

APPENDIX II DATA AND INFORMATION IN NAMRIA

Appendix II Table-1
Mapping Department
Projects (2006, 2007)

PROJECTS FOR FY 2006			
Program/Activities and Projects (PAPs)	Coverage	Physical Target	Budget w/in the NEP (in thousand pesos)
		2006	
I. Mapping, Geodesy, and Land Resource Management			54,358
A. Topographic Base Mapping		21 map sheets	
1.a.1 Large scale base mapping (1:10,000)	Enhancement	14 map sheets	6,260
	CALABAR 2	5 map sheets	
	Batangas	4 map sheets	
	Manila	5 map sheets	
	Compilation	7 map sheets	
	Talim, Rizal		
1.a.2 Medium scale base mapping in support to geohazard mapping (1:50,000)	Priority areas:	126 map sheets	30,000
	Region 1	6 map sheets	
	Region 2	26 map sheets	
	Region 3	9 map sheets	
	Region 4a	27 map sheets	
	Region 4b	10 map sheets	
	Region 5	30 map sheets	
	Region 8	16 map sheets	
	CAR	2 map sheets	
1.a.3 Small scale mapping (1:250,000)	Priority areas:	2 map sheets	775
	Baybay		
	Surigao		
B. Administrative Mapping			692
1.b.1. Regional mapping	Region 4a	1 regional map	
1.b.2 Provincial mapping	Priority areas:		
	Bulacan		
	Tarlac		
	Nueva Ecija		
	Pampanga		
	Pangasinan		
Southern Leyte			
C. Map Reproduction	Philippines	150 map sheets	5,019
D. Geodetic Network Development			3,702
1.d.1 Horizontal Control	Priority areas:	170 HCPs	
	Aurora	49 HCPs	
	Quezon	121 HCPs	
1.d.2 Vertical Control	Priority areas:		
	Aurora	100 VCPs	
1.d.3 Data Transformation		1 manual	
1.d.4 Development Studies		3 studies	
1.d.5 Establishment of GNIS	Philippines	2 sites	
E. Isogonic Map Production Continuing Activity	Muntinlupa City	1 observatory	1,029
	Nationwide	11 stations	
F. Land Classification	Philippines		3,557
	Priority areas:		
	Aurora	7,410 hectares	
G. Sub Classification	Philippines		661
	Priority areas:		
	Aurora		
	Quezon	249,524 hectares	
H. Production of ENR Atlas	Philippines		2,663
	Priority areas:		

PROJECTS FOR FY 2006			
		Physical Target	
	Aurora		
	Quezon	888,660 hectares	
II. Spatial Data Infrastructure Development			2,948
A. Information System Development & Maintenance	Geodetic Network Information System (GNIS) Component of PRS92 We-based Document Tracking System Tides and Current Data Conversion System	3 systems	
B. Database Management	Aurora and Quezon	1 ENR dataase/metadata 1 manual	
C. Geographic Information Services		2 centers	
2.c.1. Component 1 (ISD)	One-stop-shop Geomatics Training Center	2 centers	
2.c.2. Component 2 (IEC)	2006 Annual Report NAMRIA Newsletter (2) Infomapper Newscoop GIS Link	1 set	
PROJECTS FOR FY 2007			
Program/Activities and Projects (PAPs)	Coverage	Physical Target	Budget w/in the NEP (in thousand pesos)
		2006	
I. Mapping, Geodesy, and Land Resource Management			
A. Topographic Base Mapping			
A.1 Large scale base mapping (1:10,000)	Compilation: Pangasinan	21 map sheets	1,959
	Enhancement CALABAR 2 (10 map sheets) Batangas (4 map sheets)	14 map sheets	771
1.a.1 Aerial Photography	Batangas		3,130
1.a.2 GIS-based aerial photo indexing			200
1.a.3 Aerial Photo Repro/Map Stock			200
1.a.4 Production of large-scale maps of selected cities and municipalities for use in geohazard mapping	Philippines		84,780
	Aerial Photographs	46 high-risk cities and municipalities, approx. 503,000 has.	
	Ortho maps	190 sheets @ 1:10,000/26 sheets	
	Topographic base maps	190 sheets @ 1:10,000/26 sheets	
1.a.5 Medium-scale base mapping in support to geohazard mapping (1:50,000)		200 sheets	50,000
	Region 2	14 sheets	
	Region 4-B	11 sheets	
	Region 5	20 sheets	
	Region 6	4 sheets	
	Region 7	29 sheets	
	Region 8	34 sheets	
	Region 10	16 sheets	
	Region 11	29 sheets	
	Region 12	7 sheets	
B. Medium-scale base mapping in support to geohazard mapping		118 map sheets	30,000
	Region 1	21 map sheets	

PROJECTS FOR FY 2006			
		Physical Target	
	Region 3	2 map sheets	
	Region 4a	8 map sheets	
	Region 4b	10 map sheets	
	Region 6	49 map sheets	
	CAR	25 map sheets	
	NCR	3 map sheets	
C. Administrative Mapping			692
1.c.1 Provincial Mapping	Cartographic Enhancement:	7 provincial maps	
	Cebu		
	Aurora		
	Dinagat Island		
	Color separation for image setting:		
	Batanes		
	Misamis Oriental		
	Quirino		
	Nueva Vizcaya		
D. Map Reproduction	Philippines	150 map sheets	5,019
II. Spatial Data Infrastructure Development			2,948
A. Information System Development & Maintenance	Geodetic Network Information System (GNIS) Component of PRS92 We-based Document Tracking System Tides and Current Data Conversion System	3 systems	1,212
B. Database Management	Aurora and Quezon	1 ENR database/metadata	714
C. Geographic Information Services			1,022
2.c.1. Component 1 (ISD)	One-stop-shop Geomatics Training Center	2 centers	511
2.c.2 Component 2 (IEC)	2006 Annual Report NAMRIA Newsletter (2) Infomapper Newscoop GIS Link	1 set	511

Source: Planning Division, Mapping Department, NAMRIA

**Appendix II Table-2
Position Description**

Division Name	Position Name	New position name (if any)	Ratio	Responsibility
Reprography & Printing Division	Photo lithographic Tech I		25%	Cuts metal plate to press sizes, clean surface of plate with desensitizing chemicals;
			20%	Coats plate with light sensitive chemicals, expose; develop and make ready for offset printing;
			15%	Mixes lithographic working solutions;
			15%	Retouches imperfection on figures and line on plate;
			10%	Assists in printing of blue and white prints;
			10%	Maintain lithographic equipment
Reprography & Printing Division	Photographic Technician II		25%	Cuts metal plate to press sizes, clean surface of plate with desensitizing chemicals;
			10%	Inspect reproductibles for imperfection before point down;
			20%	Coats plates with light sensitive chemicals, expose, develop and make ready for offset printing;
			15%	Mixes lithographic working solutions;
			20%	Retouches imperfection on figures and line on plates;
			10%	Hand Correct lithographic plates;
Reprography & Printing Division	Printing Machine Operator II		15%	Installs plate on plate cylinder and prepare same for operation;
			15%	Checks load in feeder and makes preliminary setting;
			10%	Adjusts dumping system;
			10%	Studies plate for registrations, color, non-printing areas on faults and dents;
			10%	Makes correction for registration and proper fountain solution distribution;
			10%	Makes final registration adjustments;
			10%	Mixes ink to produce desired color of varied color jobs;
			10%	Operates machine, gives instructions to Press Operator I;
			5%	Submits daily time and work performance report to supervisor
			5%	Does such other duties as maybe assigned by Chef of Division
Reprography & Printing Division	Printing Machine Operator III		20%	Studies assignments, inspects lithography plates for imperfections and gives instructions on methods and procedures to be followed;
				Supervises adjustments and presetting of dampening and ink rollers. Check blanket and plate cylinder clearances before printing a proof copy.
			15%	Checks samples of reproduced copies and submits them to the Supervising Offset Press Operator for approval.
			15%	Checks conditions of press before and after operation to detect malfunctioning of parts.
			15%	Supervises the mixing of ink and checks final color;
			10%	Reports to supervisor out-of-order presses and materials needed;
			5%	Operates machine to perform most difficult printing job works;
			5%	Submits time and work performance report to supervisor.
Reprography & Printing Division	Printing Machine Operator IV		25%	Supervises work of mechanics and offset press operators in operation and maintenance of machinery and accessories;
			25%	Recommends to the Chief of Division processes or technical changes which may improve operation of the presses;
			20%	Supervises press operation for quality production;
			10%	Prepares and submits report regarding the activities of the personnel directly under him;
			10%	Enforces discipline among subordinates and recommends proper action to superiors; and
			10%	Rates efficiency of personnel under his direct.
Reprography & Printing Division	Litho Photoengraving Cameraman I	Photographer II	30%	Helps in the photographic reproduction of charts, maps and official publications.
			20%	Helps in developing and fixing photographic films.
			20%	Takes pictures of employees and other official pictures.
			10%	Cleans and oils photographic equipments
			10%	Helps in the preparation of photographic solutions in processing photographic films.
			10%	Keeps record of incoming and outgoing work orders and report and accomplished to supervisor.

Division Name	Position Name	New position name (if any)	Ratio	Responsibility
Reprography & Printing Division	Litho Photoengraving Cameraman II	Photographer III	50%	Under general supervision, develops and processes either wet or dry negatives or regular line work, half tone, color half tone in straight process or double-tone, intensity or reduce color negatives.
			20%	Mix photographic solutions for wet and dry processing
			10%	Make settings and adjustment on the camera.
			10%	make duplicate copies of negatives and positives by contact printing, and
			10%	Deliver finished jobs, negatives, positives or photo prints to the supervisor.
Reprography & Printing Division	Senior Phototype Operator	Photographer III	50%	Operates phototype machine to print type style and sizes as required.
			20%	Make print of types on with or stripping film or on resin coated paper.
			10%	Receives type orders and study specific requirement.
			10%	Coordinate with other units regarding their type needs.
			10%	Store or keep file of all type order characters for future reference.
Reprography & Printing Division	Offset Camera Technician	Photographer III	30%	Assist in all photographic processes which involves enlarging or reducing the size of a chart, map or any manuscript;
			30%	Operate a contact printer to produce duplicate copies of dof negatives or positives of a chart or maps or manuscript.
			30%	Operate an automatic film processor in processing exposed films from the camera or contact printer.
			5%	Prepare photographic chemicals appropriate to a certain type of photographic emulsion.
			5%	Maintain good housekeeping in the darkroom and equipment.
Reprography & Printing Division	Photographic Color Processor	Photographer III	40%	Produce enlarged or reduced reproducible or photographs as may be required
			30%	Produce small-size copies of reproducible and photographs by contact process
			10%	Inspect and evaluate photographability of manuscripts.
			10%	Prepare processing chemicals as may be appropriate for each type of photographic material;
			5%	Inspect produced reproducible or photographs for flaws, imperfections, density of images and for dimensional requirements;
			5%	Maintain good housekeeping and maintenance of equipment.
Reprography & Printing Division	Senior Offset Camera Technician	Photographer IV	30%	Operate process camera in the photographic reproduction of nautical charts, maps, thematic maps, etc.
			30%	Produce reduced same size or enlarge photo reproduction of maps, charts, etc. to specified dimension, densities and materials;
			15%	Print duplicate copies of reproducible as may be required.
			10%	Execute preventive maintenance of process camera to minimize breakdown;
			10%	Produce color separation negatives/positives;
			5%	Charge in the specification of all photographic materials for procurement.
Reprography & Printing Division	Supervising Photolithographic Technician	Photographer IV	25%	Assist in the supervision of personnel in the Reprography Section.
			20%	Check negatives produced by Camera Section as to sharpness of lines and clearness of details.
			20%	Give instructions on work methods and procedures relative to work assigned.
			15%	Prepare work order for type impressions for correction of charts and maps;
			15%	Review completed work for quality, workmanship and compliance to specifications of work orders.
			5%	Submit periodic reports.
Reprography & Printing Division	Printing Control Supervisor	Printing Quality Control Officer II	25%	Supervise the execution of functions and activities of the Printing Section
			25%	Give instructions on the most economical and productive use of printing supplies and materials.
			20%	Charge with the scheduling of printing orders and priorities for the optimum utilization of equipment;
			15%	Control and set standards in the purpose of materials and supplies and
			15%	Coordinates with other unites regarding their reproduction works requirement;
Reprography & Printing Division	Photographic Color Processor		40%	Produce enlarged or reduced reproducible or photographs as may be required.

Division Name	Position Name	New position name (if any)	Ratio	Responsibility
			30%	Produce same-size copies of reproducible and photographs by contact process.
			10%	Inspect and evaluate photographability of manuscripts, compilations, photographs, etc., for photographic reproduction.
			10%	Prepare processing chemicals as may be appropriate for each type of photographic materials;
			5%	Inspect produced reproducible or photographs for flaws, imperfections, density of images and for dimensional requirements.
			5%	Maintain good housekeeping and maintenance of equipment.
Reprography & Printing Division	Sr. Photo Lithographic Layout Man	Photographic Color Processor III	30%	Applies corrections on charts, map reproducible from correction proofs prepared by Chart and Map Production Division.
			20%	Checks reproducible produced by the Photography Section, as to sharpness of lines, and clearness of details before turning over to other retouchers for minor retouching of weak lines, details and pinholes.
			15%	Prepares work order for type impressions necessary for compilation/corrections of charts and maps, forms, certificates and other office publications.
			20%	Prepares color separation negatives by strip mask or by opaqueing.
			10%	Prepare manuscripts for photography work and makes final lay-out of forms and other publications and also prepares dummies for same in correct page sequence.
			5%	Assists Chief Section in supervising other retouchers in the performance of delicate assignments.
Reprography & Printing Division	Offset Press Supervisor	Printing Press Supervisor	25%	Plans, directs and supervises the working the Reprography Section.
			20%	Responsible for layouting, stripping, color separation and blue and white printing.
			20%	Review incoming work orders and give special instructions required for the performance of the work.
			15%	Institute training programme for personnel.
			15%	Make studies on reprographic techniques and recommend work procedures for the efficient performance of the unit.
			5%	Submit periodic reports
Reprography & Printing Division	Printing Quality Control Officer II		25%	Supervise the execution of functions and activities of the Printing Section;
			25%	Give instructions on the most economical and productive use of printing supplies and materials.
			20%	Charge with the scheduling of printing orders and priorities for the optimum utilization of equipment.
			15%	Control and set standards in the purchase of materials and supplies.
			15%	Coordinates with other units regarding their reproduction works requirement.
Reprography & Printing Division	Chief Production Planning and Control	Production Planning & Control Officer IV	25%	Assists the Chief of Division in supervising all reproduction work, including photographic processing, production of color separation reproducible, plate making and printing.
			25%	Coordinates the reprography and printing work of the different sections/units of the division.
			20%	Sets up quality control system to ensure that production work are within standards.
			10%	Review production flow and recommend/effect changes which would result in the effective and efficient performance of the division.
			10%	Supervises the preventive maintenance of all equipments/machineries in the division to minimize down time.
			10%	Plans the work schedules for maximum performance and utilization of equipments.
Reprography & Printing Division	Production Planning and Control Officer IV		25%	Assists the Chief of Division in supervising all reproduction work, including photographic processing, production of color separation reproducible, plate making and printing.
			25%	Coordinates the reprography and printing work of the different sections/units of the division.
			20%	Sets up quality control system to ensure that production work are within standards.
			10%	Review production flow and recommend/effect changes which would result in the effective and efficient performance of the division.
			10%	Supervises the preventive maintenance of all equipments/machineries in the division to minimize down time.
			10%	Plans the work schedules for maximum performance and utilization of equipments.
			10%	

Division Name	Position Name	New position name (if any)	Ratio	Responsibility
Reprography & Printing Division	Engineer V		25%	Plans, directs and supervise the functions and activities of the division.
			20%	Supervise all reproduction work, including photographic processing products of color separation reproducible; plate making and printing.
			15%	Coordinate with other units of the agency regarding their reproduction work requirements.
			10%	Review existing work methodology and instrumentation with the purpose of updating technology for the efficient performance of the division.
			10%	Plans the most economical and reproductive operation of the divisions and establish policies to effectuate such plans.
			10%	Supervise the specialized photographic reproduction of multi-colored topographic, thematic maps and nautical charts.
			10%	Plans work schedules for the optimum utilization of equipment.
Cartography Division	Chef Cartographic Engineer	Engineer V	25%	Plan, directs and supervise the functions and activities of the division.
			20%	Supervise all reproduction work, including photographic processing products of color separation reproducible; plate making and printing.
			15%	Coordinate with other units of the agency regarding their reproduction work requirements.
			10%	Review existing work methodology and instrumentation with the purpose of updating technology for the efficient performance of the division.
			10%	Plans the most economical and reproductive operation of the divisions and establish policies to effectuate such plans.
			10%	Supervise the specialized photographic reproduction of multi-colored topographic, thematic maps and nautical charts.
			10%	Plans work schedules for the optimum utilization of equipment.
Reprography & Printing Division	Offset Press Supervisor	Printing Press Supervisor	25%	Plans, directs and supervises the working the Reprography Section.
			20%	Responsible for layouting, stripping, color separation and blue and white printing.
			20%	Review incoming work orders and give special instructions required for the performance of the work.
			15%	Institute training programme for personnel
			15%	Make studies on reprographic techniques and recommend work procedures for the efficient performance of the unit.
			5%	Submit periodic reports.
Photogrammetry Division	Junior Photogrammetric Engineer		60%	Renders photogrammetric work in the production of orthophoto and conventional line maps and managing of computer programs.
			40%	Performs preparatory work for aerial triangulation.
Photogrammetry Division	Photogrammetric Engineer		45%	Executes aerial triangulation in photogrammetric instruments
			45%	Undertakes the production of orthophoto maps and conventional line maps in photogrammetric instruments.
			10%	Checks and maintains photogrammetric equipment.
Photogrammetry Division	Senior Photogrammetric Engineer		30%	Prepare and execute aerial triangulation and adjustments
			20%	Undertake the production and recording of digital terrain model data for orthophoto mapping projects.
			20%	Undertake the production of orthophoto negative and/or compilation of line maps.
			20%	Responsible for the proper care and maintenance of photogrammetric instruments assigned.
			10%	Performs such other duties as may be assigned.
Photogrammetry Division	Engineer IV	Supervising Photogrammetric Engineer	30%	Assists in the planning and execution of all photogrammetric works to which his section is concerned, i.e. a) aerial triangulation, b) orthophoto and photo mosaic production, c) line map production
			15%	Provides suitable training program for the advancement of subordinates.
			10%	Undertake periodic inspection of the photogrammetric instruments to ensure that standard policy on care and maintenance of the instruments are followed by operations.
			10%	Plans and prepares daily workloads of his section and assignments of subordinates.
			10%	Assist in the function and enforcement of standards and specifications in photogrammetric work.
			10%	Assists in the formulation and conduct of research programs to improve work operations.
			10%	Supervise production of orthophoto maps and conventional line maps in photogrammetric instrument;
			10%	

Division Name	Position Name	New position name (if any)	Ratio	Responsibility
			5%	Performs such other duties that may be assigned.
Photogrammetry Division	Chief Photogrammetric Division	Engineer V	15%	Exercise general supervision in the photogrammetry division.
			10%	Responsible for the implementation of standard operating procedures, directives and orders issued by higher authorities.
			10%	Formulate technical advice on staff training requirements, equipments, performance and maintenance and advancement of division personnel.
			10%	Evaluate production procedures and specifications and propose better alternatives.
			10%	Submit periodic reports and proposals.
			10%	Represent the division in all staff meetings.
			10%	Prepares feasibility studies on special projects and work contracts, Memoranda of Agreement as may be required.
			10%	Supervise the production of Orthophoto maps and conventional line maps in photogrammetric instrument.
			10%	Check accuracy of results in Aerial triangulation adjustments.
			5%	Perform such other duties as may be assigned.
Photogrammetry Division	Photogrammetric Laboratory Technician	Laboratory Technician II	70%	Operates all photographic laboratory equipment processes films and produce photo prints;
			15%	Responsible for the maintenance of the photographic laboratory equipment.
			15%	Do the photographic works as maybe required.
Cartography Division	Cartographic aide II		25%	Performs routine jobs like lettering, sketching and tracing.
			25%	Makes enlargements or reductions of source materials by use of pantograph.
			25%	Maintains records of incoming and outgoing survey sheets in the Section.
			20%	Maintains and keeps in order map files in the Section.
			5%	Performs other duties as maybe assigned to him from time to time.
Cartography Division	Cartographer I		25%	Compiles and prepares working drawing for topographic and thematic maps.
			25%	Inks map manuscripts on mylar, herculene or other base materials.
			25%	Scribes and prepares open window negative of topographic and thematic maps for color separations;
			10%	Prepares orders for type impressions needed in map constructions.
			5%	Applies corrections on positive map reproducibles;
			5%	Prepares layout and marginal information of topographic and thematic maps;
			5%	Performs other duties as maybe assigned to him from time to time.
Cartography Division	Cartographer II		25%	Under general supervision, instruction and assigns work to a group of cartographers coordinating collective functions with other group.
			25%	Reviews their individual work clearly for validity and accuracy of the technical details involved.
			15%	Participates in their regular work of the group.
			10%	Inks, plans topographic sheets, charts and plan, translating surveys data into scaled charts and plans or verifying the technical details of the job prior to final tracing work to be done on them.
			10%	Receives assignment, work schedule and general instructions from a supervising cartographer and reports to him periodically the accomplishment of the working group.
			10%	Devises better cartographic symbols for better and economical methods of presentation of geodetic, topographic data on maps.
			5%	Performs other duties that may be assigned to her.
			5%	Under general supervision, guide and instructs lower level cartographers in the compilation and construction of topographic and thematic maps and other related publications.
Cartography Division	Supervising Cartographer	Cartographer III	25%	Makes a general review of finished compilations before submission to higher supervisors.
			15%	Devises better cartographic symbols or better methods of presentation of details on topographic and thematic maps.
			15%	Prepares map layout and design including marginal information.
			10%	Inks, scribes and prepares open window negatives of topographic and thematic maps for color separation.
			5%	Prepares correction proofs and names standards for topographic and thematic maps.
			5%	Performs other duties as maybe assigned to him from time to time.

Division Name	Position Name	New position name (if any)	Ratio	Responsibility
Cartography Division	Head Cartographer	Cartographer IV	25%	Assists in the planning and programming of work assignments, schedules and work loads among the personnel in the Section.
			25%	Prepares and designs layout and marginal information for topographic and thematic maps.
			25%	Gathers and compiles data needed and participate in the construction of topographic and thematic maps.
			10%	Computes projection data and constructs projects lines used in different types of maps.
			10%	Prepares correction proofs and name standards for maps.
			5%	Performs other duties as maybe assigned from time to time.
Cartography Division	Cartographic Engineer	Engineer II	25%	Assists in planning and programming of work assignments, schedules and work loads among the personnel in the Section.
			25%	Gathers and compiles data and statistics needed in the design and constrictions of topographic and thematic maps and other related publications.
			15%	Performs computations in the design of maps and analyzes and submits solutions to simple technical problems.
			10%	Engages in layouting, plotting and construction of maps and submits periodic reports of accomplishments to Immediate Supervisor.
			10%	Participates in directed researches and investigations along definite lines of study concerning proposed cartographic engineering projects.
			10%	Prepares correction proofs and names standards for topographic and thematic maps.
			5%	Performs other duties as maybe assigned to him from time to time.
Cartography Division	Senior Cartographic Engineer	Engineer III	40%	Supervises the compilation, studies, evaluation and translation of survey data prior to the construction of topographic and thematic maps in accordance with established procedures standards and specifications.
			20%	Receives work assignments, schedules and accepts general instructions from the Supervising Cartographic Engineer and submits to him periodically on the accomplishment of the group.
			10%	Coordinates with other sections/units on the production of topographic maps, thematic maps and other related publications.
			10%	Prepares and designs map layout and marginal information.
			10%	Participates in directed researches and investigations along definite lines of study concerning proposed cartographic engineering projects.
			5%	Studies and devises new work procedures and methods for application in the units.
			5%	Performs other duties a s may be assigned to him from time to time.
Cartography Division	Supervising Cartographic Engineer	Engineer IV	25%	Under general direction, supervises and implements the technical and administrative functions of the section engaged in specialized cartographic engineering work.
			25%	Guides, instructs and directs cartographers in plotting topographic field data and assumes responsibility for the accuracy and correctness of the same.
			15%	Analyzes and reviews technical reports regarding plotting an delineating topographic features and prepares memoranda on the same for the Chief of the Division.
			10%	Plans, work schedules and directs implementations of the various tasks assigned to the Section.
			10%	Initiates the production and revision of topographic thematic maps and other related publications.
			10%	Conducts researches, studies and investigations on the feasibility of proposed cartographic engineering projects and renders decisions on minor problems affecting the unit.
			5%	Studies and devises new work procedures and methods for application in the unit.
			5%	Performs other duties as maybe assigned to him from time to time.
Reprography and Printing Division		Engineer V	25%	Plans, directs and supervise the functions and activities of the division.
			20%	Supervise all reproduction work, including photographic processing products of color separation reproducibles, plate making and printing and printing.
			15%	Coordinate with other units of the agency regarding their reproduction work requirements.
			10%	Review existing work methodology and instrumentation with the purpose of updating technology for the efficient performance of the division.
			10%	Plans the most economical and reproductive operation of the divisions and establish policies to effectuate such plans.

