Duration: March 2005 – February 2006
Implementing NGO: Yayasan PUGAR
<p>External Factors:</p> <p>For the rehabilitation of the community, not only components covered by the project but also those of various sector, such as housing, health, education as well as religion, were to be taken care of.</p>

Table 4.1.9 Project Summary of Project No.5

Project Title: Rehabilitation of Community in Coastal Villages after Earthquake and Tsunami in Baitussalam
Project Site: Desa; Lambada Lhok, Lampineung Kec.; Baitussalam Kab.; Aceh Besar
<p>Necessity/Relevancy:</p> <p>Since the second month after the earthquake and tsunami, people had started to think about new life. However, they lost most of properties as well as infrastructure. For example, many of fishermen in the target area lost their fishing boats and fishing gears. Supports for the fishermen community to start better life should include not only means for properties and infrastructure but also means for the recovery of social life.</p>
<p>Target Group (Beneficiary): Villagers of the Lambada lhok and Lampineung</p> <p>Project Purpose: Societies of Lambada Lhok and Lampineung are activated.</p> <p>Outputs:</p> <ol style="list-style-type: none"> 1. Fishermen expand fishing activities. 2. Target fishermen do fishing as before. 3. Environment and Sanitation conditions are kept good. 4. Trainees (cadres) implement activities for better health of the villagers. 5. Protection area (green belt) is prepared. <p>Activities:</p> <ol style="list-style-type: none"> 1) Facilitation on village development plan 2) Repairing and buying fishing boats and catching tools 3) Environment health training 4) Rehabilitation of a fishermen hall 5) Building a store (kiosk) for daily needs of fishermen 6) Social events 7) Mangrove rehabilitation 8) Micro-finance facilitation for fishermen community 9) Training for beginner captains of fishing boats 10) Publication of books and bulletins 11) Monitoring 12) Evaluation
Budget: (JPY 9,144,000-)
Duration: March 2005 – February 2006
Implementing NGO: Yayasan PUGAR
<p>External Factors:</p> <p>For the rehabilitation of the community, not only components covered by the project but also those of various sector, such as housing, health, education as well as religion, are to be taken care of.</p>

Table 4.1.10 Project Summary of Project No.6

Project Title: Recovery of Economic Capability of Fishermen and Women of Tsunami Victims in Costal Area in Kembang Tanjong
Project Site: Desa; Jeumerang, Ara, Krueng Doe, and Lancang Kec.; Kembang Tanjong Kab.; Pidie
<p>Necessity/Relevancy:</p> <p>The target area represented areas hit by the tsunami disaster. Fishing, fish processing and salt making were main economic activities of men and women in the area. Many fishing boats were destroyed or missed by the disaster. Salt fields and salt making facilities were also ruined by the disaster. Out of 771 survived family heads 141 are women.</p>
<p>Target Group (Beneficiary): At least 67 fishermen and 80 women in Jeumerang, Ara, Krueng Doe, Lancang. Target group will increase 5 persons each month by share holding mechanism.</p> <p>Project Purpose:</p> <ol style="list-style-type: none"> 1. Economic conditions of fishermen and women are recovered in sub-district of Kumbang Tanjong. 2. Role of women in the families is improved. <p>Outputs:</p> <ol style="list-style-type: none"> 1. Fishermen expand fishing activities. 2. Target fishermen restart fishing. 3. Employment opportunities for other villagers are expanded by boat making, fish selling, etc. 4. Women groups develop group business. 5. Target women start/re-start salt making and fish processing. <p>Activities:</p> <ol style="list-style-type: none"> 1) Preparation 2) Implementation <ol style="list-style-type: none"> 2-1)Organizing Target Groups 2-2)Providing boats 2-3)Providing facilities/equipment/materials for fishing, salt making and fish processing 2-4)Product marketing 2-5)Follow-up activities for micro-finance institution 3) Monitoring and evaluation
Budget: JPY 7,750,000-
Duration: June 2005 - March 2006
Implementing NGO: Yayasan Citra Desa Indonesia (YCDI)
<p>External Factors:</p> <p>No specific external factors were identified at the time of planning. During the project implementation, assistance from NGOs/donors concentrated in a target village and the implementing NGO changed the target village to a neighboring village to which few NGOs/donors took care.</p>