Division Name	Position Name	New position name (if any)	Ratio	Responsibility
			10%	Supervise the specialized photographic reproduction of multi-colored topographic, thematic maps and nautical charts.
			10%	Plans work schedules for the optimum utilization of equipment.
		Secretary I	60%	Supervises the typing of correspondence, records and other relevant documents and paper or stencil;
			20%	Supervises filling out of form letters and routine endorsements;
			10%	Supervises sorting and recording of incoming and outgoing correspondence and other documents;
			10%	Supervises the maintenance and indexing of correspondence, records and other documents.
		Administrative Assistant II	50%	Supervises and participates in the work of a clerical staff performing tasks of varied levels of activity in providing administrative services;
			15%	Carries out administrative policies and decides on routine matters;
			15%	Assigns work to clerical pool and reviews report, forms and records prepared by circulars;
			10%	Prepares memoranda and circulars;
			10%	Performs other duties as may be assigned from time to time and act on routine/.delegated matters in the absence of the immediate officer.

Source: Personnel Management Section, NAMRIA

Appendix II Table-3
GIS Database

Digitization of Contours, Roads, Rivers, Spot Heights and Coast line.					
Sheet No	Map Title	Province	Region	Status	Remarks
3547 I	Nagbalaye	Negros Oriental	Region 8	completed	All Layers Completed
3547 II	Siaton	Negros Oriental	Region 7	completed	All Layers Completed
3847 III	Zamboanguita	Negros Oriental	Region 7	completed	All Layers Completed
3647 IV	Dumaguete	Negros Oriental	Region 7	completed	All Layers Completed
3848 III	Ayuquitan	Cebu	Region 7	completed	All Layers Completed
3758 I	Castilla	Sorsogon	Region 5	completed	All Layers Completed
3659 III	Prieto Diaz	Sorsogon	Region 5	completed	All Layers Completed
3858 IV	Gubat	Sorsogon	Region 5	completed	All Layers Completed
3952 I	Burauen	Leyte	Region 8	completed	All Layers Completed
3952 II	Baybay	Leyte	Region 8	completed	All Layers Completed
3952 IV	Albuera	Leyte	Region 8	completed	All Layers Completed
3953 I	Tacloban	Leyte	Region 8	completed	All Layers Completed
3953 II	Palo	Leyte	Region 8	completed	All Layers Completed
3953 III	Ormoc	Leyte	Region 8	completed	All Layers Completed
3953 IV	Carigara	Leyte	Region 8	completed	All Layers Completed
4040 I	Sirawan	.	Region 11	completed	All Layers Completed
4040 IV	Malasila		Region 11	completed	All Layers Completed
4041 II	Tugbok		Region 11	completed	All Layers Completed
3068 III	Lingayen	Dagupan	Region 1	completed	All Layers Completed
3169 III	Baguio	Baguio	CAR	completed	All Layers Completed
3340 I	Zamboanga City		Region 8	completed	All Layers Completed
3440 IV	Mercedes		Region 9	completed	All Layers Completed
3552 I	Barotac Nuevo	Iloilo	Region 6	completed	All Layers Completed
3552 II	Dumangas	Iloilo	Region 6	completed	All Layers Completed
3552 III	Iloilo	Iloilo	Region 6	completed	All Layers Completed
3552 IV	Potatan	Iloilo	Region 6	completed	All Layers Completed
3848 I	Oslob	Cebu	Region 7	completed	All Layers Completed

3648 IV	Tanjay	Cebu	Region 7	completed	All Layers Completed
3649 I	Argao	Cebu	Region 7	completed	All Layers Completed
3649 II	Dalaguete	Cebu	Region 7	completed	All Layers Completed
3849 III	Manjuyod	Cebu	Region 7	completed	All Layers Completed
3849 IV	Tayasan	Cebu	Region 7	completed	All Layers Completed
3850 I	Pinamungahan	Cebu	Region 7	completed	All Layers Completed
3850 II	Dumanjog	Cebu	Region 7	completed	All Layers Completed
3651 IV	Murcia	Negros Occidental	Region 6	completed	All Layers Completed
3852 III	Bacolod		Region 6	completed	All Layers Completed
3852 IV	Victorias		Region 6	completed	All Layers Completed
3660 I	Mt Isarog	Naga City	Region 5	completed	All Layers Completed
3660 IV	Naga City	Naga City	Region 5	completed	All LAYERS Completed
3661 II	Tinambac	Naga City	Region 5	completed	All Layers Completed
3661 III	Libmanan	Naga City	Region 5	completed	All Layers Completed
3750 I	Cebu City	Cebu	Region 7	completed	All Layers Completed
3750 III	Carcar	Cebu	Region 7	completed	All Layers Completed
3750 IV	Pardo	Cebu	Region 7	completed	All Layers Completed
3751 I	Balamban	Cebu	Region 7	completed	All Layers Completed
3751 II	Buanoy	Cebu	Region 7	completed	All Layers Completed
3751 III	San Carlos	Cebu	Region 7	completed	All Layers Completed
3752 I	Maravilla	Cebu	Region 7	completed	All Layers Completed
3732 II	Tuburan	Cebu	Region 7	completed	All Layers Completed
3753 I	Madridejos	Cebu	Region 7	completed	All Layers Completed
3753 II	Sta. Fe	Cebu	Region 7	completed	All Layers Completed
3759 I	Bacacay	Legaspi	Region 5	completed	All LAYERS Completed
3759 II	Manito	Albay	Region 5	completed	All Layers Completed
3759 III	Legaspi City	Legaspi	Region 5	completed	All Layers Completed
3845 I	Alubijid		Region 10	completed	All Layers Completed
3822 II	Tudela	Cebu	Region 7	completed	All Layers Completed
3851 III	Liloan	Cebu	Region 7	completed	All Layers Completed

3851 IV	Danao	Cebu	Region 7	completed	All Layers Completed
3852 III	Catmon	Cebu	Region 7	completed	All Layers Completed
3652 IV	Tabogon	Cebu	Region 7	completed	All Layers Completed
3853 III	Bogo	Cebu	Region 7	completed	All Layers Completed
3853 IV	Daanbantayan	Cebu	Region 7	completed	All Layers Completed
3854 III	Guintacan Island	Cebu	Region 7	completed	All Layers Completed
3952 III	Pilar	Cebu	Region 7	completed	All Layers Completed
4041 III	Kidapawan	North Cotabato	Region 12	completed	All Layers Completed
4140 IV	Kaputian		Region 11	completed	All Layers Completed
4141 III	Davao		Region 11	completed	All Layers Completed
4141 IV	Bunawan		Region 11	completed	All Layers Completed
6973 I	Palaul		Region 3	completed	All Layers Completed
6974 I	Sta. Cruz		Region 3	on-going	Road, River
6974 II	Masinloc		Region 3	on-going	Road, River
7071 I	Marivelea	Bataan	Region 3	on-going	Road River
7072 I	Olongapo	Zambales	Region 3	completed	All Layers Completed
7072 II	Bagac	Pampanga	Region 3	on-going	Road
7072 IV	San Antonio		Region 3	on-going	Road
7073 I	O'donnelte		Region 3	completed	All Layers Completed
7073 II	Mt Pinalubo		Region 3	on-going	Road
7073 III	San Narciso		Region 3	on-going	Road
7074 I	San Carlos		Region 3	on-going	Road, River
7074 II	Camiling	Tarlac	Region 3	on-going	Road
7074 III	Mt Lamat		Region 3	on-going	Road, River
7074 IV	Bugallon		Region 3	on-going	Road, River
7075 II	Dagupan City		Region 1	completed	All Layers Completed
7171 IV	Corregidor Island	Cavite	Region 3	on-going	Road
7172 I	Malolos	Bulacan	Region 3	on-going	Road
7172 II	Manila	Metro Manila	NCR	on-going	Road
7172 III	Orion	Bataan	Region 3	on-going	Road
7172 IV	Guagua	Pampanga	Region 3	on-going	Road, River
7173 I	Cabanatuan	Nueva Ecija	Region 3	on-going	Road
7173 II	San Miguel	Bulacan	Region 3	on-going	Road, River
7173 III	Angeles	Pampanga	Region 3	on-going	Road, River
7173 IV	Tarlac	Tarlac	Region 3	on-going	Road
7174 I	San Jose		Region 3	on-going	Road, River
7174 II	Mutos		Region 3	completed	All Layers Completed
7174 III	Gerona		Region 3	on-going	Road
7174 IV	Cuyapo		Region 3	on-going	Road, River
7175 II	San Nicolas		Region 3	on-going	Road
7272 I	Mt Irid		Region 3	on-going	Road
7272 IV	Angat	Bulacan	Region 3	on-going	Road, River
7273 I	Gabalton		Region 3	on-going	Road
7273 II	Ulalikan Point		Region 3	on-going	Road, River

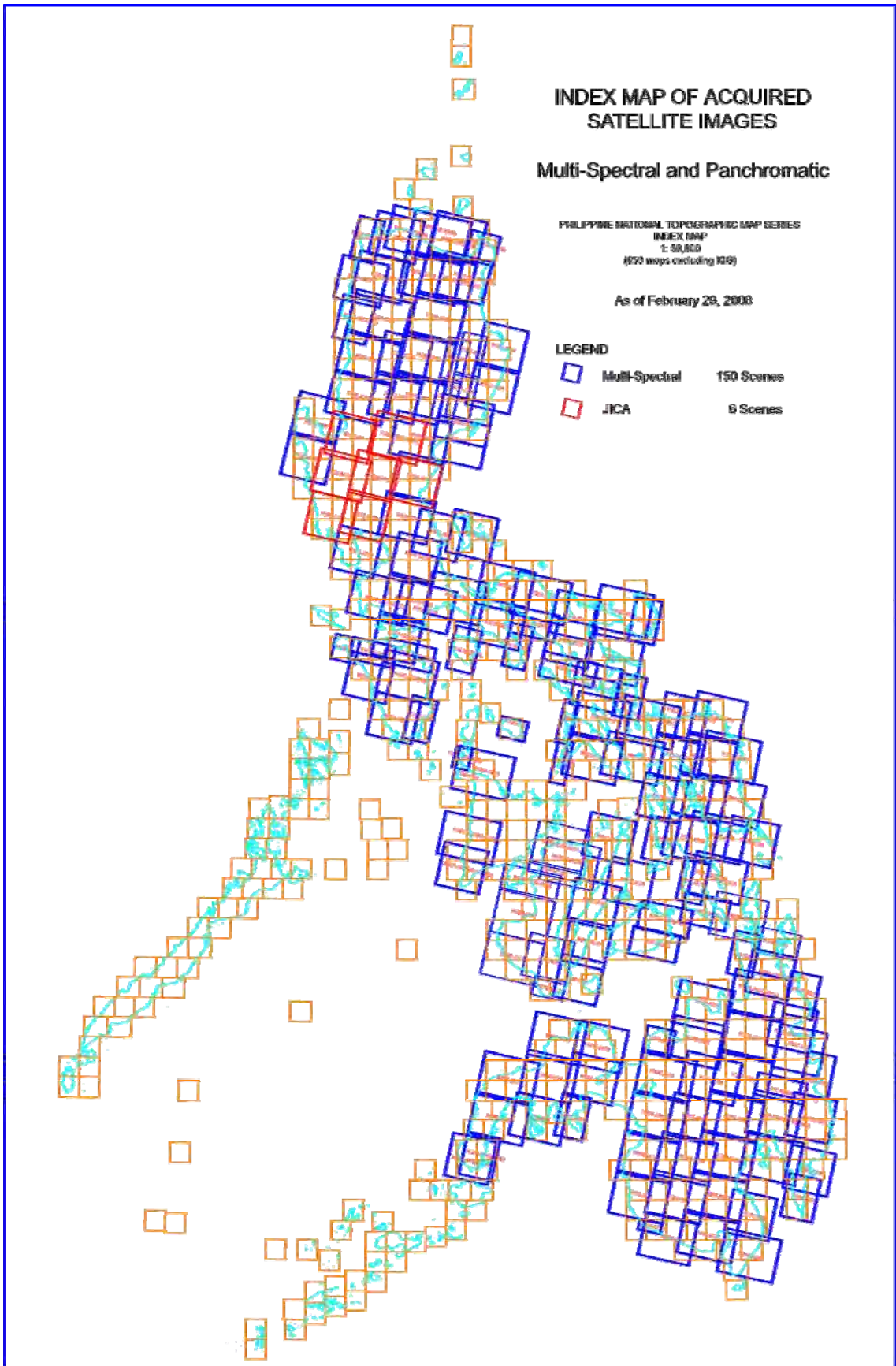
7273 III	Sibul Island		Region 3	on-going	Road, River
7273 IV	General Tinio		Region 3	on-going	Road, River
7274 I	Maria Aurora	Aurora	Region 3	on-going	Road
7274 II	Ligaya		Region 3	on-going	Road
7274 III	Palayan City		Region 3	on-going	Road, River
7274 IV	Pantabangan		Region 3	on-going	Road, River
7275 III	Burgos		Region 3	on-going	Road
7374 III	San Luis		Region 3	on-going	Road, River
7374 IV	Baler	Aurora	Region 3	on-going	Road, River
7375 I	Virgoneza		Region 3	on-going	Road
7375 II	Dinalongan		Region 3	completed	All Layers Completed
7375 III	Nagtipunan		Region 3	on-going	Road
7475 III	Calabgan		Region 3	on-going	Road
7476 III	Mt. Dos Hermanos		Region 3	on-going	Road, River
3548 I	Bais Sugar Central		Region 7	on-going	
3548 II	Basang		Region 7	completed	
3548 III	Bayawan		Region 7	completed	All Layers Completed
3548 IV	Bagotbotan		Region 7	on-going	
3549 I	Negros Occidental Agricultural School		Region	on-going	
3549 II	Bagtic			on-going	
3650 III	Guihulngan			on-going	
3651 II	Vallehermosa		Region 7	on-going	
3651 111	La Carlota		Region 7	completed	All Layers Completed
3749 II	Balilihan		Region 7	on-going	
3750 II	Inabanga		Region 7	completed	All Layers Completed
3759 IV	Ligao	Legaspi	Region 5	completed	All Layers Completed
3845 II	Manticao		Region 10	completed	All Layers Completed
3849 I	Batuanan		Region 7	completed	All Layers Completed
3849 II	Anda		Region 7	completed	All Layers Completed
3849 IV	Cambangay Sur		Region 7	completed	All Layers Completed
3850 III	Talibon		Region 7	on-going	
3850 IV	Mahanay Island		Region 7	completed	All Layers Completed
3945 I	Claveria		Region 10	on-going	
3945 II	Tankulan		Region 10	on-going	
3945 III	Cagayan de Oro	Misamis Oriental	Region 10	completed	All Layers Completed
3945 IV	EI Salvador	Misamis Oriental	Region 10	completed	All Layers Completed
4038 II	Lun Grande			completed	All Layers Completed
4038 III	Dadiangas			completed	All Layers Completed
7073 V	Botolan		Region 3	completed	All Layers Completed

Appendix II Table-4
 Prescribed Rates for
 NAMRIA Services

SERVICES	PRICE
Production of Aerial Photographs	
Paper print 10" x 10"	250.00
2x Enlargement 22" x 22"	1,800.00
3x Enlargement 32" x 32"	2,400.00
4x Enlargement 42" x 42"	3,200.00
Diapositive Print 10" x 10"	550.00
Production of SAR Mosaic	
Scale 1:100,000 25" x 29"	2,000.00
Scale 1:50,000 37" x 37"	3,800.00
Production of SAR Strip	
Scale 1:100,000 10" x 42"	800.00
Scale 1:50,000 17" x 42"	1,700.00
Certification of Nautical Distance	
First 25 nautical miles	180.00
Every succeeding Nm	25.00
Processed tidal hourly heights, monthly per station	240.00
Processed mean hourly tidal current Velocity including current ellipse, per station	720.00
Processed times and heights of high and low waters including lunitidal interval heights, per station, per month	240.00
Monthly and Annual mean sea level and other tidal datum planes per tide station	240.00
Tide Reducers per station, per month	240.00
Highest and lowest tide observed per tide station	120.00
Tidal extremes, per tide, station, per year	300.00
Certification of tidal benchmarks per tide station	120.00
Certification of geodetic station data, per station	360.00
Processed serial casts data (CTD, BT/XBT, dissolved oxygen, phosphate, nitrate, silica, pH, sound velocity, etc., per inshore/ offshore oceanographic station	
A combination of 3 parameters or less	360.00
A combination of 4 to 6 parameters	540.00
A combination of 6 or more parameters	720.00
Processed serial cast oceanographic CTD, BT/XBT data (sound velocity dissolved oxygen, phosphate, nitrate temperature, salinity, conductivity)/ month/Tide station observation	
A combination of 3 parameters or less	200.00
A combination of 4 to 6 parameters	300.00
A combination of 6 or more parameters	450.00
GPS Raw Data, per day observation, per station	660.00
Baseline processing of GPS data	
Single frequency receive (L1)per station	360.00
Dual frequency receiver (L1/L2)per	480.00
GPS survey network adjustment	
Single frequency receive (L1)per station	480.00
Single frequency receive (L1)per station	600.00
Evaluation of GPS survey data	
Single frequency receive (L1)per station	1,200 .00
Dual frequency receiver (L1/L2)per	1,440.00
Certification of Trimble GPS receivers	
Per receiver:	

With CGSD providing operator	3,600.00
Client performing the observations	1,800.00
Raw magnetic observation data, per day	
Processed magnetic observation data, per day	4,200.00
Gravity Station Data, per station	2,400.00
Authentication Land Classification, per map/document	360.00
Printing of Satellite Raw data A0 size	440.00
Photo laboratory – Slide to print	300.00
3R (31/2" x 5")	25.00
5R (5" x 7")	3,000.00
8R (8" x 10")	405.00
11R (11" x 14")	817.00
16" x 20"	1,762.00
20" x 24"	2,542.00
Policy and Procedures on Evaluation & Certification	
Application Fee	500.00
Evaluation & Processing Fee per sq.cm.	0.20
Light Detail	1,000.00
Medium Detail	2,000.00
Heavy Detail	4,000.00
Certification Fee	200.00
Final Review	150.00
Administrative Maps	
National Maps	
Map 25	85.00
Map 104 (B&W)	85.00
Map 150	300.00
Map 200 (B&W)	120.00
Map 201	120.00
Regional Maps	195.00
Other Regions	195.00
Region IV (4 sheets)	195.00
Provincial Maps	195.00
Topographic Maps	120.00
Land Cover Maps	120.00
Metro Manila Maps	120.00
Land Use Maps	120.00
Land Condition Maps	120.00
Planimetric Maps	120.00
Nautical Charts	
Black and White	350.00
Colored	400.00
Land Classification Maps	PHP180 for the first 8sq.ft, plus, Php30 per sq.ft, of map sheet of fraction thereof.
JAFTA Maps	100.00
Preliminary Map Data (PMD)	50.00
Communal Forest (CnF)	50.00
Predicted Tide and Current Table	400.00
Philippine Coast Pilot Book	3,000.00
Topographic Maps (digital)	
Scale 1:5,000 per sheet	9,000.00
Scale 1:10,000 per sheet	9,000.00
Scale 1:50,000 per sheet	6,000.00
Scale 1:250,000 per sheet	6,000.00
Thematic Maps (Scale 1:50,000) 15'x15'	
Land Cover	1,100.00

Slope	1,100.00
Soil/Geologic	1,100.00
Road Network	1,100.00
River Network	1,100.00
Administrative Boundary	1,100.00
LC Points (Corners)	1,100.00
Land Use/Forest Cover – JAFTA	3,000.00
Nautical Charts	6,000.00
Inset (less than 50% of sheet coverage)	3,600.00
Hydrographic Sheet	
Single Beam	9,000.00
Multi Beam (100% Floor Coverage)	12,000.00
Hard copy (old data)	1,200.00
Hard copy (new data)	2,500.00
Rectified and enhanced satellite image, 15'x15'	
Using Landsat 7 data	
Foreign Distributor	4,860.00
Local Distributor	6,750.00
Using Landsat TM data	
Foreign Distributor	16,100.00
Local Distributor	22,400.00
Using Landsat SPOT XS data	
Local Distributor	28,500.00
Land Cover Map w/o field verification, 15'x15'	
Using Landsat 7 data	
Foreign Distributor	8,360.00
Local Distributor	10,250.00
Using Landsat 7 data	
Foreign Distributor	21,600.00
Local Distributor	25,900.00
Using Landsat SPOT XS data	
Local Distributor	32,000.00
Land Cover Map w/ field verification, 15'x15'	
Using Landsat 7 data	
Foreign Distributor	
Luzon	27,000.00
Visayas	38,400.00
Mindanao	43,240.00
Local Distributor	
Luzon	28,900.00
Visayas	40,300.00
Mindanao	45,100.00
Using Landsat TM data	
Foreign Distributor	
Luzon	40,250.00
Visayas	51,650.00
Mindanao	56,450.00
Local Distributor	
Luzon	44,540.00
Visayas	55,940.00
Mindanao	60,740.00
Using Landsat SPOT XS data	
Local Distributor	
Luzon	50,680.00
Visayas	62,080.00
Mindanao	66,880.00



SPOT 5 ACQUIRED AS OF 21 DECEMBER 2007 (LEVEL 1A)

No.	SCENE		TYPE	Rosolu -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
1	301	313	1/2 Scene	10 m	Multi-Spectral	2006	26-Dec-06
			1/2 Scene	2.5 m	Panchromatic	2006	26-Dec-06
2	301	314	Full Scene	10 m	Multi-Spectral	2003	12-Oct-03
			Full Scene	2.5 m	Panchromatic	2003	14-Oct-03
3	301	315	Half Scene	10 m	Multi-Spectral	2006	11-May-06
			Half Scene	2.5 m	Panchromatic	2006	11-May-06
4	301	317	Full Scene	10 m	Multi-Spectral	2005	13-Feb-05
			Full Scene	2.5 m	Panchromatic	2005	13-Feb-05
5	301	318	Full Scene	10 m	Multi-Spectral	2005	13-Feb-05
			Full Scene	2.5 m	Panchromatic	2005	13-Feb-05
6	302	313	Half Scene	10 m	Multi-Spectral	2003	17-Jul-03
			2 copies				
			Half Scene	5m	Panchromatic	2003	17-Jul-03
7	302	313	Full Scene	10 m	Multi-Spectral	2006	25-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	25-Nov-06
8	302	314	Full Scene	10 m	Multi-Spectral	2003	17-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	17-Feb-03
9	302	315	Full Scene	10 m	Multi-Spectral	2006	6-Jun-06
			Full Scene	2.5 m	Panchromatic	2006	6-Jun-06
10	302	316	Full Scene	10 m	Multi-Spectral	2006	6-Jun-06
			Full Scene	2.5 m	Panchromatic	2006	6-Jun-06
11	302	317	Full Scene	10 m	Multi-Spectral	2006	6-Jun-06
			Full Scene	2.5 m	Panchromatic	2006	6-Jun-06
12	303	313	Half Scene	10 m	Multi-Spectral	2003	13-Jul-03
			Half Scene	2.5 m	Panchromatic	2003	13-Jul-03
13	303	314	Full Scene	10 m	Multi-Spectral	2003	13-Jul-03
			Full Scene	2.5 m	Panchromatic	2003	13-Jul-03
14	303	316	Full Scene	10 m	Multi-Spectral	2006	25-Jan-00
			Full Scene	5 m	Panchromatic	2006	18-Jan-06
15	303	317	Full Scene	10 m	Multi-Spectral	2006	12-Jan-06

No.	SCENE		TYPE	Rosolu -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
			Full Scene	5 m	Panchromatic	2006	12-Jan-06
16	303	320	Full Scene	10 m	Multi-Spectral	2006	28-Feb-06
			Full Scene	2.5 m	Panchromatic	2006	28-Feb-06
17	303	323	1/4 Scene	10 m	Multi-Spectral	2005	21-Nov-05
			1/4 Scene	5 m	Panchromatic	2005	21-Nov-05
18	304	313	1/4 Scene	10 m	Multi-Spectral	2007	21-Jan-07
			1/4 Scene	2.5 m	Panchromatic	2007	21-Jan-07
19	304	313	Half Scene	10 m	Multi-Spectral	2003	16-Feb-03
			Half Scene	2.5 m	Panchromatic	2003	16-Feb-03
20	304	314	Full Scene	10 m	Multi-Spectral	2003	16-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	16-Feb-03
21	304	314	Full Scene	10 m	Multi-Spectral	2006	20-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	20-Nov-06
22	304	315	Full Scene	10 m	Multi-Spectral	2003	16-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	16-Feb-03
23	304	316	Full Scene	10 m	Multi-Spectral	2003	16-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	16-Feb-03
24	304	316	Half Scene	10 m	Multi-Spectral	2007	17-Feb-07
			Half Scene	2.5 m	Panchromatic	2007	17-Feb-07
25	304	317	Full Scene	10 m	Multi-Spectral	2003	16-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	16-Feb-03
26	304	317	Half Scene	10 m	Multi-Spectral	2007	17-Feb-07
			Half Scene	2.5 m	Panchromatic	2007	17-Feb-07
27	304	318	Full Scene	10 m	Multi-Spectral	2005	19-May-05
			Full Scene	5 m	Panchromatic	2005	19-May-05
28	304	319	Full Scene	10 m	Multi-Spectral	2005	3-Feb-05
			Full Scene	5 m	Panchromatic	2005	3-Feb-05
29	304	320	Full Scene	10 m	Multi-Spectral	2004	19-Dec-04
			Full Scene	2.5 m	Panchromatic	2004	19-Dec-04
30	304	321	Full Scene	10 m	Multi-Spectral	2003	27-Jan-03
			Full Scene	2.5 m	Panchromatic	2003	27-Jan-03
31	304	322	Full Scene	10 m	Multi-Spectral	2003	27-Jan-03

No.	SCENE		TYPE	Rosolu -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
			Full Scene	2.5 m	Panchromatic	2003	27-Jan-03
32	304	322	Full Scene	10 m	Multi-Spectral	2006	13-Sep-06
			Full Scene	2.5 m	Panchromatic	2006	13-Sep-06
33	304	323	Full Scene	10 m	Multi-Spectral	2003	27-Jan-03
			Full Scene	2.5 m	Panchromatic	2003	27-Jan-03
34	304	323	Half Scene	10 m	Multi-Spectral	2006	16-Mar-06
			Half Scene	2.5 m	Panchromatic	2006	16-Mar-06
35	304	324	Full Scene	10 m	Multi-Spectral	2005	24-Feb-05
			Full Scene	5 m	Panchromatic	2005	24-Feb-05
36	305	315	Full Scene	10 m	Multi-Spectral	2002	15-Nov-02
			Full Scene	2.5 m	Panchromatic	2002	15-Nov-02
37	305	316	Full Scene	10 m	Multi-Spectral	2002	15-Nov-02
			Full Scene	2.5 m	Panchromatic	2002	15-Nov-02
38	305	316	Half Scene	10 m	Multi-Spectral	2007	31-Mar-07
			Half Scene	2.5 m	Panchromatic	2007	31-Mar-07
39	305	317	Full Scene	10 m	Multi-Spectral	2006	1-Mar-06
			Full Scene	5 m	Panchromatic	2006	1-Mar-06
40	305	317	Half Scene	10 m	Multi-Spectral	2007	31-Mar-07
			Half Scene	2.5 m	Panchromatic	2007	31-Mar-07
41	305	318	Full Scene	10 m	Multi-Spectral	2006	1-Mar-06
			Full Scene	5 m	Panchromatic	2006	1-Mar-06
42	305	320	Full Scene	10 m	Multi-Spectral	2005	13-Jun-05
			Full Scene	5 m	Panchromatic	2005	13-Jun-05
43	305	322	Full Scene	10 m	Multi-Spectral	2004	23-Dec-04
			Full Scene	5 m	Panchromatic	2004	23-Dec-04
44	305	323	Half Scene	10 m	Multi-Spectral	2005	24-May-05
			Half Scene	5 m	Panchromatic	2005	24-May-05
45	305	323	Full Scene	10 m	Multi-Spectral	2004	23-Dec-04
			Full Scene	2.5 m	Panchromatic	2004	23-Dec-04
46	305	325	Full Scene	10 m	Multi-Spectral	2006	7-Jan-06
			Full Scene	2.5 m	Panchromatic	2006	7-Jan-06
47	306	320	Full Scene	10 m	Multi-Spectral	2006	7-Jun-06

No.	SCENE		TYPE	Rosolu -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
			Full Scene	2.5 m	Panchromatic	2006	7-Jun-06
48	306	322	Full Scene	10 m	Multi-Spectral	2006	22-Mar-06
			Full Scene	2.5 m	Panchromatic	2006	22-Mar-06
49	306	323	Half Scene	10 m	Multi-Spectral	2006	12-Jan-06
			Half Scene	2.5 m	Panchromatic	2006	12-Jan-06
50	306	325	Half Scene	10 m	Multi-Spectral	2006	12-Jan-06
			Half Scene	2.5 m	Panchromatic	2006	12-Jan-06
51	307	321	Full Scene	10 m	Multi-Spectral	2004	18-Oct-04
			Full Scene	5 m	Panchromatic	2004	18-Oct-04
52	307	322	Full Scene	10 m	Multi-Spectral	2004	18-Oct-04
			Full Scene	5 m	Panchromatic	2004	18-Oct-04
53	307	326	1/8 Scene	10 m	Multi-Spectral	2007	15-Dec-07
			1/8 Scene	2.5 m	Panchromatic	2007	15-Dec-07
54	308	322	Full Scene	10 m	Multi-Spectral	2004	22-Aug-04
			Full Scene	5 m	Panchromatic	2004	22-Aug-04
55	308	322	Half Scene	10 m	Multi-Spectral	2004	23-Oct-04
			Half Scene	5 m	Panchromatic	2004	23-Oct-04
56	308	323	Half Scene	10 m	Multi-Spectral	2004	23-Oct-04
			Half Scene	2.5 m	Panchromatic	2004	23-Oct-04
57	308	325	1/4 Scene	10 m	Multi-Spectral	2003	10-Mar-03
			1/4 Scene	2.5 m	Panchromatic	2003	10-Mar-03
58	308	326	Full Scene	10 m	Multi-Spectral	2006	8-May-06
			Full Scene	2.5 m	Panchromatic	2006	8-May-06
59	308	328	Full Scene	10 m	Multi-Spectral	2006	8-May-06
			Full Scene	2.5 m	Panchromatic	2006	8-May-06
60	308	328	Full Scene	10 m	Multi-Spectral	2006	1-Apr-06
			Full Scene	2.5 m	Panchromatic	2006	1-Apr-06
61	309	322	Full Scene	10 m	Multi-Spectral	2005	2-Apr-05
			Full Scene	2.5 m	Panchromatic	2005	2-Apr-05
62	309	323	Full Scene	10 m	Multi-Spectral	2004	7-Nov-04
			Full Scene	2.5 m	Panchromatic	2004	7-Nov-04
63	309	324	Half Scene	10 m	Multi-Spectral	2002	25-Oct-02

No.	SCENE		TYPE	Rosolu -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
			Half Scene	5 m	Panchromatic	2002	25-Oct-02
64	309	325	1/4 Scene	10 m	Multi-Spectral	2004	7-Nov-04
			1/4 Scene	2.5 m	Panchromatic	2004	7-Nov-04
65	309	326	1/4 Scene	10 m	Multi-Spectral	2005	20-Feb-05
			1/4 Scene	2.5 m	Panchromatic	2005	20-Feb-05
65	309	329	Half Scne	10 m	Multi-Spectral	2006	27-Nov-06
			Half Scne	2.5 m	Panchromatic	2006	27-Nov-06
66	309	329	Full Scene	10 m	Multi-Spectral	2006	11-Dec-06
			Full Scene	2.5 m	Panchromatic	2006	11-Dec-06
67	309	331	Full Scene	10 m	Multi-Spectral	2006	11-Dec-06
			Full Scene	2.5 m	Panchromatic	2006	12-Dec-06
68	310	331	Full Scene	10 m	Multi-Spectral	2006	22-Dec-06
			Full Scene	2.5 m	Panchromatic	2006	23-Dec-06
69	310	322	Full Scene	10 m	Multi-Spectral	2006	3-May-06
			Full Scene	5 m	Panchromatic	2006	3-May-06
70	310	323	Full Scene	10 m	Multi-Spectral	2006	3-May-06
			Full Scene	2.5 m	Panchromatic	2006	3-May-06
71	310	324	Full Scene	10 m	Multi-Spectral	2004	6-Jul-04
			Full Scene	5 m	Panchromatic	2004	6-Jul-04
72	310	325	Full Scene	10 m	Multi-Spectral	2006	3-May-06
			Full Scene	2.5 m	Panchromatic	2006	3-May-06
73	310	326	Full Scene	10 m	Multi-Spectral	2006	3-May-06
			Full Scene	2.5 m	Panchromatic	2006	3-May-06
74	310	334	Full Scene	10 m	Multi-Spectral	2006	23-Dec-06
			Full Scene	2.5	Panchromatic	2006	23-Dec-06
75	310	335	Full Scene	10 m	Multi-Spectral	2006	23-Dec-06
			Full Scene	2.5	Panchromatic	2006	23-Dec-06
76	310	336	Full Scene	10 m	Multi-Spectral	2005	26-Sep-05
			Full Scene	2.5	Panchromatic	2005	26-Sep-05
77	310	336	Half Scene	10 m	Multi-Spectral	2006	12-Dec-06
			Half Scene	2.5	Panchromatic	2006	12-Dec-06
78	310	328	Full Scene	10 m	Multi-Spectral	2006	3-May-06

No.	SCENE		TYPE	Rosolu -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
			Full Scene	2.5 m	Panchromatic	2006	3-May-06
79	310	328	Quarter Scene	10 m	Multi-Spectral	2003	27-Feb-03
			Quarter Scene	2.5 m	Panchromatic	2003	27-Feb-03
80	310	328	Full Scene	10 m	Multi-Spectral	2003	27-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	27-Feb-03
81	310	332	Quarter Scene	10 m	Multi-Spectral	2006	7-Dec-06
			Quarter Scene	2.5 m	Panchromatic	2006	7-Dec-06
82	311	322	Half Scene	10 m	Multi-Spectral	2006	29-May-06
			Half Scene	5 m	Panchromatic	2006	29-May-06
83	311	324	Half Scene	10 m	Multi-Spectral	2006	29-May-06
			Half Scene	2.5 m	Panchromatic	2006	29-May-06
84	311	326	Full Scene	10 m	Multi-Spectral	2006	2-Apr-06
			Full Scene	2.5 m	Panchromatic	2006	2-Apr-06
85	311	328	Full Scene	10 m	Multi-Spectral	2007	17-Jan-07
			Full Scene	2.5 m	Panchromatic	2007	17-Jan-07
86	311	329	Full Scene	10 m	Multi-Spectral	2007	17-Jan-07
			Full Scene	2.5 m	Panchromatic	2007	17-Jan-07
87	311	330	Full Scene	10 m	Multi-Spectral	2006	22-Apr-06
			Full Scene	2.5 m	Panchromatic	2006	22-Apr-06
88	311	331	Full Scene	10 m	Multi-Spectral	2006	22-Apr-06
			Full Scene	2.5 m	Panchromatic	2006	22-Apr-06
89	311	333	Full Scene	10 m	Multi-Spectral	2004	12-Sep-04
			Full Scene	2.5 m	Panchromatic	2004	12-Sep-04
90	311	333/9	Full Scene	10 m	Multi-Spectral	2004	12-Sep-04
			Full Scene	2.5 m	Panchromatic	2004	12-Sep-04
91	311	335	Full Scene	10 m	Multi-Spectral	2006	19-Jan-06
			Full Scene	2.5 m	Panchromatic	2006	20-Jan-06
92	312	325	Full Scene	10 m	Multi-Spectral	2003	11-Jun-03

No.	SCENE		TYPE	Rosolu -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
93	312	325	Full Scene	10 m	Multi-Spectral	2003	24-Sep-03
94	312	326	Full Scene	10 m	Multi-Spectral	2003	24-Sep-03
95	312	327	Full Scene	10 m	Multi-Spectral	2003	8-Aug-03
96	312	328	Half Scene	10 m	Multi-Spectral	2003	29-Aug-03
97	312	329	Full Scene	10 m	Multi-Spectral	2005	9-Jun-05
			Full Scene	2.5 m	Panchromatic	2005	9-Jun-05
98	312	330	Half Scene	2.5 m	Panchromatic	2007	23-Jan-07
99	312	333	Full Scene	10 m	Multi-Spectral	2005	21-Jul-05
			Full Scene	2.5 m	Panchromatic	2005	22-Jul-05
100	312	334	Full Scene	10 m	Multi-Spectral	2007	10-Mar-07
			Full Scene	2.5 m	Panchromatic	2007	10-Mar-07
101	312	335	Full Scene	10 m	Multi-Spectral	2006	27-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	27-Nov-06
102	313	325	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
103	313	326	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
104	313	327	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
105	313	328	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
106	313	329	Half Scene	10 m	Multi-Spectral	2003	1-Jun-03
107	313	329	Half Scene	10 m	Multi-Spectral	2006	28-Apr-06
			Half Scene	2.5 m	Panchromatic	2006	28-Apr-06
108	313	330	Half Scene	10 m	Multi-Spectral	2006	15-Aug-06

No.	SCENE		TYPE	Rosolu -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
			Half Scene	2.5 m	Panchromatic	2006	15-Aug-06
109	314	326	Full Scene	10 m	Multi-Spectral	2006	19-May-06
			Full Scene	2.5 m	Panchromatic	2006	19-May-06
110	314	327	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
111	314	328					
			Full Scene	2.5 m	Panchromatic	2006	19-May-06
112	314	328	Full Scene	10 m	Multi-Spectral	2004	2-Sep-04
			Full Scene	2.5 m	Panchromatic	2004	2-Sep-04
113	314	329	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
114	314	330	Half Scene	10 m	Multi-Spectral	2006	12-Mar-06
			Half Scene	5 m	Panchromatic	2006	12-Mar-06
115	314	332	1/4 Scene	10 m	Multi-Spectral	2004	12-Jul-04
			1/4 Scene	2.5 m	Panchromatic	2004	12-Jul-04
116	314	333	Full Scene	10 m	Multi-Spectral	2006	17-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	17-Nov-06
117	314	334	Full Scene	10 m	Multi-Spectral	2006	17-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	17-Nov-06
118	314	335	Full Scene	10 m	Multi-Spectral	2006	17-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	17-Nov-06
119	314	336	Full Scene	10 m	Multi-Spectral	2006	17-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	17-Nov-06
120	314	338	1/4 Scene	10 m	Multi-Spectral	2006	17-Nov-06
			1/4 Scene	2.5 m	Panchromatic	2006	17-Nov-06
121	315	328	Full Scene	10 m	Multi-Spectral	2006	19-Jun-06
			Full Scene	2.5 m	Panchromatic	2006	19-Jun-06
122	315	330	Half Scene	10 m	Multi-Spectral	2006	28-Mar-06
			Half Scene	2.5 m	Panchromatic	2006	28-Mar-06
123	315	330	Full Scene	10 m	Multi-Spectral	2007	1-Mar-07
			Full Scene	2.5 m	Panchromatic	2007	1-Mar-07
124	315	332	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03

No.	SCENE		TYPE	Rosolu -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
			Full Scene	2.5 m	Panchromatic	2003	1-Jun-03
125	315	333	Full Scene	10 m	Multi-Spectral	2003	13-Jan-03
			Full Scene	2.5 m	Panchromatic	2003	13-Jan-03
126	315	334	Full Scene	10 m	Multi-Spectral	2006	22-Dec-06
			Full Scene	2.5 m	Panchromatic	2006	22-Dec-06
127	315	335	Full Scene	10 m	Multi-Spectral	2006	2-Apr-06
			Full Scene	2.5 m	Panchromatic	2006	2-Apr-06
128	315	336	Full Scene	10 m	Multi-Spectral	2005	14-Feb-05
			Full Scene	2.5 m	Panchromatic	2005	14-Feb-05
129	315	337	Full Scene	10 m	Multi-Spectral	2005	14-Feb-05
			Full Scene	2.5 m	Panchromatic	2005	14-Feb-05
130	315	338	Full Scene	10 m	Multi-Spectral	2006	9-Jan-06
			Full Scene	2.5 m	Panchromatic	2006	9-Jan-06
131	316	330	Half Scene	2.5 m	Multi-Spectral	2003	2-Jun-03
			Half Scene	10 m	Panchromatic	2003	2-Jun-03
132	316	331	Full Scene	10 m	Multi-Spectral	2003	2-Jun-03
			Full Scene	2.5 m	Panchromatic	2003	2-Jun-03
133	316	331	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
134	316	332	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	10-Oct-04
135	316	333	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
136	316	334	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
137	316	335	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
138	316	336	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
139	316	337	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
140	317	332	Half Scene	10 m	Multi-Spectral	2003	18-Jun-03

No.	SCENE		TYPE	Rosolu- -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
			Half Scene	2.5 m	Panchromatic	2003	18-Jun-03
141	317	332	Full Scene	10 m	Multi-Spectral	2004	27-Jul-04
			Full Scene	2.5 m	Panchromatic	2004	27-Jul-04
142	317	333	Full Scene	10 m	Multi-Spectral	2003	18-Jun-03
			Full Scene	2.5 m	Panchromatic	2003	18-Jun-03
143	317	334	Half Scene	10 m	Multi-Spectral	2007	26-Mar-07
			Half Scene	2.5 m	Panchromatic	2007	26-Mar-07
144	317	334	Full Scene	10 m	Multi-Spectral	2007	26-Mar-07
			Full Scene	2.5 m	Panchromatic	2007	26-Mar-07
145	317	336	Full Scene	10 m	Multi-Spectral	2003	12-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	12-Feb-03
146	317	337	Full Scene	10 m	Multi-Spectral	2006	7-Mar-06
			Full Scene	2.5 m	Panchromatic	2006	7-Mar-06
147	317	338	Full Scene	10 m	Multi-Spectral	2003	12-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	12-Feb-03
148	318	334	Half Scene	10 m	Multi-Spectral	2003	25-Sep-03
			Half Scene	2.5 m	Panchromatic	2003	25-Sep-03
149	318	335	Full Scene	10 m	Multi-Spectral	2006	15-Aug-06
			Full Scene	2.5 m	Panchromatic	2006	15-Aug-06
150	318	336	Full Scene	10 m	Multi-Spectral	2003	2-Jan-03
			Full Scene	2.5 m	Panchromatic	2003	2-Jan-03
151	318	337	Half Scene	10 m	Multi-Spectral	2003	25-Sep-03
			Half Scene	5 m	Panchromatic	2003	25-Sep-03

SPOT 5 ACQUIRED AS OF 21 DECEMBER 2007 (LEVEL 1A)

No.	SCENE		TYPE	Rosolu- -tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
1	301	313	1/2 Scene	10 m	Multi-Spectral	2006	26-Dec-06
			1/2 Scene	2.5 m	Panchromatic	2006	26-Dec-06
2	301	314	Full Scene	10 m	Multi-Spectral	2003	12-Oct-03
			Full Scene	2.5 m	Panchromatic	2003	14-Oct-03
3	301	315	Half Scene	10 m	Multi-Spectral	2006	11-May-06

No.	SCENE		TYPE	Rosolu- tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
			Half Scene	2.5 m	Panchromatic	2006	11-May-06
4	301	317	Full Scene	10 m	Multi-Spectral	2005	13-Feb-05
			Full Scene	2.5 m	Panchromatic	2005	13-Feb-05
5	301	318	Full Scene	10 m	Multi-Spectral	2005	13-Feb-05
			Full Scene	2.5 m	Panchromatic	2005	13-Feb-05
6	302	313	Half Scene	10 m	Multi-Spectral	2003	17-Jul-03
			2 copies				
			Half Scene	5m	Panchromatic	2003	17-Jul-03
7	302	313	Full Scene	10 m	Multi-Spectral	2006	25-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	25-Nov-06
8	302	314	Full Scene	10 m	Multi-Spectral	2003	17-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	17-Feb-03
9	302	315	Full Scene	10 m	Multi-Spectral	2006	6-Jun-06
			Full Scene	2.5 m	Panchromatic	2006	6-Jun-06
10	302	316	Full Scene	10 m	Multi-Spectral	2006	6-Jun-06
			Full Scene	2.5 m	Panchromatic	2006	6-Jun-06
11	302	317	Full Scene	10 m	Multi-Spectral	2006	6-Jun-06
			Full Scene	2.5 m	Panchromatic	2006	6-Jun-06
12	303	313	Half Scene	10 m	Multi-Spectral	2003	13-Jul-03
			Half Scene	2.5 m	Panchromatic	2003	13-Jul-03
13	303	314	Full Scene	10 m	Multi-Spectral	2003	13-Jul-03
			Full Scene	2.5 m	Panchromatic	2003	13-Jul-03
14	303	316	Full Scene	10 m	Multi-Spectral	2006	25-Jan-00
			Full Scene	5 m	Panchromatic	2006	18-Jan-06
15	303	317	Full Scene	10 m	Multi-Spectral	2006	12-Jan-06
			Full Scene	5 m	Panchromatic	2006	12-Jan-06
16	303	320	Full Scene	10 m	Multi-Spectral	2006	28-Feb-06
			Full Scene	2.5 m	Panchromatic	2006	28-Feb-06
17	303	323	1/4 Scene	10 m	Multi-Spectral	2005	21-Nov-05
			1/4 Scene	5 m	Panchromatic	2005	21-Nov-05
18	304	313	1/4 Scene	10 m	Multi-Spectral	2007	21-Jan-07
			1/4 Scene	2.5 m	Panchromatic	2007	21-Jan-07

No.	SCENE		TYPE	Rosolu- tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
19	304	313	Half Scene	10 m	Multi-Spectral	2003	16-Feb-03
			Half Scene	2.5 m	Panchromatic	2003	16-Feb-03
20	304	314	Full Scene	10 m	Multi-Spectral	2003	16-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	16-Feb-03
21	304	314	Full Scene	10 m	Multi-Spectral	2006	20-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	20-Nov-06
22	304	315	Full Scene	10 m	Multi-Spectral	2003	16-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	16-Feb-03
23	304	316	Full Scene	10 m	Multi-Spectral	2003	16-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	16-Feb-03
24	304	316	Half Scene	10 m	Multi-Spectral	2007	17-Feb-07
			Half Scene	2.5 m	Panchromatic	2007	17-Feb-07
25	304	317	Full Scene	10 m	Multi-Spectral	2003	16-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	16-Feb-03
26	304	317	Half Scene	10 m	Multi-Spectral	2007	17-Feb-07
			Half Scene	2.5 m	Panchromatic	2007	17-Feb-07
27	304	318	Full Scene	10 m	Multi-Spectral	2005	19-May-05
			Full Scene	5 m	Panchromatic	2005	19-May-05
28	304	319	Full Scene	10 m	Multi-Spectral	2005	3-Feb-05
			Full Scene	5 m	Panchromatic	2005	3-Feb-05
29	304	320	Full Scene	10 m	Multi-Spectral	2004	19-Dec-04
			Full Scene	2.5 m	Panchromatic	2004	19-Dec-04
30	304	321	Full Scene	10 m	Multi-Spectral	2003	27-Jan-03
			Full Scene	2.5 m	Panchromatic	2003	27-Jan-03
31	304	322	Full Scene	10 m	Multi-Spectral	2003	27-Jan-03
			Full Scene	2.5 m	Panchromatic	2003	27-Jan-03
32	304	322	Full Scene	10 m	Multi-Spectral	2006	13-Sep-06
			Full Scene	2.5 m	Panchromatic	2006	13-Sep-06
33	304	323	Full Scene	10 m	Multi-Spectral	2003	27-Jan-03
			Full Scene	2.5 m	Panchromatic	2003	27-Jan-03
34	304	323	Half Scene	10 m	Multi-Spectral	2006	16-Mar-06
			Half Scene	2.5 m	Panchromatic	2006	16-Mar-06