Table 4.1.11 Project Summary of Project No.7

Project Title: Reconstruction of Micro Economic Businesses for Village Women groups after the Earthquake and Tsunami in Samalanga of Bireun
Project Site: Desa; Lancok, Lincarh, Anking Kec.; Samalanga Kab.; Bireuen
<p>Necessity/Relevancy:</p> <p>Though the target area is located in northern costal area of Sumatra Island, 38 out of around 1,100 people were killed and 54 houses were seriously damaged out of 164. Out of survived 156 family heads 26 were female, according to the baseline survey conducted by JICA Study Team. The target area is comprised of 3 small villages and the average monthly family income before the earthquake and tsunami range from Rp. 309,000 to Rp. 546,000. These figures are substantially low compared to those of other villages. Economic development by women group in the target area is highly necessary.</p>
<p>Target Group (Beneficiary): 150 tsunami victim women in 3 villages in Samalanga Sub-district</p> <p>Project Purpose: Women are empowered in the village/sub-district development.</p> <p>Outputs:</p> <ol style="list-style-type: none"> 1. Women-based economic activities are developed in Lancok, Lincah and Angking Barat Villages. 2. Target women re-start/develop home industries and animal husbandry (from cake making, goat raising, chicken raising, duck raising, fishing net making, sewing, Jamu (herb tea) making, tempe (fermented soybean cake) making, kiosk management, egg salting). <p>Activities:</p> <ol style="list-style-type: none"> 1) Socialization 2) Consolidation 3) Training <ol style="list-style-type: none"> 3-1) Management 3-2) Skills on Home Industries 4) Providing capital for revolving funds 5) Marketing the products 6) Alternative education for business groups 7) Monitoring and evaluation
Budget: (JPY. 7,714,000-)
Duration: June, 2005 – March, 2006
Implementing NGO: Yayasan Sinar Desa Indonesia (Sinar Desa Indonesia Foundation)
<p>External Factors:</p> <p>Support from village leaders or other male villages are essential for the implementation as well as for achievement of the outputs and project purpose.</p>

Table 4.1.12 Project Summary of Project No.8

Project Title: Economic Empowerment of the Victims of the Earthquake and Tsunami in Kampung Jawa through Participatory Development of Fishing Boats
Project Site: Kel.; Kampung Jawa Kec.; Kuta Raja Kota; Banda Aceh
<p>Necessity/Relevancy:</p> <p>The target area represents seriously devastated areas by the earthquake and tsunami. The population decreased to less than one third (from 3,783 to 1,148), according to the baseline survey by JICA Study Team held in July and August 2005. Almost all buildings and houses were swept away. Fishermen lost many of their fishing boats and tools and remained unemployed. The area has high potential of small scale business due to its location.</p>
<p>Target Group: 50 fishermen and their family (approximately 150 people) will be benefited from the project.</p> <p>Project Purpose: Economy of fishermen community is rebuilt in Kampung Jawa.</p> <p>Outputs:</p> <ol style="list-style-type: none"> 1. The fishermen foundation manages boats operation. 2. Small-scale businesses are planned and ready to be started. <p>Activities:</p> <ol style="list-style-type: none"> 1) Discussions on the establishment of the community organization 2) Ordering and purchasing materials and tools for boat making and fish catching 3) Wood drying 4) Construction of a warehouse 5) Workshop for finishing boats, boat management and business management 6) Boat making 7) Boat operation 8) Management facilitation 9) Discussion on small-scale business 10) Monthly meetings 11) Monitoring and evaluation 12) Auditing 13) Reporting
Budget: JPY. 8,871,000-
Duration: June, 2005 - March 31, 2006
Implementing NGO: Yayasan Nurani Dunia (Nurani Dunia Foundation) and Yayasan Komunitas Partecipatif (Participatory Community Foundation)
<p>External Factors:</p> <p>Development and timing of housing projects affect project implementation.</p>