No.	SCENE		TYPE	Rosolu- tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
35	304	324	Full Scene	10 m	Multi-Spectral	2005	24-Feb-05
			Full Scene	5 m	Panchromatic	2005	24-Feb-05
36	305	315	Full Scene	10 m	Multi-Spectral	2002	15-Nov-02
			Full Scene	2.5 m	Panchromatic	2002	15-Nov-02
37	305	316	Full Scene	10 m	Multi-Spectral	2002	15-Nov-02
			Full Scene	2.5 m	Panchromatic	2002	15-Nov-02
38	305	316	Half Scene	10 m	Multi-Spectral	2007	31-Mar-07
			Half Scene	2.5 m	Panchromatic	2007	31-Mar-07
39	305	317	Full Scene	10 m	Multi-Spectral	2006	1-Mar-06
			Full Scene	5 m	Panchromatic	2006	1-Mar-06
40	305	317	Half Scene	10 m	Multi-Spectral	2007	31-Mar-07
			Half Scene	2.5 m	Panchromatic	2007	31-Mar-07
41	305	318	Full Scene	10 m	Multi-Spectral	2006	1-Mar-06
			Full Scene	5 m	Panchromatic	2006	1-Mar-06
42	305	320	Full Scene	10 m	Multi-Spectral	2005	13-Jun-05
			Full Scene	5 m	Panchromatic	2005	13-Jun-05
43	305	322	Full Scene	10 m	Multi-Spectral	2004	23-Dec-04
			Full Scene	5 m	Panchromatic	2004	23-Dec-04
44	305	323	Half Scene	10 m	Multi-Spectral	2005	24-May-05
			Half Scene	5 m	Panchromatic	2005	24-May-05
45	305	323	Full Scene	10 m	Multi-Spectral	2004	23-Dec-04
			Full Scene	2.5 m	Panchromatic	2004	23-Dec-04
46	305	325	Full Scene	10 m	Multi-Spectral	2006	7-Jan-06
			Full Scene	2.5 m	Panchromatic	2006	7-Jan-06
47	306	320	Full Scene	10 m	Multi-Spectral	2006	7-Jun-06
			Full Scene	2.5 m	Panchromatic	2006	7-Jun-06
48	306	322	Full Scene	10 m	Multi-Spectral	2006	22-Mar-06
			Full Scene	2.5 m	Panchromatic	2006	22-Mar-06
49	306	323	Half Scene	10 m	Multi-Spectral	2006	12-Jan-06
			Half Scene	2.5 m	Panchromatic	2006	12-Jan-06
50	306	325	Half Scene	10 m	Multi-Spectral	2006	12-Jan-06
			Half Scene	2.5 m	Panchromatic	2006	12-Jan-06

No.	SCENE		TYPE	Rosolu- tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
51	307	321	Full Scene	10 m	Multi-Spectral	2004	18-Oct-04
			Full Scene	5 m	Panchromatic	2004	18-Oct-04
52	307	322	Full Scene	10 m	Multi-Spectral	2004	18-Oct-04
			Full Scene	5 m	Panchromatic	2004	18-Oct-04
53	307	326	1/8 Scene	10 m	Multi-Spectral	2007	15-Dec-07
			1/8 Scene	2.5 m	Panchromatic	2007	15-Dec-07
54	308	322	Full Scene	10 m	Multi-Spectral	2004	22-Aug-04
			Full Scene	5 m	Panchromatic	2004	22-Aug-04
55	308	322	Half Scene	10 m	Multi-Spectral	2004	23-Oct-04
			Half Scene	5 m	Panchromatic	2004	23-Oct-04
56	308	323	Half Scene	10 m	Multi-Spectral	2004	23-Oct-04
			Half Scene	2.5 m	Panchromatic	2004	23-Oct-04
57	308	325	1/4 Scene	10 m	Multi-Spectral	2003	10-Mar-03
			1/4 Scene	2.5 m	Panchromatic	2003	10-Mar-03
58	308	326	Full Scene	10 m	Multi-Spectral	2006	8-May-06
			Full Scene	2.5 m	Panchromatic	2006	8-May-06
59	308	328	Full Scene	10 m	Multi-Spectral	2006	8-May-06
			Full Scene	2.5 m	Panchromatic	2006	8-May-06
60	308	328	Full Scene	10 m	Multi-Spectral	2006	1-Apr-06
			Full Scene	2.5 m	Panchromatic	2006	1-Apr-06
61	309	322	Full Scene	10 m	Multi-Spectral	2005	2-Apr-05
			Full Scene	2.5 m	Panchromatic	2005	2-Apr-05
62	309	323	Full Scene	10 m	Multi-Spectral	2004	7-Nov-04
			Full Scene	2.5 m	Panchromatic	2004	7-Nov-04
63	309	324	Half Scene	10 m	Multi-Spectral	2002	25-Oct-02
			Half Scene	5 m	Panchromatic	2002	25-Oct-02
64	309	325	1/4 Scene	10 m	Multi-Spectral	2004	7-Nov-04
			1/4 Scene	2.5 m	Panchromatic	2004	7-Nov-04
65	309	326	1/4 Scene	10 m	Multi-Spectral	2005	20-Feb-05
			1/4 Scene	2.5 m	Panchromatic	2005	20-Feb-05
65	309	329	Half Scne	10 m	Multi-Spectral	2006	27-Nov-06
			Half Scne	2.5 m	Panchromatic	2006	27-Nov-06

No.	SCENE		TYPE	Rosolu- tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
66	309	329	Full Scene	10 m	Multi-Spectral	2006	11-Dec-06
			Full Scene	2.5 m	Panchromatic	2006	11-Dec-06
67	309	331	Full Scene	10 m	Multi-Spectral	2006	11-Dec-06
			Full Scene	2.5 m	Panchromatic	2006	12-Dec-06
68	310	331	Full Scene	10 m	Multi-Spectral	2006	22-Dec-06
			Full Scene	2.5 m	Panchromatic	2006	23-Dec-06
69	310	322	Full Scene	10 m	Multi-Spectral	2006	3-May-06
			Full Scene	5 m	Panchromatic	2006	3-May-06
70	310	323	Full Scene	10 m	Multi-Spectral	2006	3-May-06
			Full Scene	2.5 m	Panchromatic	2006	3-May-06
71	310	324	Full Scene	10 m	Multi-Spectral	2004	6-Jul-04
			Full Scene	5 m	Panchromatic	2004	6-Jul-04
72	310	325	Full Scene	10 m	Multi-Spectral	2006	3-May-06
			Full Scene	2.5 m	Panchromatic	2006	3-May-06
73	310	326	Full Scene	10 m	Multi-Spectral	2006	3-May-06
			Full Scene	2.5 m	Panchromatic	2006	3-May-06
74	310	334	Full Scene	10 m	Multi-Spectral	2006	23-Dec-06
			Full Scene	2.5	Panchromatic	2006	23-Dec-06
75	310	335	Full Scene	10 m	Multi-Spectral	2006	23-Dec-06
			Full Scene	2.5	Panchromatic	2006	23-Dec-06
76	310	336	Full Scene	10 m	Multi-Spectral	2005	26-Sep-05
			Full Scene	2.5	Panchromatic	2005	26-Sep-05
77	310	336	Half Scene	10 m	Multi-Spectral	2006	12-Dec-06
			Half Scene	2.5	Panchromatic	2006	12-Dec-06
78	310	328	Full Scene	10 m	Multi-Spectral	2006	3-May-06
			Full Scene	2.5 m	Panchromatic	2006	3-May-06
79	310	328	Quarter Scene	10 m	Multi-Spectral	2003	27-Feb-03
			Quarter Scene	2.5 m	Panchromatic	2003	27-Feb-03
80	310	328	Full Scene	10 m	Multi-Spectral	2003	27-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	27-Feb-03

No.	SCENE		TYPE	Rosolu- tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
81	310	332	Quarter Scene	10 m	Multi-Spectral	2006	7-Dec-06
			Quarter Scene	2.5 m	Panchromatic	2006	7-Dec-06
82	311	322	Half Scene	10 m	Multi-Spectral	2006	29-May-06
			Half Scene	5 m	Panchromatic	2006	29-May-06
83	311	324	Half Scene	10 m	Multi-Spectral	2006	29-May-06
			Half Scene	2.5 m	Panchromatic	2006	29-May-06
84	311	326	Full Scene	10 m	Multi-Spectral	2006	2-Apr-06
			Full Scene	2.5 m	Panchromatic	2006	2-Apr-06
85	311	328	Full Scene	10 m	Multi-Spectral	2007	17-Jan-07
			Full Scene	2.5 m	Panchromatic	2007	17-Jan-07
86	311	329	Full Scene	10 m	Multi-Spectral	2007	17-Jan-07
			Full Scene	2.5 m	Panchromatic	2007	17-Jan-07
87	311	330	Full Scene	10 m	Multi-Spectral	2006	22-Apr-06
			Full Scene	2.5 m	Panchromatic	2006	22-Apr-06
88	311	331	Full Scene	10 m	Multi-Spectral	2006	22-Apr-06
			Full Scene	2.5 m	Panchromatic	2006	22-Apr-06
89	311	333	Full Scene	10 m	Multi-Spectral	2004	12-Sep-04
			Full Scene	2.5	Panchromatic	2004	12-Sep-04
90	311	333/9	Full Scene	10 m	Multi-Spectral	2004	12-Sep-04
			Full Scene	2.5	Panchromatic	2004	12-Sep-04
91	311	335	Full Scene	10 m	Multi-Spectral	2006	19-Jan-06
			Full Scene	2.5	Panchromatic	2006	20-Jan-06
92	312	325	Full Scene	10 m	Multi-Spectral	2003	11-Jun-03
93	312	325	Full Scene	10 m	Multi-Spectral	2003	24-Sep-03
94	312	326	Full Scene	10 m	Multi-Spectral	2003	24-Sep-03
95	312	327	Full Scene	10 m	Multi-Spectral	2003	8-Aug-03

No.	SCENE		TYPE	Rosolu- tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
96	312	328	Half Scene	10 m	Multi-Spectral	2003	29-Aug-03
97	312	329	Full Scene	10 m	Multi-Spectral	2005	9-Jun-05
			Full Scene	2.5 m	Panchromatic	2005	9-Jun-05
98	312	330	Half Scene	2.5 m	Panchromatic	2007	23-Jan-07
99	312	333	Full Scene	10 m	Multi-Spectral	2005	21-Jul-05
			Full Scene	2.5	Panchromatic	2005	22-Jul-05
100	312	334	Full Scene	10 m	Multi-Spectral	2007	10-Mar-07
			Full Scene	2.5	Panchromatic	2007	10-Mar-07
101	312	335	Full Scene	10 m	Multi-Spectral	2006	27-Nov-06
			Full Scene	2.5	Panchromatic	2006	27-Nov-06
102	313	325	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
103	313	326	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
104	313	327	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
105	313	328	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
106	313	329	Half Scene	10 m	Multi-Spectral	2003	1-Jun-03
107	313	329	Half Scene	10 m	Multi-Spectral	2006	28-Apr-06
			Half Scene	2.5 m	Panchromatic	2006	28-Apr-06
108	313	330	Half Scene	10 m	Multi-Spectral	2006	15-Aug-06
			Half Scene	2.5 m	Panchromatic	2006	15-Aug-06
109	314	326	Full Scene	10 m	Multi-Spectral	2006	19-May-06
			Full Scene	2.5 m	Panchromatic	2006	19-May-06
110	314	327	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
111	314	328					
			Full Scene	2.5 m	Panchromatic	2006	19-May-06

No.	SCENE		TYPE	Rosolu- tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
112	314	328	Full Scene	10 m	Multi-Spectral	2004	2-Sep-04
			Full Scene	2.5 m	Panchromatic	2004	2-Sep-04
113	314	329	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
114	314	330	Half Scene	10 m	Multi-Spectral	2006	12-Mar-06
			Half Scene	5 m	Panchromatic	2006	12-Mar-06
115	314	332	1/4 Scene	10 m	Multi-Spectral	2004	12-Jul-04
			1/4 Scene	2.5 m	Panchromatic	2004	12-Jul-04
116	314	333	Full Scene	10 m	Multi-Spectral	2006	17-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	17-Nov-06
117	314	334	Full Scene	10 m	Multi-Spectral	2006	17-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	17-Nov-06
118	314	335	Full Scene	10 m	Multi-Spectral	2006	17-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	17-Nov-06
119	314	336	Full Scene	10 m	Multi-Spectral	2006	17-Nov-06
			Full Scene	2.5 m	Panchromatic	2006	17-Nov-06
120	314	338	1/4 Scene	10 m	Multi-Spectral	2006	17-Nov-06
			1/4 Scene	2.5 m	Panchromatic	2006	17-Nov-06
121	315	328	Full Scene	10 m	Multi-Spectral	2006	19-Jun-06
			Full Scene	2.5 m	Panchromatic	2006	19-Jun-06
122	315	330	Half Scene	10 m	Multi-Spectral	2006	28-Mar-06
			Half Scene	2.5 m	Panchromatic	2006	28-Mar-06
123	315	330	Full Scene	10 m	Multi-Spectral	2007	1-Mar-07
			Full Scene	2.5 m	Panchromatic	2007	1-Mar-07
124	315	332	Full Scene	10 m	Multi-Spectral	2003	1-Jun-03
			Full Scene	2.5 m	Panchromatic	2003	1-Jun-03
125	315	333	Full Scene	10 m	Multi-Spectral	2003	13-Jan-03
			Full Scene	2.5 m	Panchromatic	2003	13-Jan-03
126	315	334	Full Scene	10 m	Multi-Spectral	2006	22-Dec-06
			Full Scene	2.5 m	Panchromatic	2006	22-Dec-06
127	315	335	Full Scene	10 m	Multi-Spectral	2006	2-Apr-06
			Full Scene	2.5 m	Panchromatic	2006	2-Apr-06

No.	SCENE		TYPE	Rosolu- tion		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
128	315	336	Full Scene	10 m	Multi-Spectral	2005	14-Feb-05
			Full Scene	2.5 m	Panchromatic	2005	14-Feb-05
129	315	337	Full Scene	10 m	Multi-Spectral	2005	14-Feb-05
			Full Scene	2.5 m	Panchromatic	2005	14-Feb-05
130	315	338	Full Scene	10 m	Multi-Spectral	2006	9-Jan-06
			Full Scene	2.5 m	Panchromatic	2006	9-Jan-06
131	316	330	Half Scene	2.5 m	Multi-Spectral	2003	2-Jun-03
			Half Scene	10 m	Panchromatic	2003	2-Jun-03
132	316	331	Full Scene	10 m	Multi-Spectral	2003	2-Jun-03
			Full Scene	2.5 m	Panchromatic	2003	2-Jun-03
133	316	331	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
134	316	332	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	10-Oct-04
135	316	333	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
136	316	334	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
137	316	335	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
138	316	336	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
139	316	337	Full Scene	10 m	Multi-Spectral	2004	19-Oct-04
			Full Scene	2.5 m	Panchromatic	2004	19-Oct-04
140	317	332	Half Scene	10 m	Multi-Spectral	2003	18-Jun-03
			Half Scene	2.5 m	Panchromatic	2003	18-Jun-03
141	317	332	Full Scene	10 m	Multi-Spectral	2004	27-Jul-04
			Full Scene	2.5 m	Panchromatic	2004	27-Jul-04
142	317	333	Full Scene	10 m	Multi-Spectral	2003	18-Jun-03
			Full Scene	2.5 m	Panchromatic	2003	18-Jun-03
143	317	334	Half Scene	10 m	Multi-Spectral	2007	26-Mar-07
			Half Scene	2.5 m	Panchromatic	2007	26-Mar-07

No.	SCENE		TYPE	Resolution		YEAR ACQUIRED	DATE ACQUIRED
	K	J					
144	317	334	Full Scene	10 m	Multi-Spectral	2007	26-Mar-07
			Full Scene	2.5 m	Panchromatic	2007	26-Mar-07
145	317	336	Full Scene	10 m	Multi-Spectral	2003	12-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	12-Feb-03
146	317	337	Full Scene	10 m	Multi-Spectral	2006	7-Mar-06
			Full Scene	2.5 m	Panchromatic	2006	7-Mar-06
147	317	338	Full Scene	10 m	Multi-Spectral	2003	12-Feb-03
			Full Scene	2.5 m	Panchromatic	2003	12-Feb-03
148	318	334	Half Scene	10 m	Multi-Spectral	2003	25-Sep-03
			Half Scene	2.5 m	Panchromatic	2003	25-Sep-03
149	318	335	Full Scene	10 m	Multi-Spectral	2006	15-Aug-06
			Full Scene	2.5 m	Panchromatic	2006	15-Aug-06
150	318	336	Full Scene	10 m	Multi-Spectral	2003	2-Jan-03
			Full Scene	2.5 m	Panchromatic	2003	2-Jan-03
151	318	337	Half Scene	10 m	Multi-Spectral	2003	25-Sep-03
			Half Scene	5 m	Panchromatic	2003	25-Sep-03

Appendix II Table-6
Free Software

SOFTWARE	DEVELOPER	VER.	OPERATING SYSTEM	MODE	LICENSE TYPE	FORMAT SUPPORTED
ARC-EXPLORER	ESRI	9.2	WINDOWS	VIEWER	FREE-WARE	BMP, TIFF, PNG, JPG, GIF
ORBIT EXPLORER	Orbit GeoSpatial Technologies	4.2	WINDOWS	VIEWER	FREE-WARE	MrSID, ECW, OMI
TatukGIS Viewer	TatukGIS	1.9	MS Windows 95, 98, ME, NT, 2000, XP, 2003	VIEWER	FREE-WARE	Raster TIFF/GeoTIFF, ECW/ECWP, MrSID, JPEG2000, JPEG, IMG, BMP, BIL/SPOT, PNG, CADRG, CIB Vector SHP, E00, MIF/MID, TAB, DXF, DGN, TIGER, GML, KML, VPF, GDF, DLG, SDTS, GPX, Geomedia DTM formats ESRI ASCII GRID, Surfer ASCII Grid (DSAA), FLOAT GRID, BT, DTED, and ADF Georeferenced Images GeoTIFF, World File, and TAB based
Geomatica Viewer	PCI Geomatics	10	Windows 2000/ XP/ Server 2000/ Server2003	VIEWER	FREE-WARE	SPANS Arc Info .bil E00 SHP TIF .dxf ERDAS Laser-Scan MapInfo NTF USGS DEM USGS DLG and about 100 more formats!
ERDAS ViewFinder	Leica Geosystem	2.1	Windows NT / 2000 / XP.	VIEWER	FREE-WARE	ERDAS IMAGINE .IMG, TIFF (including TIFF World, GeoTIFF, compressed and tiled variants)and Lizardtech MrSID image files, including 16-bit and floating point data types.
AccuGlobe Desktop 2007	Digital Data Technologies, Inc	2007	Windows 98, ME, NT4 (Service Pack 6 & IE6), 2000 (Service Pack 2+), XP, 2003,	INPUT/ EDIT	FREE-WARE	Raster MrSID, TIF and JPG ,ECW raster layers, JPEG 2000 layers, PNG layers Vector ESRI Shapefile and MapInfo tables
GRASS GIS	GRASS	6.2.2	GNU/Linux, Mac OS X/Darwin, Microsoft Windows (native using MinGW or with full UNIX support via Cygwin), Sun Solaris (SPARC/Intel), Silicon Graphics Irix, HP-UX, DEC-Alpha,	INPUT/ EDIT	Open Source	Raster r.in.ascii GRASS ASCII r.in.bin BIL, GMT binary les, LANDSAT TM5 r.in.gdal ARC/INFO ASCII/Binary GRID, BIL, ERDAS (LAN, IMG), USGS DOQ, JPEG, SAR CEOS, EOSAT, GeoTIFF, PPM/PNM, SDTS DEM, GIF, PNG (see also http://www.gdal.org/formats_list.html) Vector v.in.ogr SHAPE le, UK.NTF, SDTS, TIGER, S57, MapInfo-File,DGN, VRT, AVCBin, REC, Memory, GML, ODBC(see also: http://www.gdal.org/ogr/ogr_formats.html) v.in.ascii GRASS ASCIIv.in.e00

SOFTWARE	DEVELOPER	VER.	OPERATING SYSTEM	MODE	LICENSE TYPE	FORMAT SUPPORTED
			AIX, BSD, iPAQ/Linux and other UNIX compliant platforms. GRASS runs on both 32 and 64 bit systems with large files (2GB) supported by many key modules.			ArcInfo-E00-format v.in.db Create vectors from database with x y [z] coordinates
QGIS	Quantum GIS	9	MacOS X, Windows, GNU/Linux and other Unices	INPUT/EDIT	Open Source	Raster o Arc/Info Binary Grid o Arc/Info ASCII Grid o GRASS Raster o GeoTIFF o Spatial Data Transfer Standard Grids (with some limitations) o USGS ASCII DEM o Erdas Imagine Vector(QGIS uses OGR) Shapefiles, MapInfo layers, and ArcInfo coverages.

Appendix II Table-7
Free Software
(Functionalities)

Software Name	Provider	Features/Capabilities
ARCEXPLORER	ESRI	<p>Pan & zoom through multiple layers Query spatial and attribute data Create a buffer around selected features Measure distances on a map Create map layers with one symbol, unique symbols, and graduated symbols Label map features, with many options for effects (such as highway shields) Locate an address Incorporate image formats (BMP, TIFF, PNG, JPG, and GIF) Save and retrieve projects Print maps Incorporate overview maps View legends and scale bars Quickly access the Geography Network, a collaborative system that connects users with data and services via the Internet.</p>
ORBIT EXPLORER	Orbit GeoSpatial Technologies	<p>Orbit GIS now supports the majority of projection systems Orbit Explorer supports native compressed imagery such as MrSID, ECW, and Orbit's free portable format OMI Projection System or CRS can be specified for each resource and for the Map View. Vector data is reprojected on-the-fly, raster data requires the same CRS as the map view. Orbit GIS now supports improved drag and drop to open datasets. Drag a file from your windows explorer to the map view, dataset listing or overview window in Orbit GIS and let Drag and drop an Orbit Legend file from your Windows Explorer or Mac Finder onto the proper dataset in the dataset list to apply this legend to that dataset. The Legend Editor for Labels and Pie Charts is dramatically improved, both in User Interface as in capabilities. A scalebar can be viewed live on top of the map view. Appearance is set as Preference Improved behaviour on EOS connectivity Improved presentation of standard editor panels adapted to parameter availability Entry of values is improved in Edit and Construction toolbars You can now switch on/off all datasets at once Text items in annotations can now contain several text and image entries. You can easily put images as annotation on screen.</p>

Software Name	Provider	Features/Capabilities
TatukGIS Viewer	TatukGIS	<p>All formats supported natively, with no importing of data to any internal format</p> <p>Open data in many different formats in the same project, with no need for format conversion</p> <p>Open image map data from a remote server using the WMS or ECWP protocols.</p> <p>Open vector map data in one of the supported SQL server formats from a remote server.</p> <p>Open most ESRI ArcView®, ArcExplorer®, or MapInfo Professional® projects as well as TatukGIS project files</p> <p>Zoom in/out, pan</p> <p>User defined scale for viewing/printing</p> <p>Create new TatukGIS project files</p> <p>Very fast with huge data sets (handles SHP files up to 2 gigabytes!)</p> <p>R-tree spatial indexing</p> <p>Layer control to add, remove, and reorder layers in a project</p> <p>Alter the appearance (colors, styles, fills, outlines, symbols, transparency, etc.) of vector layers</p> <p>Use CGM, WMF, and TrueType symbols to represent points, lines, polygon fills and perimeters</p> <p>Manipulate pixel layers, including transparency, histogram, brightness, color enhancing, etc.</p> <p>Render custom thematic maps based on vector attribute information, including colored-gradient value themes</p> <p>Present data as bar and pie charts</p> <p>Spatial queries (using a point, line, circle, rectangle, polygon, and custom clipboard layer)</p> <p>Attribute queries using SQL query builder</p> <p>Measurement of distances, areas, and perimeters</p> <p>Import data collected with a GPS device by opening as a GPX layer</p> <p>Custom render label appearances and positions, multi-field labeling</p> <p>URL Hotlink for automatic linking objects to any document referenced with a valid URL (web page, file, even mailto)</p> <p>Map hints to automatically display information about any feature under the cursor</p> <p>Data table to present attribute data in table form</p> <p>Print and print preview, print to PDF file</p> <p>Copy visible extent of all layers to Windows clipboard using the EMF meta format</p> <p>Export any map view to image files: TIFF/GeoTIFF (w/ LZW), JPEG, PNG, BMP, PixelStore</p> <p>Mosaic multiple already georeferenced images into a single exported image file</p> <p>Very small footprint - program is only approx. 2.5 Mb (excluding the 5 Mb of tutorials/help files with images)</p> <p>The Viewer includes the "Internet Server Wizard" to easily set up a simple ASP.NET project for web publishing with the TatukGIS Internet Server.</p> <p>Program user interface is customizable to the following languages: English, German, Spanish, Portuguese, French, Italian, Greek, Swedish, Polish, Czech, Russian, Ukrainian, Japanese, Hungarian, and Thai.</p>

Software Name	Provider	Features/Capabilities
Geomatica Viewer	PCI Geomatics	<p>Add data via the wizard. A simple GUI that walks you through data import procedures.</p> <p>Cursor control reveals the geographic coordinates of your cursor</p> <p>Contrast settings enable you to adjust image display parameters</p> <p>Toggle from map view to area view is useful</p> <p>Display of filenames in tree list is handy</p> <p>Display of map projects enables you to add a number of files for convenient display of your project area</p> <p>Directly read from Oracle 10g Spatial and GeoRaster databases - open, view, select, and enhance any number of layers from an Oracle 10g database</p> <p>Generic Database (GDB) technology - directly read data from an extensive list of supported file formats</p> <p>Modern interface - including a fully georeferenced file based viewer.</p> <p>Multiple image display - view any number of images, any depth (8 -, 16 -, and 32 - bit), any size, and any resolution.</p> <p>Data inspection tools - fast roam and zoom and new overview window.</p> <p>Image enhancement tools - improve the way your data is displayed.</p> <p>Image analysis tools - RGB mapping, numeric values display, and histograms.</p> <p>Attribute table display - view and query the attributes associated with your data.</p> <p>HTML online help - modern online help that's easy-to-use.</p> <p>Works with a variety of data, including imagery, vector, and ancillary.</p> <p>Allows the viewing, enhancing, and examination of remotely sensed imagery such as LANDSAT, SPOT, RADARSAT, IKONOS, ERS-1, NOAA AVHRR, and aerial photography.</p> <p>Users can employ FreeView to integrate GIS data with imagery and view the associated attribute data.</p> <p>Key features and benefits include a fully georeferenced file-based viewer with modern graphical user interface (GUI) and the ability to view any number of images at any bit depth, at any size, and in any resolution.</p> <p>The ability to directly access a large number of image and GIS formats through PCI Geomatics' GDB (Generic Database) technology, powerful vector support, tools for fast image roaming and magnification, enhancements, numeric value display, and attributes table display.</p>
ERDAS ViewFinder	Leica Geosystem	<p>Initial display speed has been vastly improved. In some instances images may display an order of magnitude faster than in previous versions of ViewFinder®.</p> <p>Military Grid Reference System (MGRS) coordinate display in the Inquire Cursor dialog.</p> <p>Brightness and Contrast thumbwheels have been added for quick and easy image enhancement.</p> <p>Copy the contents of the Main View to the Windows clipboard.</p> <p>Data is then easily available for pasting into any application which uses the clipboard.</p> <p>Image information can be displayed, such as the number of rows, columns and bands, layer statistics, projection parameters, etc.</p> <p>Extended library of US and international projection systems for reprojecting to and from.</p> <p>Extended range of raster formats are supported, including JPEG (JFIF), ERMapper .ers and generic binary BIL, BIP and BSQ formats.</p> <p>Filter files on all raster formats to see all supported images in a directory.</p> <p>Quickly swap between non-stretched and 2 Standard Deviation modes of displaying the images.</p> <p>If an image has been pre-processed to stretch its data across the entire data range, then you may not want to have displayed it with the "Automatically Stretch Contrast" display option on and wish to swap to no stretch without redisplaying the image.</p> <p>Easily display separate files as a multi-band True Color image.</p> <p>Some data providers deliver multispectral images as separate files (one band per file).</p> <p>You can now open one of these bands as a True Color image and then use the Band Combinations dialog to add in other bands to the color guns.</p>

Software Name	Provider	Features/Capabilities
AccuGlobe Desktop 2007	Digital Data Technologies, Inc	<p>Standard GIS functions such as pan, zoom and identify</p> <p>Thematic mapping using interval and value themes</p> <p>Feature labeling using label themes</p> <p>Printing and plotting layout designer</p> <p>Powerful charting wizard</p> <p>Map legend allowing full control over layer order and symbolization</p> <p>Basic geometry and attribute editing capability (Requires the Basic Editor plug-in, also included)</p> <p>Attribute query builder</p> <p>User defined map annotations, both text and shapes</p> <p>Hyperlink other documents to map features</p> <p>Powerful buffering tools</p> <p>GPS (Requires the GPS plug-in)</p> <p>Real-time projection (both vector and raster)</p> <p>Support for ECW raster layers</p> <p>Support for JPEG 2000 layers</p> <p>Support for PNG layers</p> <p>Legend grouping - will support groups within groups</p> <p>Dynamically show and hide whole or partial themes via legend</p> <p>Edit multiple layers at the same time</p> <p>No longer restricted to editing a single feature</p> <p>Can modify attribute information in either identification window and attribute table</p> <p>Incorporates a structure editor</p> <p>Supports Undo/Redo</p> <p>Can update X,Y attribute columns for point layers</p> <p>Copy & Paste multiple attributes</p> <p>Can dynamically add/remove fields while in edit mode</p> <p>Sorting in attribute table</p> <p>Reorder attribute column names</p> <p>No longer restricted to a single attribute table</p> <p>Enhanced calculation capabilities</p> <p>Enhanced statistical evaluation</p> <p>Multiple map support</p> <p>Hotspots</p> <p>Dockable components</p> <p>Identification window shows differences between current and previously identified feature</p> <p>Attribute data types are differentiated in attribute table & identification window</p> <p>Built in script capability</p> <p>Built in vector layer checker</p> <p>Spatial index supports null geometries</p> <ul style="list-style-type: none"> Anti-alias support <p>Cropping of features to ensure that labels are visible when zoomed in</p> <p>Managed spatial and attribute indexes</p> <p>Enhanced database relates</p> <p>Spatial Relate</p> <p>Merge multiple layers into one</p> <p>Halo effect for label themes</p> <p>Integrate remote data with Web Mapping Service (WMS)</p>

Software Name	Provider	Features/Capabilities
GRASS GIS	GRASS	<p>System and Libraries: DBMI/SQL parser: Add missing TIME support DBF driver: Add missing SQL TIME support; fix semicolon problem Sqlite driver: Add missing 'date' support; transactions to speed up 'execute'; don't crash with SQLITE_NULL QGIS-GRASS DB bug: Fixes QGIS bug #448 geodetic datum: Enable geodetic datum for Krovak, fixed Slovakia Datum (hermannskogel) libgis: Backport false easting/northing test Graphical User Interface: GIS.m GUI: Backport various enhancements, including: clickable layer buttons; more robust error handling; main window cosmetics; fix the lwidth bug; various typos; browsing for EPSG file not updating path to it fixed; browsing for new location path fixed GUI menus: Remove non-functional font setting entries; other assorted fixes GUI startup: Backport Michael Barton's new EPSG code search tool Modules/Scripts: scripts: Backport various fixes; remove all Bashisms from Bourne scripts d.labels: Backport fixes for rotated labels d.vect: Nodes are displayed in topo mode d.vect.thematic: Remove Bashisms g.remove: Fixed to work correctly from the GIS.m GUI nviz: compilation fix for MacOSX ps.map: Fix landscape mode. Fix map scaling when map projection is not measured in meters r.contour: Fix segmentation fault r.distance: Allow null distance for area in area r.flow: 3D length fix; 64bit segfault fix r.in.bin: Honour the -s flag for 2-byte and 4-byte data r.in.wms: Fix a number of teething problems; remove bashisms r.median: fix broken internal r.stats call r.profile: Allow data from stdin, exit with error if coordinate request is outside the current region settings (was reporting bogus data) r.proj bilinear: Fix inverted interpolation expression r.reclass.area: Don't leave the clump file behind, label support added r.tileset: Fix break due to platform specific units parsing; Requires Bash v.build.polylines: Build polylines out of a closed boundaries, remove doubled vertices at each node v.clean snap tool: Remove doubled vertices v.db.addtable: fixed error treatment when wrong SQL types were defined v.dissolve: Dissolve common boundaries by attribute; fix for DBMI error if input map is specified with @mapset v.in.ascii: Skip over blank lines without error, improve robustness v.in.gns: fixed format incompatibility with current GNS format v.in.gpsbabel: Attribute and point import fixed for tracks and routes; works with Mac OSX v.in.region: Add additional vertex if necessary to ensure line segments don't exceed 180 degrees longitude and wrap the wrong way around the world v.lidar.*: Various fixes backported v.lrs.*: fixes backported + new documentation v.report: Backport fixes for RT bug #4459 and Wald bug #301 v.segment: Make the side_offset instruction functional v.to.db: Repair the compactness formula parentheses to match actual formula v.type: Wrap with a script so all combinations are allowed from the GUI menus v.what: Allow multiple input coordinates</p>

Software Name	Provider	Features/Capabilities
QGIS	Quantum GIS	<p>Support for spatially enabled PostgreSQL tables using PostGIS</p> <p>Support for ESRI shapefiles and other vector formats support by the OGR library</p> <p>MapInfo files</p> <p>GRASS integration, including view, edit, and analysis</p> <p>On the fly projection of vector layers</p> <p>Map composer</p> <p>Identify features</p> <p>Display attribute table</p> <p>Select features</p> <p>Label features</p> <p>Persistent selections</p> <p>Save and restore projects</p> <p>Support for raster formats supported by the GDAL library</p> <p>Change vector symbology (single, graduated, unique value, and continuous)</p> <p>SVG markers symbology (single, unique value, and graduated)</p> <p>Display raster data such as digital elevation models, aerial photography or landsat imagery</p> <p>Change raster symbology (grayscale, pseudocolor and multiband RGB)</p> <p>Export to Mapserver map file</p> <p>Digitizing support</p> <p>Map overview</p> <p>Plugins</p> <p>Improved vector and attribute editing</p> <p>Improved measure tools with area measuring</p> <p>Attribute searching</p> <p>New legend structure</p> <p>Refactoring of API to allow the use of QGIS libraries in mapping applications</p> <p>Improved MapServer export tool</p> <p>Vector layer transparency and antialiasing</p> <p>GRASS support in all platforms</p> <p>Enhanced GRASS support and toolbox commands</p> <p>Enhanced vector editing, including copy, cut, paste, snapping and vertex editing</p> <p>Shapefile/OGR layer editing</p>

Appendix II Table-8
List of New Control Points

STATION	WGS84						PRS92						WGS84			PRS92			FEATURE CODE				
	LATITUDE			LONGITUDE			ELLIPSOID HEIGHT			LATITUDE			LONGITUDE			ELLIPSOID HEIGHT				NORTHING	EASTING	FEATURE CODE	
BLN-17	14	47	33.99491	N	121	1	17.21768	E	96.589	14	47	39.45524	N	121	1	12.34039	E	53.55	1636345.400	287050.510	1636414.030	286903.290	Muzon
BLN-2	14	50	47.72753	N	120	45	52.91122	E	46.847	14	50	53.22106	N	120	45	48.03715	E	4.39	1642561.090	259484.450	1642630.600	259317.180	
BLN-3	14	54	15.28828	N	121	2	34.84426	E	128.071	14	54	20.77264	N	121	2	29.97657	E	85.3	1648660.280	289480.110	1648728.940	289333.280	
BLN-4	15	11	23.78921	N	121	2	39.55339	E	121.017	15	11	29.34832	N	121	2	34.71001	E	79.07	1680274.620	288901.150	1680343.540	289755.260	
BTN-B	14	35	13.14669	N	120	35	31.89686	E	47.985	14	35	18.59402	N	120	35	26.99982	E	5.4	1614018.920	240585.540	1614088.760	240437.240	PORT ORION
NEJ-61	15	18	15.42575	N	120	54	13.15579	E	62.013	15	18	21.01335	N	120	54	8.32134	E	20.74	1693068.960	274905.540	1693138.440	274759.910	Nueva Ecija
PC-24	14	54	8.67973	N	120	41	44.8027	E	45.882	14	54	14.19171	N	120	41	39.93305	E	3.95	1648814.690	252108.610	1648884.480	251961.460	
PC-29	14	49	52.90979	N	120	58	2.8022	E	55.107	14	49	58.38346	N	120	57	57.92788	E	12.31	1640667.610	281274.720	1640736.450	281127.570	Guyong Sta Maria, Bulacan
PC-03	15	15	17.35601	N	120	42	40.8812	E	64.97	15	15	22.94766	N	120	42	36.04158	E	24.02	1687802.860	254190.760	1687872.920	254044.810	SN IDELFONSO
PC-04	15	15	17.80843	N	120	52	2.38225	E	58.049	15	15	23.38766	N	120	51	57.54340	E	16.72	1687646.550	270949.910	1687716.110	270804.090	CABIAO
PC-05	15	14	33.85888	N	120	58	52.16298	E	66.723	15	14	39.42820	N	120	58	47.32369	E	25.09	1686178.890	283167.080	1686248.060	283021.320	Gapan
PC-06	15	13	44.57705	N	121	5	26.19395	E	101.982	15	13	50.13243	N	121	5	21.35411	E	60.04	1684557.990	294913.450	1684626.800	294767.740	BULLU
PC-10	15	10	22.29826	N	120	55	33.42829	E	54.52	15	10	27.85398	N	120	55	28.58277	E	12.81	1678501.260	277162.230	1678570.550	277016.190	Bagong Silang
PC-11	15	9	37.67493	N	120	40	7.49266	E	81.568	15	9	43.24838	N	120	40	2.64482	E	40.45	1677407.590	249500.800	1677477.700	249354.490	Buena Vista
PC-14	15	4	55.04980	N	120	32	56.04025	E	149.069	15	5	0.61479	N	120	32	51.18523	E	108.01	1668858.070	236519.130	1668928.500	236372.450	Porac
PC-15	15	3	58.29436	N	120	39	18.62236	E	69.078	15	4	3.84728	N	120	39	13.76645	E	27.72	1668888.520	247930.020	1667058.590	247783.380	MAIMPIS
PC-16	15	3	10.78169	N	120	52	21.68336	E	52.312	15	3	16.31411	N	120	52	16.82739	E	10.38	1665290.450	271308.830	1665359.810	271162.430	2.161
PC-17	15	3	0.31464	N	121	1	25.08789	E	111.317	15	3	5.83423	N	121	1	20.23252	E	69.01	1664817.660	287538.900	1664886.520	287392.530	GABIHAN SAN ILDEFONSO
PC-18	14	58	14.73749	N	120	12	56.20283	E	115.149	14	58	20.30372	N	120	12	51.33681	E	74.58	1656972.890	200514.000	1657044.310	200366.650	Sn Rrael Sn Mrcelino, Zmbals
PC-19	14	58	49.26089	N	121	1	14.26864	E	126.772	14	58	54.76476	N	121	1	9.40733	E	84.27	1657103.300	287146.610	1657172.110	287000.010	PULO ANGAT
PC-21	14	57	42.51783	N	120	53	9.17296	E	58.074	14	57	48.02820	N	120	53	4.30932	E	15.85	1655185.420	272631.150	1655254.640	272484.370	BALIWAG
PC-22	14	57	57.88513	N	121	4	17.37839	E	122.834	14	58	3.39150	N	121	4	12.51613	E	80.17	1655476.130	292604.390	1655544.760	292457.790	PULONG SAMPALOK
PC-23	14	56	10.65467	N	120	29	18.62138	E	66.026	14	56	16.19108	N	120	29	13.75363	E	24.7	1652806.570	229840.320	1652877.060	229693.100	Gutad
PC-25A	14	53	23.75587	N	120	14	15.52526	E	51.464	14	53	29.30183	N	120	14	10.65242	E	10.61	1647994.230	202774.310	1648065.500	202626.710	MANGAMBACA SUBIC
PC-26	14	53	46.29423	N	120	32	24.1715	E	51.075	14	53	51.81728	N	120	32	19.30057	E	9.5	1648305.710	235338.550	1648376.000	235191.240	Lubao
PC-27A	14	52	24.76191	N	121	7	40.94435	E	274.303	14	52	30.23223	N	121	7	36.07463	E	23.124	1645184.310	298601.230	1645252.670	298454.370	San Mateo, Norzagaray, Bulacan
PC-28	14	51	5.05010	N	120	23	5.0108	E	74.651	14	51	10.57533	N	120	23	0.13534	E	33.33	1643537.770	218559.730	1643608.530	218412.140	PINULOT DNLUPIHA
PC-29	14	49	52.90928	N	120	58	2.80306	E	55.225	14	49	58.38295	N	120	57	57.92871	E	12.43	1640667.590	281274.740	1640736.440	281127.600	

STATION	WGS84						PRS92						WGS84				PRS92				FEATURE CODE		
	LATITUDE			LONGITUDE			ELLIPSOID HEIGHT			LATITUDE			LONGITUDE			ELLIPSOID HEIGHT			NORTHING			EASTING	
	14	46	20.94599	N	120	15	30.30175	E	49.993	14	46	26.46322	N	120	15	25.41898	E	8.15	1634963.600	204851.380		1635034.690	204703.410
PC-31A	14	46	20.94599	N	120	15	30.30175	E	49.993	14	46	26.46322	N	120	15	25.41898	E	8.15	1634963.600	204851.380	1635034.690	204703.410	
PC-33A	14	43	59.34749	N	120	32	3.97771	E	47.434	14	44	4.83336	N	120	31	59.09285	E	5.41	1630265.020	234536.020	1630335.180	234388.160	
PC-34	14	46	12.74885	N	120	39	4.15736	E	50.985	14	46	18.23368	N	120	38	59.27622	E	8.78	1634232.080	247151.910	1634301.890	247004.280	
PC-35	14	46	21.23517	N	120	52	31.45939	E	46.306	14	46	26.70267	N	120	52	26.57959	E	3.56	1634252.480	271304.670	1634321.570	271157.250	
PC-36	14	44	46.23837	N	121	1	57.88344	E	111.24	14	44	51.68701	N	121	1	53.00223	E	68.04	1631178.080	288221.560	1631246.630	288074.190	
PC-37	14	44	18.25749	N	121	9	15.14955	E	76.639	14	44	23.69454	N	121	9	10.26630	E	33.12	1630207.220	301294.290	1630275.370	301147.000	
PG-60	15	10	18.46112	N	120	31	1.27259	E	255.607	15	10	24.04818	N	120	30	56.42511	E	214.89	1678841.050	233202.880	1678911.660	233056.480	
PG-68	15	0	59.52466	N	120	26	35.63651	E	329.256	15	1	5.08296	N	120	26	30.77555	E	288.27	1661744.930	225069.980	1661815.640	224923.000	
PG-75	15	9	47.59157	N	120	43	58.10422	E	60.995	15	9	53.16053	N	120	43	53.25693	E	19.73	1677640.160	256390.410	1677710.070	256244.170	
PG-82	14	52	0.02214	N	120	32	11.9383	E	46.634	14	52	5.53868	N	120	32	7.06484	E	4.99	1645042.100	234936.650	1645112.370	234789.240	
TRC-41	15	15	47.09450	N	120	33	28.04866	E	134.088	15	15	52.70029	N	120	33	23.20902	E	93.54	1688996.630	237699.200	1689067.190	237553.140	
ZBS-31	15	2	13.04264	N	120	4	31.17116	E	54.885	15	2	18.63538	N	120	4	26.31009	E	14.65	1664497.280	185510.690	1664569.220	185363.450	
ZBS-40	14	51	41.61073	N	120	16	25.42721	E	97.501	14	51	47.14722	N	120	16	20.55213	E	56.48	1644805.050	206621.070	1644876.180	206473.410	
ZBS-49	15	16	40.31572	N	120	4	56.36173	E	76.123	15	16	45.96293	N	120	4	51.52115	E	36.77	1691163.360	186619.190	1691235.490	186472.770	
E001	15	15	0.94830	N	121	15	20.04240	E	285.786	15	15	6.49544	N	121	15	15.20520	E		1666756.878	312655.253	1666825.177	312509.752	
E002	15	4	19.31760	N	121	13	34.15290	E	247.755	15	4	24.82807	N	121	13	29.30040	E		1667060.799	309335.734	1667129.030	309189.617	
E003	15	2	22.20910	N	121	8	38.34180	E	725.773	15	2	27.1666	N	121	8	33.48605	E		1663333.955	300470.676	1663602.421	300324.379	
E004	14	52	59.70340	N	121	15	40.89910	E	353.47	14	53	5.16543	N	121	15	36.03073	E		1646142.175	312957.190	1646210.119	312810.479	
E005	14	44	28.72890	N	121	19	16.46800	E	415.632	14	44	34.15323	N	121	19	11.58985	E		1630388.261	319283.017	1630455.881	319135.891	
E006	15	7	47.15720	N	121	6	18.81550	E	238.952	15	7	52.88668	N	121	6	13.96724	E		1673557.724	296388.793	1673626.398	296242.761	
W001	15	16	24.30270	N	120	23	10.83020	E	337.623	15	16	29.92466	N	120	23	5.99051	E		1690254.998	219288.020	1690326.133	219141.841	
W002	15	2	5.41370	N	120	13	55.55240	E	151.959	15	2	10.99344	N	120	13	50.69182	E		1664045.051	202377.211	1664116.476	202230.095	
W003	15	13	15.78320	N	120	12	30.37100	E	193.142	15	13	21.40740	N	120	12	25.52606	E		1684694.691	200093.592	1684766.361	199947.083	

Appendix II Table-9
List of Height and UTM
Coordinates of
Benchmarks and New
Spot Height Points