Table 4.1.13 Project Summary of Project No.9

Project Title: Community-based Psychosocial Program Focusing on Women Living in IDP Camps
Project Site: Lamrabo Camp, Neuahun Camp, Kampung Mulia, Kandan Camp Kota; Banda Aceh, and Kab.; Aceh Besar
<p>Necessity/Relevancy:</p> <p>IDPs of these camps came from the most seriously affected areas, such as Pulo Aceh, Meulaboh, Kuta Raja, etc. There were urgent needs for psychological recovery. In addition, those areas are coastal areas, and allegedly there are many gender problems, such as domestic violence. There were also many gender issues in the camps, such as ignorance of women's specific needs, forceful marriage or harassments. Though NGOs/donors had started supports to take care of children, few had started gender related program.</p>
<p>Target Group (Beneficiary):</p> <ul style="list-style-type: none"> * Women survivors in the 4 camps or barracks and women informal leaders in the communities affected by the tsunami * Religious leaders (teungku and ustazah), with specific local capacity building for local partners (RTA) and local partner capacity building (Sanggar Cuex) <p>Project Purpose: Women's resilience is strengthened towards women's psychological recovery in Lamrado, Neuheun, and Kandan Camps and Kampung Mulia.</p> <p>Outputs:</p> <ol style="list-style-type: none"> 1. Community awareness about psychological impacts on women and importance of women's role in community recovery process are raised. 2. Local partners and potential women religious leaders (teungku and ustaza) are empowered to safeguard gender- sensitive community-based psychological recovery. 3. Women obtain skills and visions for future life. 4. Gender-sensitive recovery mechanism and referral system are developed for psychological needs of women. <p>Activities:</p> <p>Phase I: Identification of specific issues, strategies and initial approaches</p> <ol style="list-style-type: none"> 1-1) Visits to camps/barracks 1-2) Discussion with other NGOs and the communities 1-3) Vocational trainings activities as an initial approach to conduct psychosocial intervention 1-4) Psycho-educational activities (religious chanting, small discussions, public meetings) 1-5) Training for women religious leaders on building-up friendship to lead or to conduct activities in camps or barracks 1-6) Preparing psycho-educational materials <p>Phase 2: Conducting psychosocial intervention with gender sensitive approaches</p> <ol style="list-style-type: none"> 2-1) Development of psycho educational materials 2-2) Theater performances 2-3) Vocational training (sewing, crochet, and cooking, etc.) 2-4) Religious activities and community discussions 2-5) Individual counseling <p>Phase 3: Ensuring capacity building of women in the community for the sustainability of community empowerment</p> <ol style="list-style-type: none"> 3-1) Conducting community impact evaluation 3-2) Identifying focal points (potential women leaders) 3-3) Peer facilitation by women themselves 3-4) Networking and visit to women organizations and IDPs locations outside Banda Aceh
Budget: JPY. 8,851,000-
Duration: May 1, 2005 - March 31, 2006
Implementing NGO: Yayasan Pulih, Sanggar Cuex (Acehnese NGO headed by an activists), RTA (Association of Acehnese Women Students of Islamic Boarding Schools)
External Factors: For implementation of the project, support and understanding of men is required.

Table 4.1.14 Project Summary of Project No.10

Project Title: Psychosocial Assistance and Recovery Program for Children in Specific Circumstances in Banda Aceh
Project Site: Kec.; Kuta Raja Kota; Banda Aceh
<p>Necessity/Relevancy:</p> <p>It was estimated that by earthquake and tsunami more that 35,000 children were orphaned or separated from the parents in Aceh. Homes, schools and other community facilities were destroyed. Under the situation, many children were traumatized, and their access to the education services was seriously affected. The children were also suffered from mal-nutrition. Educational documents, such as certificates, students lists of the schools were swept away and it was very hard for children to be enrolled to new or other schools.</p>
<p>Target Group (Beneficiary): Direct beneficiaries;</p> <ul style="list-style-type: none"> * About 200 children (boys and girls) under 18 years of age who will get their right on education * About 500 children (boys and girls) under 15 years of age will be benefited from the library and additional food and nutrition <p>Indirect beneficiaries; About 1,000 students in 5 schools will be indirectly benefited by the mobile library as the source of learning media.</p> <p>Project Purpose: Children are psychologically recovered in Kuta Jaya.</p> <p>Outputs:</p> <ol style="list-style-type: none"> 1. Children are active and physically grow well. 2. Children have opportunity to read books. 3. Children regain self-esteem, self-confidence, abilities for decision-making, problem solving and developing critical and creative thinking, self-awareness and empathy. 4. Children participate in formal education. <p>Main activities:</p> <ol style="list-style-type: none"> 1) Recruit project staff 2) Workshop and orientation (for recruited staff) 3) Training staff on psychological assistance 4) Provision of supplementary foods 5) Mobile library service 6) Establishment of Children Recovery Creativity Center (CRCC) 7) Implementation of supplementary education (in CRCC) 8) Library service in CRCC 9) Developing children's talent in CRCC 10) Sports and art activities in CRCC 11) Assistance to solve outreach problems of formal education 12) Coordination with education office (Diknas) 13) Health service
Budget: JPY. 7,779,000-
Duration: May 1, 2005 – March 31,2006
Implementing NGO: Yayasan Anak Bangsa (YAB)
<p>External Factors:</p> <p>At the time of planning YAB assumed to find rooms for CRCC. Since no suitable rooms were available YAB built a house within the budget with contribution of a land from the community.</p>