STATION	EASTING	NORTHING	ELEVATION	STATION	EASTING	NORTHING	ELEVATION	STATION	EASTING	NORTHING	ELEVATION
PA-94P	250042.99	1664365.72	7.90	FB-14	234169.27	1634668.20	4.78	RM-108	282379.99	1676110.40	19.88
PA-95P	249310.84	1664926.95	11.74	FB-15	235257.26	1634070.17	3.75	RM-109	282036.35	1677308.88	17.31
PA-96P	248502.58	1665633.54	18.91	FB-16	235291.21	1632573.15	3.27	RM-110	281635.10	1678087.33	18.78
PA-97P	247944.97	1666303.68	21.27	FB-17	234826.17	1631380.16	2.20	RM-111	281011.78	1679255.23	16.06
PA-98P	247328.43	1667048.25	26.03	FB-18	234391.14	1630340.16	1.93	RM-112	280641.51	1681040.59	13.35
PA-99P	246695.37	1667739.11	30.90	FB-19	234490.10	1629016.15	3.29	RM-112	280641.51	1681040.59	13.35
PA-101P	245015.42	1669826.18	44.99	FB-20	234654.08	1628233.13	2.71	RM-113	280540.56	1681738.79	13.84
PA-102P	244454.44	1670524.20	50.33	PA-78-P	259411.99	1651460.59	4.71	RM-113	280540.56	1681738.79	13.84
PA-104P	242860.48	1672415.27	65.57	PA-79-P	258618.01	1652513.62	5.39	RM-114	280235.66	1682872.03	15.02
PA-106P	241624.54	1674844.32	83.78	PA-80-P	258685.04	1653429.63	2.30	RM-114	280235.66	1682872.03	15.02
PA-109P	241063.61	1677378.36	90.97	PA-81-P	258711.11	1655698.65	2.06	RM-115	280247.17	1683689.46	15.02
PA-110P	240890.64	1678253.38	90.43	PA-82-P	258676.13	1656345.65	1.88	RM-115	280247.17	1683689.46	15.02
PA-111P	240704.67	1679153.39	97.64	PA-83-P	258300.15	1657261.67	2.45	RM-116	279310.38	1684470.22	11.92
PA-112P	240481.69	1679914.40	97.24	PA-84-P	257982.17	1657927.69	2.42	RM-116	279310.38	1684470.22	11.92
PAM-23-AP	239598.79	1683578.46	97.11	PA-85-P	257192.19	1658687.72	2.42	RM-117	278524.05	1685283.16	13.84
PA-29AP	239830.76	1682661.45	97.22	PA-86-P	256717.20	1659113.74	2.20	RM-117	278524.05	1685283.16	13.84
PA-31P	239062.84	1685382.49	97.03	PA-87-P	255794.20	1659576.77	5.29	RM-118	277617.36	1686303.27	12.74
PA-114-P	250287.28	1663740.97	12.63	PA-88-P	254553.21	1660188.81	2.88	RM-118	277617.36	1686303.27	12.74
PA-115-P	249912.26	1663090.97	5.53	PA-89-P	253829.22	1660540.84	2.62	RM-119	276709.03	1687766.17	13.69
PA-116-P	249480.23	1662392.98	9.49	PA-92-P	252266.27	1662737.90	3.07	RM-119	276709.03	1687766.17	13.69
PA-117-P	249128.22	1662004.99	10.58	PA-93-P	251014.28	1663584.95	4.28	RM-120	275989.18	1688953.68	13.26
PA-118-P	248342.19	1661372.01	13.37	BL-88-P	275557.74	1638379.99	2.45	RM-120	275989.18	1688953.68	13.26
PA-119-P	247784.18	1660957.02	17.91	BL-89-P	274687.75	1639233.03	3.03	RM-121	275507.29	1690161.43	13.81
PA-121-P	245959.13	1659808.07	15.65	BL-90-P	274133.76	1639626.05	2.54	RM-121	275507.29	1690161.43	13.81
PA-122-P	245562.11	1659215.07	6.89	BL-92-P	271351.76	1640470.14	2.28	RM-122	275319.33	1691494.45	14.90
PA-123-P	244761.08	1658533.09	8.84	BL-93-P	269883.78	1641493.19	10.74	RM-122	275319.33	1691494.45	14.90
TBM-6-P	244186.06	1658056.10	3.49	BL-94-P	268227.78	1642014.24	6.48	RM-123	275206.38	1693169.47	17.37
TBM-5-P	243226.03	1657279.13	5.25	BL-97-P	263819.82	1644474.40	2.70	RM-123	275206.38	1693169.47	17.37
PA-126-P	242716.01	1656861.14	3.14	BL-98-P	262809.84	1645662.44	2.45	RM-124	274377.38	1693552.50	17.23
PA-147-P	241553.00	1656718.17	3.93	BL-99-P	261816.87	1646837.48	2.45	RM-124	274377.38	1693552.50	17.23
PA-148-P	241002.00	1656882.19	6.10	BL-100-P	261038.89	1647711.51	3.39	RM-125	273479.36	1693034.52	16.18
PA-149-P	240218.00	1657109.22	9.03	BL-82-P	280018.56	1631341.80	1.60	RM-125	273479.36	1693034.52	16.18
TBM1-P	239515.00	1657326.24	11.46	BL-83-P	279520.59	1632437.82	2.02	RM-126	272934.33	1692225.53	15.36
TBM2-P	238614.00	1657597.27	13.53	BL-84-P	278771.61	1633265.85	2.77	RM-126	272934.33	1692225.53	15.36
PA-153-P	237519.00	1657929.30	16.18	BL-85-P	278154.63	1634145.88	2.11	RM-127	272090.28	1690908.54	14.63
PA-155-P	235673.99	1658337.36	21.14	BL-87-P	277279.69	1636228.92	3.32	RM-127	272090.28	1690908.54	14.63
PA-156-P	235017.97	1657862.38	20.70	L-1	289854.13	1647536.64	59.52	RM-128	271859.25	1689829.54	14.14
PA-157-P	234588.96	1657345.39	19.96	L-2	291250.11	1646286.59	127.21	RM-128	271859.25	1689829.54	14.14
PA-158-P	234260.94	1656957.39	19.48	L-3	292374.10	1645852.55	135.44	RM-129	270850.20	1688635.56	14.38
PA-159-P	233551.94	1657145.42	22.64	L-4	293526.07	1644242.50	84.35	RM-129	270850.20	1688635.56	14.38
PA-160-P	233008.95	1657512.44	23.21	L-5	294703.06	1643637.46	124.94	RM-130	270117.17	1687751.58	12.94
PA-162-P	232077.96	1658278.47	28.96	L-6	295589.08	1644106.44	190.23	RM-130	270117.17	1687751.58	12.94
PA-163-P	231717.95	1658150.48	31.76	L-7	297283.10	1644458.39	226.69	RM-131	269619.13	1686641.58	12.16
PA-164-P	231384.94	1657588.49	30.97	RM- 1	277677.77	1638890.93	11.21	RM-131	269619.13	1686641.58	12.16
PA-128-P	241771.97	1655856.16	2.37	RM- 2	278358.78	1639041.91	5.12	RM-132	268919.11	1686184.60	11.56
PA-130-P	241243.93	1654480.16	2.02	RM- 3	279024.79	1639343.90	6.69	RM-132	268919.11	1686184.60	11.56
PA-131-P	241067.91	1653882.16	1.88	RM- 4	279652.81	1639836.88	8.85	RM-133	268009.08	1685185.62	11.11
PA-132-P	240865.88	1653143.16	2.80	RM- 5	280203.84	1640413.87	9.23	RM-133	268009.08	1685185.62	11.11
PA-133-P	240741.87	1652697.16	6.15	RM- 6	280792.85	1640689.85	9.67	RM-134	266468.02	1683732.65	9.19
PA-134-P	240404.84	1651818.16	2.63	RM- 7	281367.86	1640953.84	10.88	RM-134	266468.02	1683732.65	9.19
TBM3-P	239778.82	1651319.18	1.89	RM- 8	282136.88	1641297.82	32.21	RM-135	266468.02	1683732.65	11.88
TBM4-P	239225.80	1650966.19	2.89	RM- 9	282136.88	1641297.82	21.42	RM-135	266468.02	1683732.65	11.88

STATION	EASTING	NORTHING	ELEVATION	STATION	EASTING	NORTHING	ELEVATION	STATION	EASTING	NORTHING	ELEVATION
PA-137-P	238495.78	1650503.21	8.10	RM- 10	283503.96	1643646.80	36.21	RM-136	264950.98	1682720.69	11.34
PA-138-P	237741.76	1650013.23	3.30	RM- 11	284148.99	1644440.79	46.34	RM-136	264950.98	1682720.69	11.34
PA-139-P	236908.74	1649469.25	4.23	RM- 12	284919.02	1645043.77	50.38	RM-137	264217.93	1681399.70	8.23
PA-53A-P	236908.74	1649469.25	5.11	RM- 13	285762.05	1645843.75	68.99	RM-137	264217.93	1681399.70	8.23
PA-140-P	236010.71	1648894.27	5.10	RM- 14	286280.07	1646576.74	75.38	RM-138	263522.87	1679594.71	7.37
PA-141-P	235335.69	1648429.29	5.65	RM- 15	287435.12	1647875.72	71.76	RM-138	263522.87	1679594.71	7.37
PA-142-P	235036.69	1648276.30	6.58	RM- 16	288326.14	1648189.69	64.76	RM-139	263187.84	1678769.71	7.59
PA-143-P	234405.67	1647872.31	8.54	RM- 17	288875.17	1648908.68	60.77	RM-139	263187.84	1678769.71	7.59
PA-144-P	233861.65	1647518.33	8.23	RM- 18	288481.17	1649154.70	59.05	RM-140	261653.81	1677988.75	15.63
PA-145-P	233163.63	1647069.34	7.42	RM- 20	287782.20	1650530.73	40.45	RM-140	261653.81	1677988.75	15.63
PA-58A-P	232692.62	1646760.35	8.12	RM- 21	287875.23	1651355.73	36.88	RM-141	260706.77	1677143.77	7.33
PA-146-P	231643.59	1646093.38	8.77	RM- 22	287160.26	1652689.77	32.56	RM-141	260706.77	1677143.77	7.33
BA-1A-P	230822.57	1645558.40	7.57	RM- 23	287608.28	1653067.76	34.77	RM-142	259882.73	1675833.78	8.03
BA-167-P	229948.54	1644998.42	6.91	RM- 24	288497.29	1653089.73	36.34	RM-142	259882.73	1675833.78	8.03
BA-4A-P	228791.51	1644258.45	8.25	RM- 25	289062.28	1652675.71	33.74	RM-143	260540.71	1675013.76	8.37
BA-5-P	228270.50	1643923.46	6.75	RM- 26	289785.29	1652739.69	40.37	RM-143	260540.71	1675013.76	8.37
ZA-5A-P	210995.33	1643504.98	26.53	RM- 27	289984.32	1653738.69	40.40	RM-144	260795.67	1673719.74	5.81
ZA-6A-P	210102.32	1643344.01	10.79	RM- 28	291008.36	1654757.67	52.13	RM-144	260795.67	1673719.74	5.81
ZA-9A-P	207292.27	1642438.08	3.86	RM- 29	291594.39	1655740.66	71.92	RM-145	260814.64	1672833.73	5.64
ZA-10A-P	206961.26	1642162.09	5.41	RM- 31	293240.50	1658821.64	162.64	RM-145	260814.64	1672833.73	5.64
ZA-11A-P	206076.21	1640947.11	5.00	RM- 32	293879.52	1659351.62	190.40	RM-146	260341.60	1671531.73	6.34
ZA-13A-P	205818.22	1641327.12	38.36	RM- 33	294497.56	1660458.61	205.35	RM-146	260341.60	1671531.73	6.34
ZA-16A-P	205884.28	1643275.13	3.24	RM- 34	295372.59	1661361.60	204.85	RM-147	259826.56	1670230.74	5.85
ZA-21A-P	202316.35	1646579.27	3.03	RM- 35	295480.63	1662611.60	237.19	RM-147	259826.56	1670230.74	5.85
ZA-22A-P	202353.37	1647190.28	1.83	RM- 36	295154.64	1663044.62	230.86	RM-148	259405.51	1668818.74	4.37
ZA-23A-P	202634.40	1648061.27	2.76	RM- 37	294316.64	1663305.64	155.06	RM-148	259405.51	1668818.74	4.37
ZA-25-P	202292.43	1649289.30	5.87	RM- 38	293303.66	1664169.68	87.22	RM-149	258856.48	1667840.75	5.06
ZA-26A-P	201820.46	1650247.32	47.36	RM- 39	292743.67	1664563.70	87.22	RM-149	258856.48	1667840.75	5.06
ZA-166A-P	212913.36	1643733.93	101.93	RM- 40	291628.67	1664881.74	115.91	RM-150	257504.46	1667651.79	4.90
ZA-167-P	211783.33	1643079.95	74.87	RM- 41	290600.66	1665013.77	124.76	RM-150	257504.46	1667651.79	4.90
ZA-168-P	209170.32	1643415.04	7.34	RM- 42	289703.65	1664996.80	75.18	RM-151	256606.44	1667325.81	5.12
ZA-169-P	208145.29	1642879.06	3.68	RM- 43	288456.66	1665385.84	80.40	RM-151	256606.44	1667325.81	5.12
ZA-170-P	205955.24	1641703.12	24.33	RM- 44	287364.63	1664913.87	66.51	RM-152	255845.43	1667180.83	10.28
ZA-172-P	202742.31	1644961.24	2.68	RM- 8A	282560.91	1642144.81	33.29	RM-152	255845.43	1667180.83	10.28
ZA-173-P	202356.33	1645760.26	2.76	RM- 95	285244.62	1665100.93	53.49	RM-153	254786.41	1666798.86	4.86
FB-1	227646.47	1643257.48	7.04	RM- 96	284282.63	1665599.96	47.16	RM-153	254786.41	1666798.86	4.86
FB-2	228135.45	1642407.45	6.89	RM- 97	282883.63	1666085.01	38.40	RM-154	253850.37	1665666.88	3.33
FB-3	228336.43	1641751.44	10.72	RM- 98	281409.65	1667089.06	19.36	RM-154	253850.37	1665666.88	3.33
FB-4	228847.40	1640573.42	22.01	RM- 99	280099.64	1667381.10	19.15	RM-155	252872.35	1665359.91	3.28
FB-5	229140.38	1639961.40	22.12	RM-100	278838.56	1667576.98	10.98	RM-155	252872.35	1665359.91	3.28
FB-6	229411.35	1638821.38	29.34	RM-101	278566.22	1668354.26	16.10	RM-156	251813.33	1664948.93	9.71
FB-7	229558.33	1637995.37	54.96	RM-102	278656.63	1669969.30	11.25	RM-156	251813.33	1664948.93	9.71
FB-8	229788.29	1636782.36	65.64	RM-103	278881.81	1671051.83	13.36	RM-157	250497.29	1664019.97	5.53
FB-9	229994.26	1635551.34	74.10	RM-104	279384.34	1671899.35	13.64	RM-157	250497.29	1664019.97	5.53
FB-10	230193.23	1634482.32	75.38	RM-105	280185.15	1673607.36	14.74	RM-A	275951.72	1637876.98	3.07
FB-11	231628.25	1634967.28	35.41	RM-106	281265.61	1674183.89	16.76	RM-B	276765.74	1638341.96	3.17
FB-13	233016.27	1635119.24	10.67	RM-107	281658.96	1674866.44	17.40				

Appendix II Table-10
Equipment and Software
Used for Technology
Transfer

SOFTWARE/Equipment	Media	MANUAL
ArcGIS 9.1 (ArcView)	Media Kit: 7 CDs (ArcView) Media Kit: 8 CDs (ESRI Data & Maps)	1. Getting Started 2. What is ArcGIS 9.1
ArcGIS 9.2 (ArcView)	Media Kit: 1 DVD (ArcView) Media Kit: 5 DVDs (ESRI Data & Maps)	1. Getting Started 2. What is ArcGIS 9.2
AutoDesk Map 3D 2007	Installer: 2 CDs Sample Data: 2 CDs	1. Best Practices for Managing Geospatial Data
AutoDesk Map 3D 2008	Installer: 4 CDs Sample Data: 2 CDs	1. Best Practices for Managing Geospatial Data
AutoDesk Raster Design 2007	Installer: 1 CD	
AutoDesk Raster Design 2008	Installer: 1 CD	
Adobe Photoshop CS2	Installer: 1 CD Total Training Video Workshop: 1 CD	1. Adobe Photoshop CS2 User Guide
Adobe Illustrator CS2	Installer: 2 CDs	1. Adobe Illustrator CS2 User Guide
Map Publisher	Installer: 1 CD	1. Map Publisher for Adobe Illustrator CS2 User Guide
ERDAS Imagine 9.1	Installer: 1 CD Geodatabase Support: 1 CD LEICA Photogrammetry Suite 9.1: 1 CD Sample Data: 2 DVDs Unix Installer :1 CD Unix Sample Data: 1 CD	
SOCET SET 5.3	Installer: 1 CD Data Set: 1 CD Sample Quickbird Imagineries: 1 DVD Bingo: 1 CD	
SOCET SET 5.4	Installer: 1 CD Demo Data: 1 CD Patches: 1 CD Bingo: 1 CD	1. License Manager Quick Start 2. Release Enhancements 3. Next-Generation Automatic Terrain

SOFTWARE/Equipment	Media	MANUAL
		Extraction (NGATE)
Windows XP Professional	Installer: 1 CD	
Microsoft Office Professional Edition 2003	Installer: 1 CD Microsoft Office Outlook 2003: 1 CD	
Microsoft Office Small Business Edition 2003	Installer: 1 CD Microsoft Office Outlook 2003: 1 CD	
HP Designjet 820 / 4500	Documentation: 1 CD System Recovery: 1 DVD	
HP Designjet 500 / 800	Series Printer: 1 CD	
HP Designjet 800ps	Macintosh Software: 1 CD	
DELL 2007FP Color Monitor	Driver & User Documentation: 1 CD	
DELL 2007FP Flat Panel Monitor	Driver & User Documentation: 1 CD	
ASUS	Server System Software: 1 CD	
ELSA	Driver & Tools: 1 CD	
Color Reference Files	1 CD	
Norton Anti-Virus 2007 (2 sets)	Installer: 2 CDs (1 CD/set)	1. Norton Anti-Virus User Guide (2 sets)

QTY	UNIT	ITEM / DESCRIPTION	SERIAL NO.	MODEL NO.	PRODUCT NO.
1	Unit	HP Designjet 4599 Scanner including standard accessories	DK6CB4104	Q1277A	
1	Unit	Emerson Liebert PSA iton 1000VA			
1	Unit	HP Designjet 800ps Printer - Plotter	MY718D3066	C7780C	
1	Unit	Asus NCSR5JH 5U (Intel Xeon 3.0 ghz, 2gb ECC Memory, 500gb 250gb x2 Sata hard disk combo CD-RW/DVD-ROM 10/100/1000 Gigabit ethernet card card keyboard/ opticalmouse usb interface			
2	Units	Dell Ultra Sharp 2007FP 20" (1680X 1000 Pixelss/DVI VGA / 300 cd/ms			
1	Unit	Emerson Liebert PSA iton 1000VA			
1	pc	Stealth 3D Mouse S2-E Data Collection Hand Controller	7020511	S2-E	
1	pc	ITE Power Supply		HK-B520-A05	DTS050400UC-P5-KH

QTY	UNIT	ITEM / DESCRIPTION	SERIAL NO.	MODEL NO.	PRODUCT NO.
2	pcs	Handwheels with Mounting Plates			
1	set	Treadlite II, foot pedals			
1	pc	Foot Disk			
1	pc	ITE Power Supply	S50226183		
1	pc	Power Cord			
2	pcs	Interface Unit			
1	Unit	Stereographic Monitor Zscreen 2000i (with standard accessories)	NAC306017085		
2	pcs	Deluxe Circular Polarized Eyewear with Brown Casing			
1	pc	Clip-on Eyewear with Black Casing			
3	pcs	Pin mini-DIN cables/adpaters (7-Pin, 9 Pin, VESA to BNC Stereo Connector)			
1	pc	Power Supply for Zscreen Monitor			
2	pcs	Shim, UZS Universal with roundover			
1	Unit	Dell Monitor	CN-00C214-46633-711-06RL		
1	Unit	Lenovo Keyboard	4321485		41A5039
1	Unit	Lenovo CPU			41V9706
1	pc	Asus Mouse			
1	pc	HP 1280 Deskjet Printer	CN61N850ZK		
1	pc	Emerson Liebert PSA iton 1000VA			
1	Unit	RICOH AFICIO-FX Photo Copier			

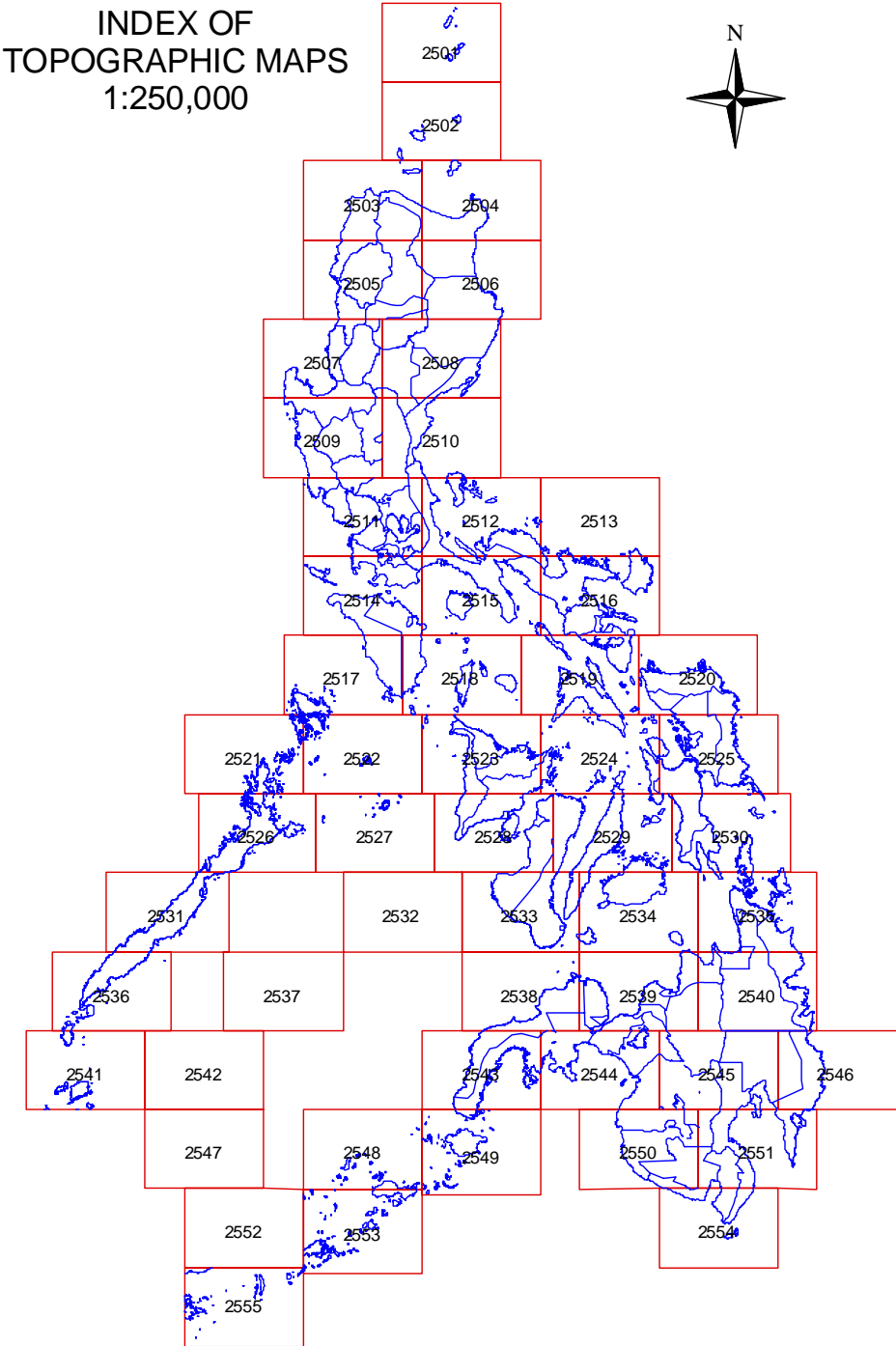
Appendix II Table-11
Comparison of Horizontal Errors

Point Number	Coordinates on new topograph Aerial photographs (A)		Coordinates on new topomap by Single SPOT 5 image (B)		Coordinates on new topomap by Single SPOT 5 image (C)		Coordinates on existing topo map (Reference data) (D)		(A) - (B) (m)		(A) - (C) (m)		(A) - (D) (m)	
	X (E)	Y (N)	X (E)	Y (N)	X (E)	Y (N)	X (E)	Y (N)	Discrepancy	Discrepancy	Discrepancy	Discrepancy	Discrepancy	Discrepancy
1	261321.9	1658967.5	261321.5	1658969.5	261322.3	1658966.9	261246.4	1658912.8	2.1	0.7	93.3			
2	260593.9	1658818.4	260594.7	1658819.0	260592.9	1658819.4	260542.7	1658804.8	1.1	1.4	53.0			
3	258402.2	1657607.5	258403.5	1657605.5	258403.2	1657608.8	258397.6	1657589.2	2.4	1.7	18.9			
4	260639.1	1654642.3	260633.4	1654655.2	260630.4	1654652.4	260669.8	1654641.2	14.1	13.3	30.7			
5	258761.8	1654834.4	258756.4	1654835.4	258758.6	1654880.4	258788.1	1654845.4	5.5	1.0	28.5			
6	258519.2	1654800.9	258519.3	1654803.9	258520.5	1654801.8	258492.9	1654573.3	3.0	1.6	38.1			
7	258786.7	1654359.7	258787.4	1654359.5	258787.7	1654361.0	258810.0	1654379.0	0.7	1.7	30.2			
8	258804.9	1654014.5	258808.9	1654012.6	258803.5	1654014.2	258825.3	1654021.4	4.3	1.4	21.5			
9	258620.9	1652500.2	258622.0	1652488.2	258617.2	1652500.7	258630.5	1652532.9	12.0	3.7	34.1			
10	259503.6	1650821.6	259498.8	1650820.2	259506.0	1650818.9	259517.8	1650813.6	5.1	3.6	16.2			
11	259797.0	1650282.5	259798.8	1650282.0	259797.2	1650291.8	259803.9	1650275.4	9.7	9.3	9.8			
12	259801.9	1650034.7	259804.7	1650030.3	259801.6	1650035.7	259803.9	1650012.4	5.2	1.0	31.2			
13	260557.0	1649053.1	260557.0	1649052.4	260558.7	1649053.6	260567.9	1649030.2	4.0	1.8	25.3			
14	261034.9	1649054.6	261042.3	1649057.3	261044.5	1649061.4	261072.1	1649043.4	7.8	11.7	38.8			
15	261524.0	1649094.2	261527.6	1649102.6	261522.3	1649095.6	261536.8	1649076.3	9.1	2.1	22.1			
16	259179.9	1645028.7	259181.4	1645028.6	259184.2	1645028.4	259193.3	1645062.3	1.6	4.3	36.2			
17	259449.7	1644896.2	259457.0	1644902.7	259452.9	1644895.9	259446.0	1644925.3	9.8	3.2	29.3			
18	259295.3	1641997.2	259294.1	1641997.5	259295.1	1641998.5	259313.9	1642021.5	1.3	1.3	30.6			
19	262120.6	1645780.1	262122.4	1645782.0	262150.6	1645740.0	262138.6	1645786.9	2.6	1.0	19.3			
20	263268.4	1643879.2	263269.2	1643878.0	263271.7	1643877.3	263268.1	1643872.0	1.4	3.8	7.2			
21	263222.5	1641883.6	263223.8	1641884.7	263218.8	1641884.5	263230.2	1641883.6	1.7	3.8	7.7			
22	264756.9	1642470.3	264757.8	1642470.6	264754.3	1642476.3	264770.9	1642480.4	0.9	6.5	17.3			
23	280122.9	1634139.6	280121.0	1634136.2	280121.5	1634141.2	280125.7	1634135.8	3.9	2.1	4.7			
24	264849.0	1643242.3	264849.1	1643241.2	264850.9	1643241.1	264854.2	1643264.2	1.1	2.3	22.5			
25	265024.6	1649392.0	265023.2	1649395.0	265024.7	1649392.7	265049.3	1649389.8	3.3	0.7	24.8			
26	265546.7	1650192.4	265543.3	1650195.9	265547.5	1650193.7	265571.1	1650174.6	4.9	1.5	30.2			
27	266639.6	1648632.1	266641.4	1648635.8	266642.4	1648632.8	266660.0	1648619.2	4.1	2.9	24.2			
28	267773.4	1648657.8	267775.7	1648657.7	267776.2	1648660.4	267786.3	1648653.7	2.3	3.9	13.5			
29	268119.4	1648715.1	268124.8	1648715.8	268122.8	1648717.6	268122.8	1648701.4	5.4	4.2	14.1			
30	269565.3	1648656.4	269565.8	1648656.1	269566.0	1648656.2	269577.3	1648643.9	0.6	0.8	17.4			
31	270059.2	1648638.8	270060.9	1648639.3	270058.0	1648640.1	270049.8	1648630.2	1.8	1.7	12.8			
32	271397.3	1648529.5	271400.6	1648531.9	271400.8	1648533.4	271386.5	1648535.9	4.0	5.2	12.6			
33	270459.0	1647024.8	270463.9	1647026.7	270463.6	1647026.3	270429.0	1647023.8	5.2	4.9	30.0			
34	269769.6	1645397.5	269775.3	1645397.4	269773.6	1645403.4	269760.8	1645436.7	5.7	7.2	40.1			

Point Number	Coordinates on new topomap by Aerial photographs (A)		Coordinates on new topomap by Single SPOT 5 image (B)		Coordinates on new topomap by Single SPOT 5 image (C)		Coordinates on existing topo map (Reference data) (D)		(A) - (B) (m)		(A) - (C) (m)		(A) - (D) (m)	
	X (E)	Y (N)	X (E)	Y (N)	X (E)	Y (N)	X (E)	Y (N)	Discrepancy	Y (N)	Discrepancy	Y (N)	Discrepancy	Discrepancy
35	269665.1	1643324.8	269670.9	1643318.1	269661.2	1643322.1	269636.5	1643337.6	8.9			8.9	4.8	31.3
36	269827.7	1641638.1	269836.6	1641639.2	269830.5	1641644.0	269809.7	1641654.0	8.9			8.9	6.5	24.0
37	271611.5	1642812.1	271616.4	1642813.2	271617.4	1642813.4	271617.4	1642743.5	5.1			5.1	6.0	89.8
38	267692.2	1653565.4	267688.2	1653567.3	267692.6	1653569.0	267700.8	1653584.2	4.4			4.4	3.6	20.8
39	267253.7	1655113.3	267253.8	165511.0	267254.3	165516.3	267268.4	165523.3	2.3			2.3	3.1	17.8
40	270142.0	1658429.1	270142.2	1658431.1	270141.7	1658430.1	270144.0	1658360.6	2.1			2.1	1.0	68.5
41	272928.1	1653982.0	272932.9	1653982.1	272927.9	1653982.2	272925.4	1653980.0	4.8			4.8	0.3	3.3
42	273713.7	1655419.9	273711.3	1655417.8	273712.8	1655420.9	273701.4	1655425.2	3.2			3.2	1.3	13.3
43	277995.7	1657926.0	277996.0	1657923.7	277995.7	1657925.6	277990.5	1657929.3	2.3			2.3	0.4	6.1
44	278689.4	1656293.3	278691.7	1656296.6	278691.5	1656293.6	278680.0	1656298.8	4.1			4.1	2.2	10.9
45	278978.7	1633078.7	278971.4	1633075.6	278969.1	1633075.0	278977.4	1633078.1	7.8			7.8	10.3	1.4
46	282592.6	1658689.8	282594.9	1658685.3	282597.2	1658687.7	282610.6	1658717.4	5.1			5.1	5.0	33.0
47	280602.3	1654811.4	280601.0	1654810.6	280602.5	1654813.4	280608.0	1654814.1	1.5			1.5	2.0	6.4
48	281285.6	1654549.7	281286.1	1654547.8	281285.6	1654549.7	281303.0	1654541.2	1.9			1.9	0.0	19.3
49	278147.4	1649933.6	278149.0	1649938.8	278151.2	1649936.3	278155.5	1649904.9	5.4			5.4	4.7	29.8
50	278286.7	1648322.9	278281.5	1648318.2	278283.3	1648323.3	278300.2	1648300.2	7.1			7.1	3.4	26.4
51	277030.0	1645602.7	277036.3	1645605.8	277034.2	1645607.1	277034.2	1645612.0	7.1			7.1	6.1	10.2
52	280000.4	1644510.0	280001.6	1644509.3	280008.4	1644510.0	280008.7	1644497.8	1.4			1.4	8.0	30.8
53	283604.4	1648754.6	283601.2	1648756.5	283599.1	1648762.5	283607.5	1648751.0	3.7			3.7	9.5	4.8
54	272187.9	1638757.7	272190.2	1638751.9	272187.3	1638749.6	272176.5	1638759.7	6.2			6.2	8.1	11.6
55	271353.9	1636884.8	271380.5	1636884.3	271356.9	1636886.6	271347.3	1636892.5	6.6			6.6	3.4	10.1
56	275743.2	1640119.6	275749.0	1640123.1	275749.7	1640124.6	275716.6	1640163.3	6.7			6.7	8.2	51.1
57	283412.4	1640166.8	283417.7	1640169.3	283419.7	1640171.1	283412.4	1640163.0	5.9			5.9	8.5	3.8
58	283061.6	1638436.2	283063.9	1638437.4	283061.0	1638436.0	283064.3	1638402.2	2.6			2.6	0.7	34.1
59	279923.0	1638663.7	279923.9	1638661.6	279921.6	1638663.1	279899.1	1638632.6	2.3			2.3	1.6	39.3
60	278686.8	1638196.8	278686.6	1638197.5	278681.9	1638194.1	278653.4	1638176.0	0.8			0.8	5.6	39.4
61	276966.9	1637012.8	276969.1	1637013.4	276970.3	1637024.4	276967.6	1637036.1	2.2			2.2	12.0	23.2
62	277622.2	1635203.6	277622.0	1635205.1	277616.0	1635208.5	277620.9	1635212.4	2.0			2.0	7.9	8.9
63	280655.4	1635755.9	280651.8	1635754.7	280655.3	1635747.4	280653.0	1635742.9	3.8			3.8	8.4	13.2
64	283190.8	1635436.3	283188.5	1635435.6	283194.8	1635437.6	283195.9	1635429.5	2.4			2.4	4.3	8.6
65	273370.7	1633753.3	273370.0	1633756.7	273375.8	1633778.5	273362.7	1633768.9	1.5			1.5	6.0	10.2
66	282346.5	1632892.7	282345.9	1632889.5	282345.5	1632892.4	282308.9	1632979.7	3.3			3.3	1.1	94.7
67	280720.0	1632975.4	280719.1	1632972.4	280720.9	1632977.7	280738.2	1632981.3	3.1			3.1	2.5	19.2
									Average			4.2	4.1	25.4
									Max.			14.1	13.3	94.7