Table 4.1.15 Project Summary of Project No.11

Project Title: Children Trauma Healing Center (Fun House) – “Rumoeh Ceria Aneuk Aceh” in Meulaboh
Project Site: Meulaboh, Kec. Aceh Barat Regency
<p>Necessity/Relevancy:</p> <p>The impacts of the earthquake and tsunami on children who are vulnerable group prone to damaged environment. Huge number of children lost their parents, families, friends and relatives. Children suffer from the traumatic experiences. In addition, they suffer from various post-disaster diseases and mal-nutrition. Immediate help to the children were seriously needed. Though many organizations had started assistance to children in Banda Aceh, children in Meulaboh had got quite limited supports.</p>
<p>Target Group (Beneficiary): Children in Meulaboh, and potential local volunteer.</p> <p>Project Purpose: Children in Meulaboh are ready for facing their future by helping them take best benefits from formal education in schools.</p> <p>Outputs:</p> <ol style="list-style-type: none"> 1. Happiness is brought back to children. 2. Trauma/PTSD of children in Meulaboh are healed. <p>Activities:</p> <ol style="list-style-type: none"> 1) First action after the earthquake and tsunami 2) Preparation and dispatch of volunteers 3) Establishment of Fun Houses 4) Training local volunteers 5) Introduction of games and plays 6) Sports games 7) Games and plays (as therapy) 8) Religious activities (as therapy) 9) Art activities (as therapy) 10) Story telling (as therapy) 11) Focus group discussion with local volunteers 12) Free therapy 13) Home visits to IDP’s tents 14) Medical services 15) Children counseling 16) Monitoring and evaluation
Budget: JPY. 7,785,000-
Duration: May 1, 2005 - March 31, 2006
Implementing NGO: Yayasan Nanda Dian Nusantara (YNDN)
External Factors: The project assumed application of residents for recruitment of local volunteers.

Table 4.1.16 Project Summary of Project No.12

<p>Project Title: Supporting Program for the Fishery Community by Providing Motorboat and Training the Community for Productivity Improvement, in Afulu and Lahewa of Nias</p>
<p>Project Site: Kec.; Afulu, Lahewa Kab.; Nias, Province; North Sumatra</p>
<p>Necessity/Relevancy: One of impacts of the natural disaster that happened in Nias Islands was that most victims had lost their properties including their livelihood equipment, among others, boats for fishing and fishing gears. Supports to fishermen' families were inevitable for them to rebuild their livelihood as fishermen. Economic recovery and development were essential to improve the people's daily lives. It could be assumed that to provide motorboats and fishing gears was one of the best alternative ways to realize the economic recovery of the fisherman families of victim peoples. Also, to provide special trainings and equipments for improvement in the fish processing in home industry would give them opportunity to reach better quantity and quality of their fish products, for example dried salted fish and fish flour, and then better family incomes.</p>
<p>Target Group (Beneficiary): Fishermen and women in Afulu and Lahewa Sub-district and their family are to be directly beneficiary</p> <p>Project Purpose: Fishermen communities rebuild sustainable livelihood in Afulu and Lahewa Sub-districts in Nias Regency.</p> <p>Outputs:</p> <ol style="list-style-type: none"> 1. Fishermen families develop home industry of fish processing. 2. Related families in the respective sub-districts, such as boat makers, fish/fish product traders get higher income. 3. Lessons are learned from the project implementation and evaluation to be applicable for other communities. <p>Activities:</p> <ol style="list-style-type: none"> 1) Preparation 2) Boat provision 3) Provision of fish processing machines 4) Training of fishermen families 5) Supervision 6) Monitoring 7) Evaluation 8) Reporting
<p>Budget: JPY. 11,927,000-</p>
<p>Duration: May 1, 2005 - March 31, 2006</p>
<p>Implementing NGO: Perkumpulan Keluarga Berencana Indonesia (PKBI) Daerah Sumatera Utara, (Indonesian Planned Parenthood Association (PPA) North Sumatera Province), and Badan Pemberdayaan dan Warisan Nias (BPWN) (Nias Empowering and Heritage Trust)</p>
<p>External Factors: Bad access to the market places of fish products due to damaged roads was a critical factor for the fishermen's families to improve the livelihoods. Availability of fuel was also a vital factor for the fishermen for their survival.</p>

4.2 ASSESSMENT ON 3 MAIN APPROACHES

Based on monitoring results for 12 CEP, assessment on 3 main approaches was undertaken with reviewing outputs and outcomes from each program. Relationship between main approaches and components of each project is shown in the following table.

Table 4.2.1 Relationship between 3 Main Approaches and Project Components

	Project No.1	Project No.2	Project No.3	Project No.4	Project No.5	Project No.6	Project No.7	Project No.8	Project No.9	Project No.10	Project No.11	Project No.12
Livelihood Approach	○			○	○	○	○	○				○
Psycho-social Approach	△			△	△				○	○	○	
Water/Sanitation/Environment Approach	△	○	○	*	*							

Note: ○ stands for the approach is adopted as a main component of the project.

△ stands for the approach is adopted as a sub-component of the project.

* stand for only mangrove plantation was carried out in water/sanitation/environment approach.

(1) Livelihood Approach

This is the largest pillar of 12 CEP, 7 projects adopted this approach as a main component of the project. Following observation have been made during implementation of these projects.

Basically this component takes following steps:

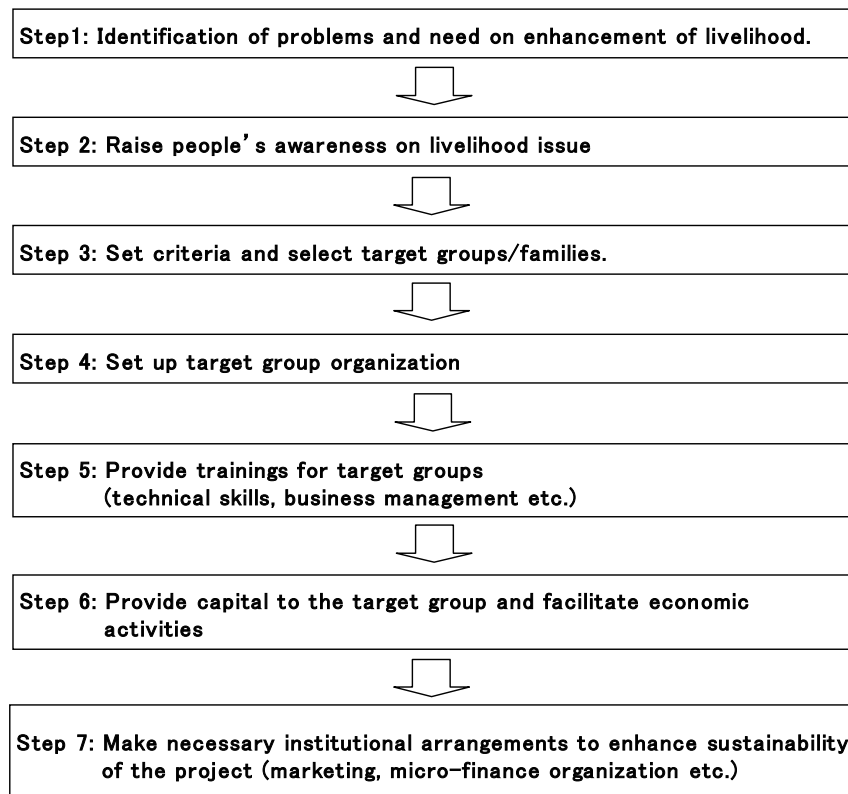


Figure 4.2.1 Basic Steps on Livelihood Approach

Among these steps, it is observed that many implementing NGOs set criteria for selection of target groups/families of the project on step 3, such as 1) seriousness of damage from the disaster, 2) poorness of families, 3) willingness to start economic activities. As a result, some villagers pointed out regional and/or gender in-balance of the selected groups/families. This kind of envy among village people cannot be avoided in some degrees. However, due consultation to the village leader, as well as thorough discussion with village people, is recommended since complaints among people would negatively affect to a unity of community people.

Although most of the training on step 5 was successfully carried out, some participants, as well as some of the local NGOs, had difficulty to understand a concept of business management. They were able to calculate necessary cost for starting new economic activity, however many of them could not figure out expected profits from each business. Concept of marketing, as well as cost management, is required for calculating expected profits. Also, some trainees participated a training simply aiming at acquiring “aid” from the project. Those participants decided neither applying capital provision nor becoming a member of business group. These observations suggest that identification of needs and selection of target groups should be carefully undertaken for more effectively implementing a project with livelihood approach.

Average monthly income generated by CEP is summarized on the table below.

Table 4.2.2 Average Income of Target Groups

Type of Activities	Monthly Income /person (Rp.)	Remarks
Fishery	100,000 –4,100,000	Fluctuation of income is very high.
Kiosk management	600,000 – 1,500,000	(Capital; Rp. 1.2-1.25 million/person)
Cake making	150,000 – 400,000	(Capital; Rp. 1.0-1.25 million/woman)
Salt making	600,000 – 1,200,000	(Capital; Rp. 3.4 million/woman)
Agriculture, livestock ---	Farmers have not generated income by the end of Jan. 2006.	
Goat breeding	Income has been generated by the end of Jan. 2006.	
Chicken/duck raising	Income has been generated by the end of Jan. 2006.	

Income generated by fishery is the highest among activities carried out in CEP. However, there was big fluctuation on monthly income in this sector. This is partly because of weather condition and operation by each fisherman. Some fishermen could not be fully engaged in fishery activity since they were busy on rebuilding their house or sometime engaged in other reconstruction works. On the other hand, income from kiosk management and cake making was stable even the profits from the activities are smaller than those from fishery. Income from agriculture and livestock activities could not be confirmed owing to the long preparation period required for these activities.

All NGOs involved in livelihood approach proposed to establish micro-finance organization for revolving a fund delivered from the project. However, most of them faced some difficulty on its implementation. In fishery sector, traditional way of distribution system for acquired profit has already been established among a boat owner, captain, crews and fish broker. While a boat owner usually acquires the largest share of their profit followed by fish broker, boat crews only get very small profit. Therefore, micro-finance organizations established in this sector only succeeded to collect some money from boat owners and fish brokers who are largely benefited from this economic activity, but not from ordinal fishermen or boat crews.

Establishment of micro-finance organizations in other sectors, such as agriculture, livestock, etc., was required for longer period due to their long preparation works. People could not understand micro-finance scheme. Un-clear prospect on future economic activities also made target group people hesitated to contribute some of their profits to the newly established organization. Limited knowledge and skills of staffs in the newly organizations also hindered smooth take off of this financial scheme. As a result, none of micro-finance organization has succeeded to start money lending to their members by January 2006.

In conclusion, activities carried out under livelihood approach were successful for the target groups to re-start their individual economic activities, but had small impact on cooperative works. Cooperative works such as marketing and/or joint procurement of materials can be facilitated in the future. For sustainability of the project, strengthening on micro-finance organizations is recommended. Furthermore assistance by local NGOs on these activities is preferable.

(2) Community-based Trauma/PTSD Healing Approach

Among 12 CEP, three (3) projects adopted this approach as a main component, specifically Projects No.9, 10 and 11. Project No. 9 is targeted on women living in 4 IDP camps in Banda Aceh City and Aceh Besar. Projects No. 10 and 11 are targeted on children in Banda Aceh and Meulaboh respectively. Projects No.1, 4 and 5 also adopted this approach but as a sub-component to support their livelihood approach.

This approach in CEP was undertaken in combination with religious activities and psycho-educational activities. Rationale for religious activities in this approach is explained herein. For Acehnese people, Islamic roles and teachings are base of their daily lives. They believe that all good things and bad things happen on a wish of God. For instance, people think that good things happen when people obediently follow Islamic rules and teachings, and bad things happen when people don't follow them. Because Acehnese people always adhere to this kind of Islamic thinkings, religious activities can lessen their psychological loads.

In addition, psycho-educational activities were conducted both on women and children. For women's groups, this activity was carried out on three phases, 1) Psychological recovery from disaster and/or conflict, 2) Psychological strengthening on gender sensitive issue, and 3) Capacity

building of women in a community. Vocational training was also carried out on each phase as a tool of intervention and consequently empowers women both in social and economic aspects. Psycho-education for children was carried by facilitating religious, arts and sports activities and also by providing opportunity to read books. Medical and supplemental food services have also been provided to the children in order to strengthen their physical health.

As a result from these activities, psychological aspect of women appeared to be strengthened. They go out from their homes more frequently than before and are aware of gender difference in the community. One good example is an incident of women group in *Kandan* camp where Project No. 9 has been carried out. This women's group succeeded to hold an election for camp coordinator and replaced old coordinator who had been conducting unfair delivery of basic daily goods.

Outputs from two projects targeted on children, namely Projects No. 10 and 11, also had positive impact on psychological aspect of the children. Children become more cheerful and creative than before. However, achievements from these two projects were different. In short, achievement from Project No. 11 appeared higher than that from Project No. 10. This is mainly caused by difference in qualification of local NGOs and volunteers, and also by more focused scope and activity by Project No. 11. Local NGO who implemented Project No.10 has lost their experienced staff by the earthquake and tsunami disaster. Even though that NGO had trained their local staffs and volunteers during the project, qualification with good experience have not been acquired by the new staffs. Scope of Project No. 11 focused more on psychological recovery of children while Project No. 10 had additional activities, such as skill education and supports for orphans. By comparison of these two projects, it can be said that well focused scope of work and implementation with qualified personnel are keys to enhance achievement from this kind of psycho-social approach.

(3) Water / Sanitation and Environment Approach

Projects No. 2 and 3 adopted this approach as a main component while Project No. 1 added this approach as a sub-component. Projects No. 4 and 5 carried out only mangrove plantation as a part of project activities with taking livelihood approach.

This approach basically consists of 3 phases, namely 1) Facility construction, 2) Establishment of community organization for operation and maintenance (O&M), and 3) Sanitation and environment education. Successful implementation on each phase ensures effectiveness and sustainability of the project. National NGO, called *Yayasan Dian Desa* having rich experience on this field, carried out Projects No. 2 and 3. Facility construction as well as establishment of community organizations for O&M was successfully undertaken. However, the established O&M system is still not sufficient. Only 1 sub-village, called Ujung Kareng in Neuheun Zone, has succeeded to start collecting water charge from the people (Rp. 3,000/KK) since January 2006. In other villages, specifically 1 village, 3 sub-villages and 1 camp for Project No. 2 and 22 villages in Project No.3, collection of water charge are still on the process of discussion among people. Collection of water charge

together with transparent management of the facilities is essential to ensure sustainable O&M. Sanitation and environment education for the people would be also effective to enhance people's willingness to pay since it facilitates understanding of people on the benefits from these facilities.

Besides water supply facility, construction works on MCK (facility with toilet/bathing booths and washing places) in Project No.1 was largely delayed compared to the original schedule. Only two (2) MCK have been constructed out of ten (10) planned, due to delay on people to come back to their home village. They have started coming back from September 2005, which was more than 6 months after the project commencement. Exact location of planned facility as well as its standard design was not able to be decided until then. This kind of unique circumstances should have been taken into account from the planning stage in order to realize more efficient cost management on a project implemented in a disaster affected area.