Note: RMS=Root mean square




Appendix II Figure-1
INDEX OF
TOPOGRAPHIC MAPS
1:250,000

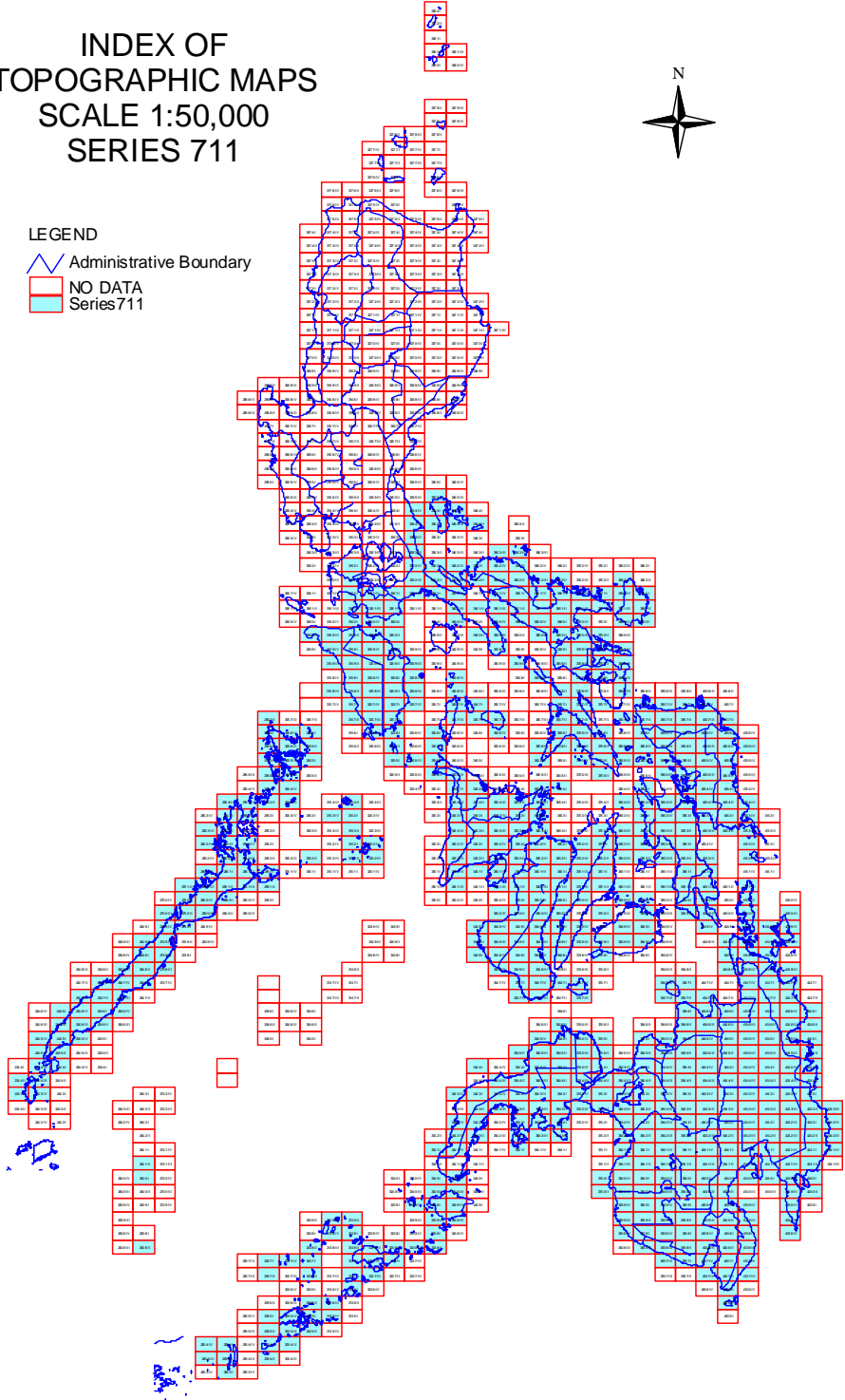


Appendix II Figure-2
INDEX OF
TOPOGRAPHIC MAPS
SCALE 1:250,000
SERIES 711

INDEX OF
TOPOGRAPHIC MAPS
SCALE 1:50,000
SERIES 711






- LEGEND
-  Administrative Boundary
 -  NO DATA
 -  Series 711

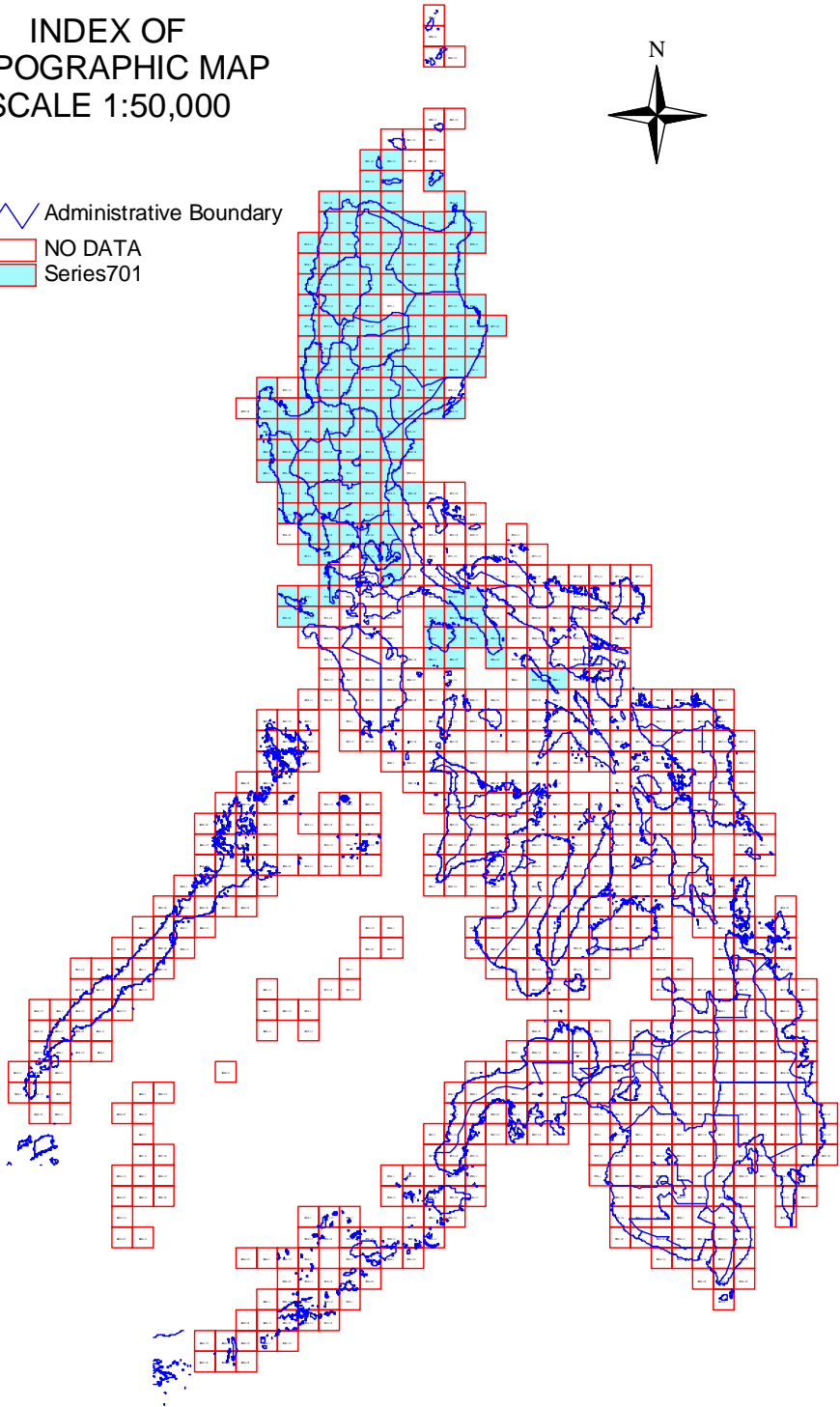


Appendix II Figure-3
INDEX OF
TOPOGRAPHIC MAP
SCALE 1:50,000

INDEX OF
TOPOGRAPHIC MAP
SCALE 1:50,000






-  Administrative Boundary
-  NO DATA
-  Series701

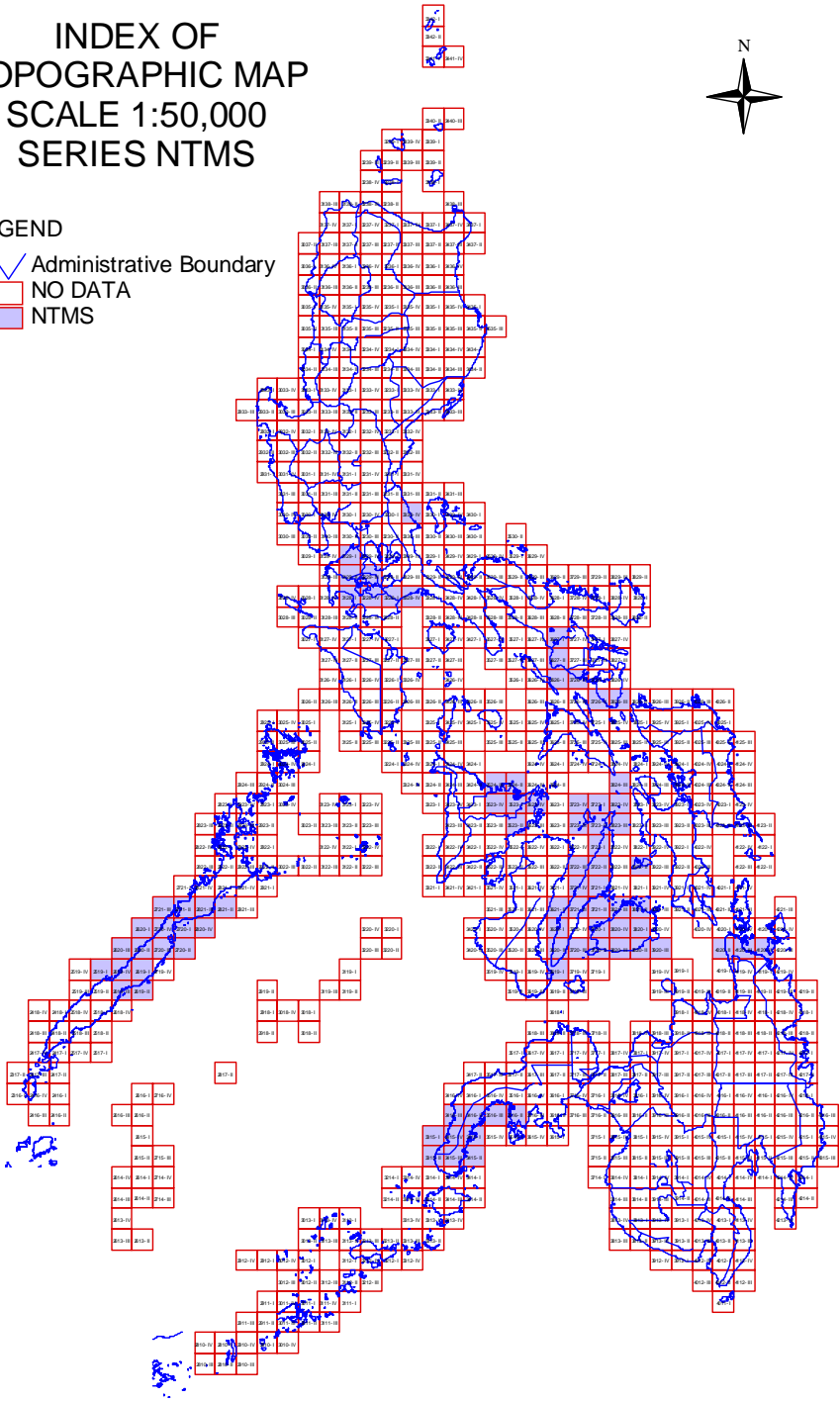


Appendix II Figure-4
 INDEX OF
 TOPOGRAPHIC MAP
 SCALE 1:50,000
 SERIES NTMS

INDEX OF
 TOPOGRAPHIC MAP
 SCALE 1:50,000
 SERIES NTMS

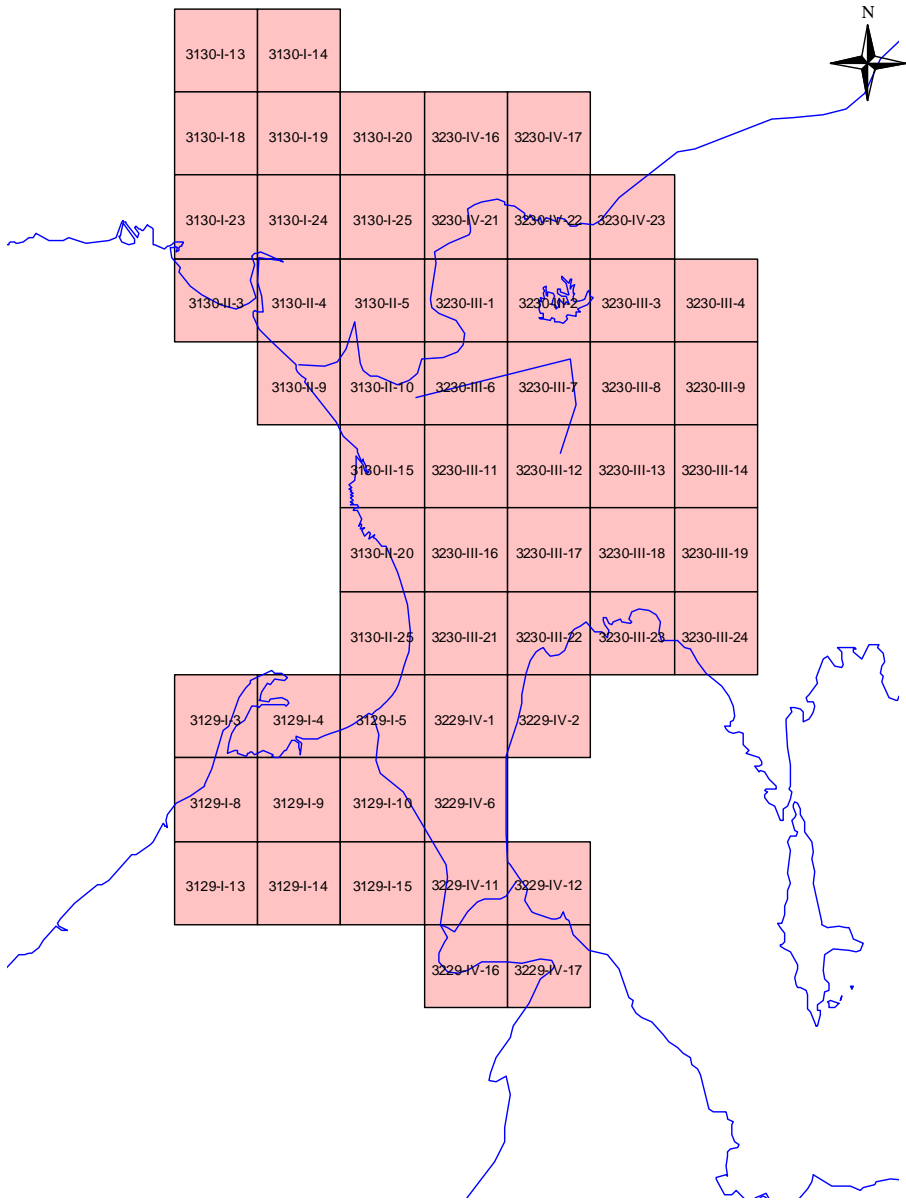


- LEGEND
-  Administrative Boundary
 -  NO DATA
 -  NTMS

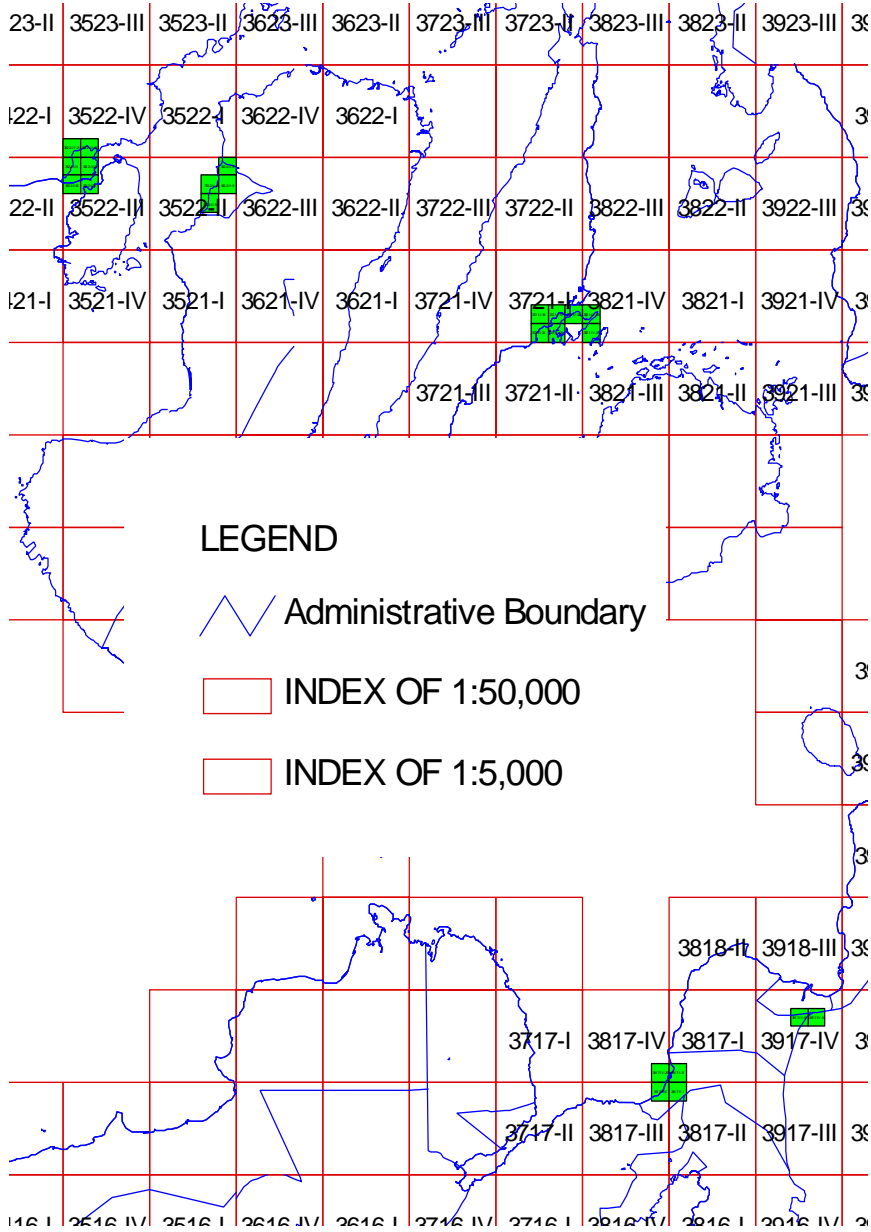


Appendix II Figure-5
 INDEX OF
 METRO MANILA
 TOPOGRAPHIC MAP
 SCALE 1:10,000

INDEX MAP OF
 METRO MANILA TOPOGRAPHIC MAP
 SCALE 1:10,000

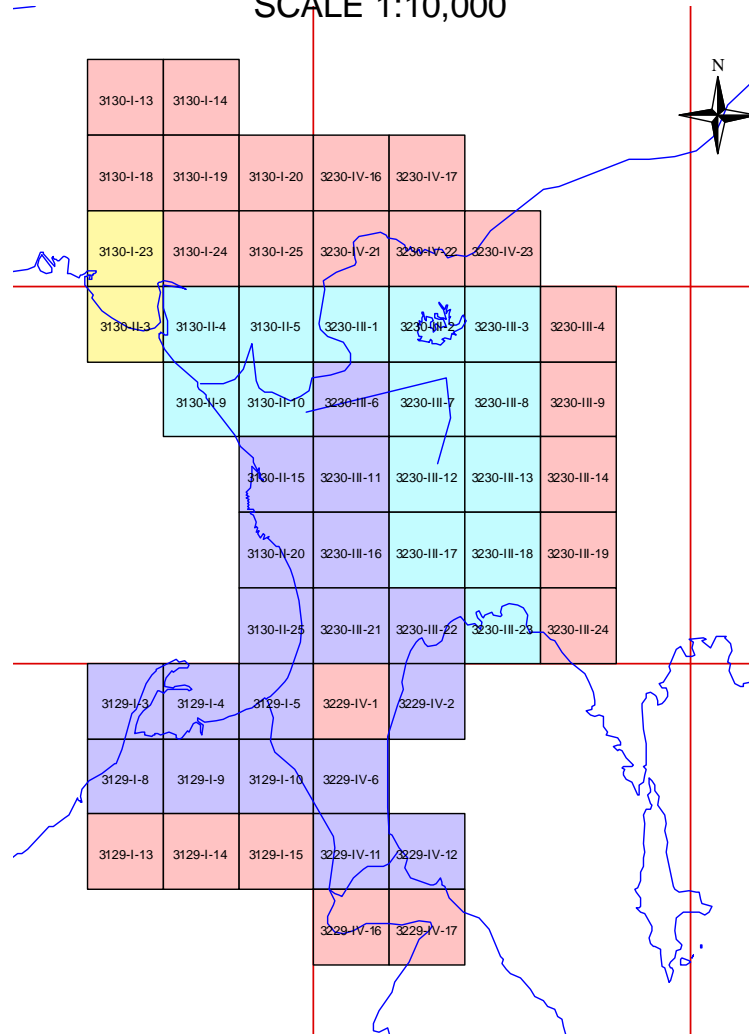


INDEX OF TOPOGRAPHIC MAP
 SCALE 1:5,000








Appendix II Figure-7
 METRO MANILA INDEX OF
 PLANIMETRIC, LAND USE,
 LAND CONDITION MAPS
 SCALE 1:10,000

METRO MANILA INDEX OF
 PLANIMETRIC, LAND USE, LAND CONDITION MAPS
 SCALE 1:10,000



LEGEND

-  Administrative Boundary
-  PLANIMETRIC MAPS
-  WITH LAND USE MAPS
-  WITH LAND USE AND LAND CONDITION MAPS
-  WITH LAND CONDITION MAPS

APPENDIX III DIAGNOSTIC OF CORPORATE CULTURE

English Version

Results of the Diagnosis of Corporate Culture for National Mapping and Resource Information Authority (NAMRIA)

フィリピン国 国土総合開発計画促進に関する地図政策支援行政整備調査

September 2006
JICA Study Team

I. 「Diagnosis of Corporate Culture (DCC)」

Survey Questionnaire

Work place related questions: 60

One's superior related questions : 19



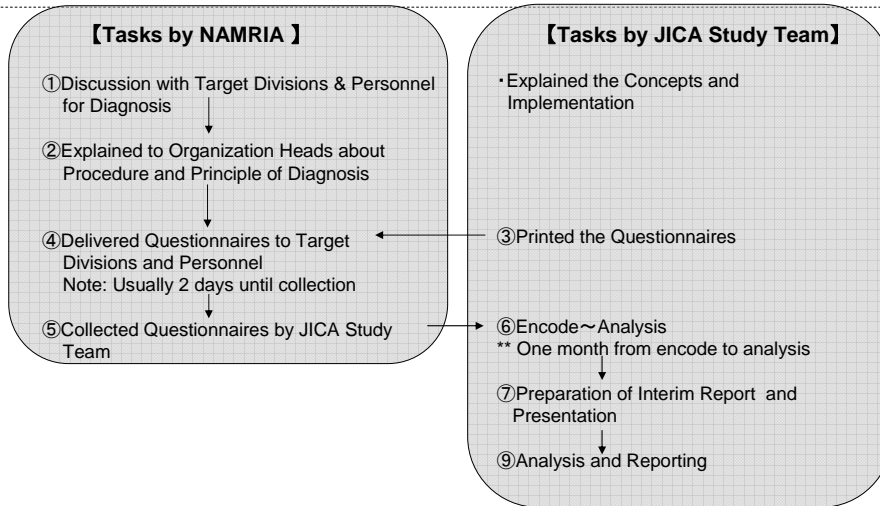
Data Handling



Output

1. Degree of Strategic Vitality / Organizational Vitality of NAMRIA
2. Organizational Problems on 「Cooperative」, 「Gender」, 「Work」, 「Superior」 etc.

Procedure of DCC



Corporate culture vitality judgement & measurement

■ 「Degree of strategic vitality」: NAMRIA's view on degree of satisfaction of employees

= Employee's environment change corresponding to corporate results (linked to achievements)

- ① **Strategic brains**: Depth of strategic thought centered around the job
- ② **Influence of management concept**: Degree of actualization of management ideology
- ③ **Active reform**: Stance for positive action for response to changes in the external environment
- ④ **Discharge of responsibility**: Degree of effective execution of assigned duties and roles
- ⑤ **Merit Orientation**: Emphasis on actual competence instead of seniority, academic achievement, or other such attributes
- ⑥ **Improvement campaigns**: Degree of implementation of business process "kaizen," QC, and other activities for improvement
- ⑦ **Aspiration**: Level of aspiration for the future of the company and the business
- ⑧ **Definition**: Clarity of the definition of authority and responsibility, and of the related system of assessment
- ⑨ **Long-term outlook**: Degree of emphasis on the long term as opposed to the short term
- ⑩ **Education**: Extent of human resource development, OJT, etc.

■ 「Degree of organizational vitality」: NAMRIA's view on degree of satisfaction of employees

= Employees degree of freedom, wellness (not linked to achievements)

- ① **Delegation of authority**: Extent of delegation of authority to subordinates
- ② **Respect for dialogue**: Degree of respect for dialogue with subordinates on the floor; ease of constructive opposition
- ③ **Appropriate regulation**: Appropriateness of rules for execution of the business process; fairness of control and system operation by superiors
- ④ **Respect for individual**: Degree of respect for individual autonomy
- ⑤ **Tolerance of failure**: Degree of tolerance of failure and linkage of failure to improvement; extent of comeback those committing failure

Note) In this program besides for Degree of strategic vitality & Degree of organizational vitality, various departments, & management's leadership judgement can be quantitatively pointed out.

DCC Vitality Index

1. Degree of strategic vitality

NAMRIA's view on degree of satisfaction of employees =
Employee's environment change corresponding to corporate results

(linked to achievements)

- ① Strategic brains
- ② Influence of management concept
- ③ Active reform
- ④ Discharge of responsibility
- ⑤ Merit Orientation
- ⑥ Improvement campaigns
- ⑦ Aspiration
- ⑧ Definition
- ⑨ Long-term outlook
- ⑩ Education

2. Degree of organizational vitality

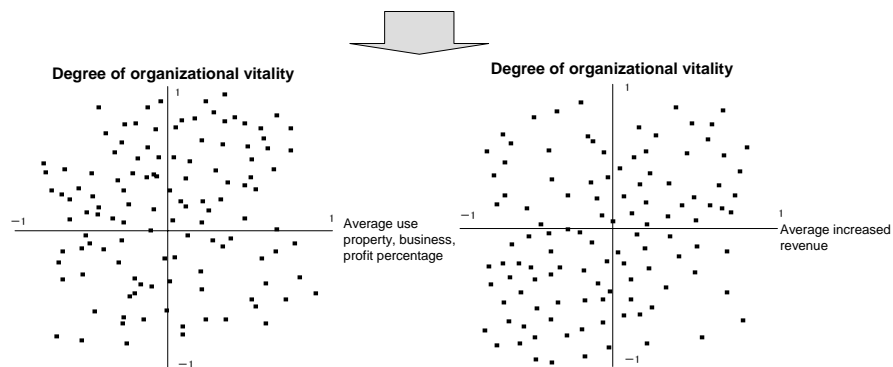
Employee's view on degree of satisfaction of NAMRIA =
Employees degree of freedom, wellness

(not linked to achievements)

- ① Delegation of authority
- ② Respect for dialogue
- ③ Appropriate regulation
- ④ Respect for individual
- ⑤ Tolerance of failure

Correlation of Degree of Organizational Vitality & Company's Achievements (1)

「Degree of Organizational Vitality」 & Achievements : Worker's degree of freedom・satisfaction & achievements has no movements



Note) Vertical line is degree of organizational vitality, horizontal line is data from (1985 year~95 year) Ave. use property, business, profit percentage. (related to =0. 30)

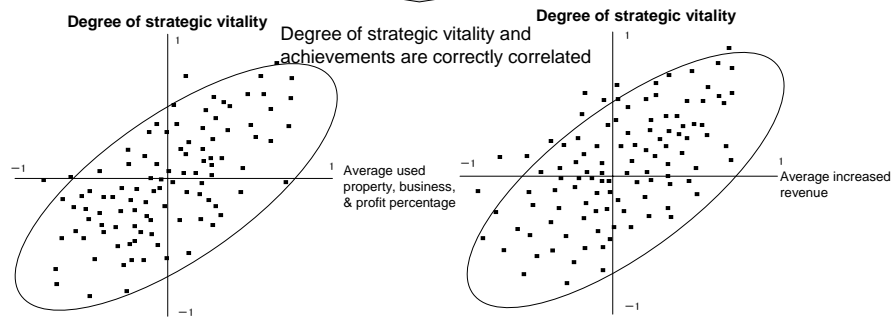
Source) JICA Study Team Business Climate Data Base

Note) Vertical line is degree of organizational vitality, horizontal line is data from (1985 year~95 year) average increase revenue (related to=0. 36)

Source) JICA Study Team Business Climate Data Base

Correlation of Degree of Strategic & Company's Achievements (2)

「Degree of Strategic Vitality」& Achievements : Corresponding change in achievements is improving

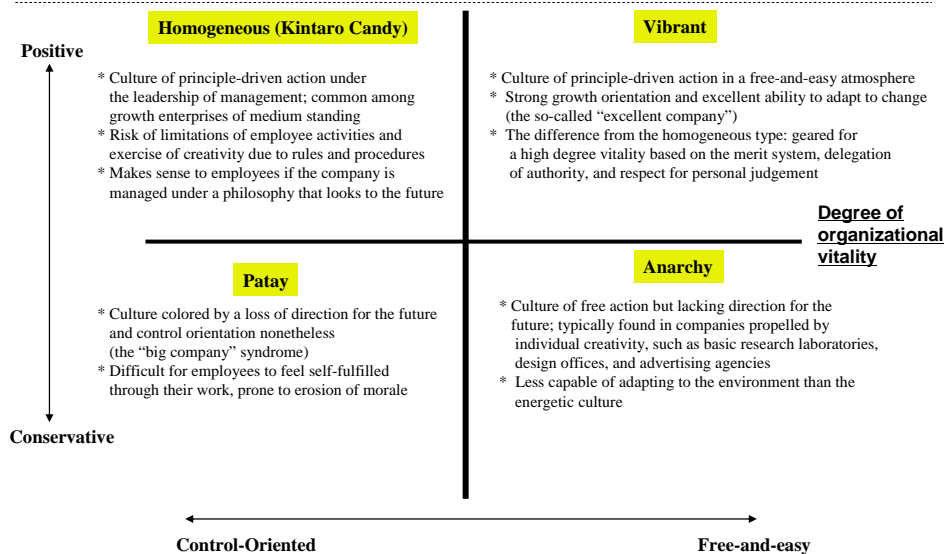


Note) Vertical line is degree of strategic vitality, horizontal line is data from (1985 year~95 year) Ave. use property, business, profit percentage. (related to =0. 67)
Source) JICA Study Team Business Climate Data Base

Note) Vertical line is degree of strategic vitality, horizontal line is data from (1985 year~95 year) average increase revenue (related to =0. 62)
Source) JICA Study Team Business Climate Data Base

Types of Organizational Culture

Degree of strategic vitality



Respondents' Attribute

Questionnaire Attributes			
Questionnaire Attributes: Total Sample no. 727 employees. Distributed questionnaires amounted to 715. (Returned samples: 642 (89.79%); Valid Samples: 625 (87.36%))			
Position		Gender	
Administrative Staff	90	Male	430
Managerial Staff	30	Female	190
Technical Staff	269	TOTAL	625
Medical Staff	4		
Maintenance Staff	36		
Others	64		
No Answer	40		
TOTAL	625		
		Age Range	
		20 years old and below	101
		21 to 30 years old	140
		31 to 40 years old	250
		41 to 50 years old	97
		51 to 60 years old	10
		61 years old and above	10
		TOTAL	625
Department		Educational Attainment	
Staff Services Department	64	University graduate and higher	311
Coast and Geodetic Surveys Department	253	Elementary school graduate	221
Engineering Services Department	48	High School graduate	67
Mapping Department	115	Elementary School under-graduate	2
Remote Sensing and Resources Data Analysis Department	75	No answer	10
Information Management Department	74	TOTAL	625
TOTAL	625		
Division		Number of Years of Service in NAMRIA	
Office of the Administrator	13	Less than 1 year	21
Security and Intelligence Division	12	1 year to less than 2 years	27
Administrative Division	17	2 years to less than 3 years	23
Financial and Management Division	14	3 years to less than 4 years	31
Planning Division	9	4 years to less than 5 years	48
Office of the Director - Coast and Geodetic Surveys Department	16	5 years and more	625
Hydrographic Survey Division	63		
Oceanographic Survey Division	13		
Geodetic and GeoPhysics Division	19		
Survey Operations Division	147		
Office of the Director - Engineering Services Department	8		
Information Division	9		
Computer Engineering Division	15		
Instrumentation and Communication Division	9		
Facilities Maintenance and Repair Division	10		
Office of the Director - Mapping Department	7		
Photogrammetry Division	209		
Cartography Division	43		
Reprography and Printing Division	26		
Office of the Director - Remote Sensing and Resources Data Analysis Department	2		
Land Resource Division	11		
Physiography and Aquatics Division	10		
Geographic Information Systems Application Division	12		
Land Classification Division	31		
Office of the Director - Information Management Department	2		
Database Management Division	62		
System Development and Programming Division	25		
Media Production Division	15		
Information Services Division	19		
TOTAL	625		

The Study for Mapping Policy and Topographic Mapping for Integrated National Development Plan in the Republic of the Philippines

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General Keynote (1)

<The average Philippine Organization which has a bit above average vitality>

- "Strategic Vitality" is close to 0.3, which is higher than the average vitality of Philippine organizational entities. On the other hand, "Organizational Vitality" is a bit lower than the average vitality of the Philippine organizations.
- On the whole, it will be the domain of "Kintaro-Candy". The strong driving force at the top of the organization (Mr. Ventura) is pulling the whole operation, but it seems that communication among the organization is restrained (lower than the average of "Organizational Vitality" in the Philippines).

<Active Department and Inactive Department observed from "Strategic Vitality">

- The Staff Services Dept. and the Remote Sensing & Resource Data Analysis Dept are active organizations. On the other hand, the Engineering Service Dept. has low vitality.
- The Coast and Geodetic Surveys Dept., the Mapping Dept. and the Information Management Dept. are ranked near NAMRIA's whole average.

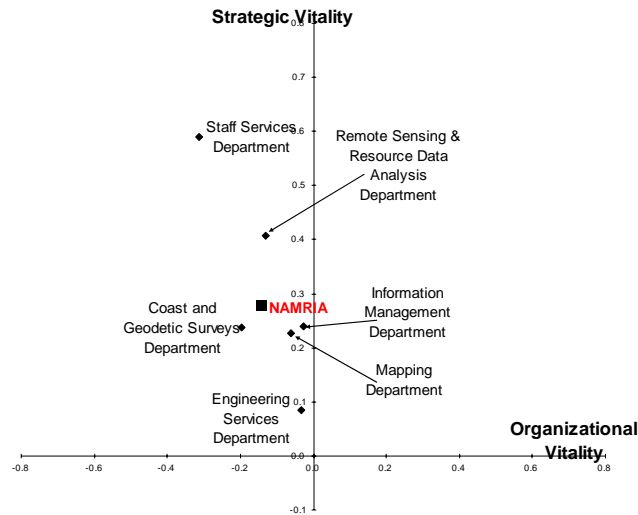
< Active Department and Inactive Department observed from "Organizational Vitality" >

- The "Organizational Vitality" is negative in all Depts.
- The Staff Services Dept. and the Coast and Geodetic Dept. are ranked lower than the NAMRIA average.
- This shows that some Departments are greatly influenced by the top management.

The Study for Mapping Policy and Topographic Mapping for Integrated National Development Plan in the Republic of the Philippines

10

Overall Vitality by Department



General Keynote (2)

~"Strategic Vitality"~ Performance Outlook in the Organization

- Out of 10 indexes, 8 have exceeded the average of the Philippine organizations. The operation outlook of entire NAMRIA seems to be higher than other entities.
- However, "Merit Orientation" and "Long-Term Outlook" are below average. This background should be considered as shown below and there would be personnel who think of changing their job shortly, if there is place to evaluate their ability. Such observation is particularly obvious in the Engineering Dept. and the Information Management Dept.
 - "Merit System"

From the characteristics of the adoption/promotion for the Government employee as shown below, it is the general case that the "Merit System" of the Government employee's organization scores a low point. This is no exception in NAMRIA's case..

 - The adoption of personnel in the system applies where there is a vacant post. Lower level personnel moves to a higher position.
 - It is advantageous to have connections in the organization to be promoted to a post regardless of being hard working (there might be cases that giving a bribe or special offering will be the promotional condition).
 - Due to these background, the significance and the incentive to implement the individual performance evaluation are weak. The motivation for "to get a better salary by changing job" may be the only solution.
 - "Long-Term Outlook"

This reflects NAMRIA's (weak) situation in the process of restructuring the administrative organization at present. This index is low in departments that has no strategy in their daily work.

General Keynote (2)

~"Strategic Vitality"~

Diagnosis in each Dept. (1)

Mapping Dept.

1. This Dept. ranked 2nd lowest Dept. in NAMRIA in terms of "Strategic Vitality".
2. The vitality for "Discharge of Responsibility" is high, but for "Active reform" / "Improvement Campaigns" is lower than in other Depts. The index for "Merit Orientation" is also low. With this situation, the following tendency can be considered:
 - Although the work given will be executed under his responsibility, the consciousness to absorb a new technology or to improve the weakness of an old technology are lacking.
 - Persons with ability, has confidence in his skill, has the aim to make use of it and possesses know-how of the work is buried, and the person without any ability is treated well in the organization.

Coast and Geodetic Survey Dept.

1. This Dept. is ranked in the average position of NAMRIA's whole "Strategic Vitality" (degree on commitment to mapping services).
2. The vitality for "Active reform" / "Aspirations" are lowest in NAMRIA's whole "Strategic Vitality" and "Improvement Campaigns" is ranked 2nd to the lowest. On the other hand, "Influence of management Concept" / "Education System" are the driving force behind NAMRIA's entire vitality. The features of "Merit Orientation" are created better than in other Depts. From these considerations, the features of the Organizations are estimated as follows:
 - Personnel are pushed to do tasks they don't want to do (low "Aspirations"). The Educational system would also be felt so as to be pushed to do from the superiors.
 - There are standards that exists to evaluate personal performance. The senior level of Dept. might execute the evaluation.

General Keynote (2)

~"Strategic Vitality"~

Diagnosis in each Dept. (2)

Remote Sensing & Resource Data Analysis Dept.

1. The vitality for Remote Sensing & Resource Data Analysis Dept is high, and can be considered for the following reasons:
 - The Dept. is doing outsourcing works from private enterprises in addition to the works requested from other authorities and NAMRIA. There is required communications with concerned organizations. Consequently, the intelligent incentive for the staff will be big. Also, the works in NAMRIA always go stably through a year. As a result, the procedure is established on what ("Strategic Vitality") & how ("Definition") to basis in the Dept.
2. The leader is excellent (trusted by his subordinates) and he has a high mentorship (see: leadership page), so "Improvement Campaigns" / "Aspirations" take root in the Dept.

Engineering Service Department

1. This Dept. is ranked in the lowest position in the whole "Strategic Vitality" (degree on commitment to mapping services) of NAMRIA. Especially on the following items: "Strategic brains"; "Influence of management concept"; "Discharge of responsibility"; "Merit orientation"; "Definition"; "Long-term outlook" and "Education." Thus, the following things are observed:
 - The Department staff are not sure about procedure (not clear on the features what & how to do things) compared with other Depts.
 - The Department staff are not sure about performance evaluation of their work thus having fear that work are not executed properly. The environment on "Merit Orientation" has not yet been created.
 - The items of "Long-term outlook" and "Education" have mutual relation. This shows that views to foster the personnel for a long time is lacking.

General Keynote (2)

~”Strategic Vitality”~

Diagnosis in each Dept. (3)

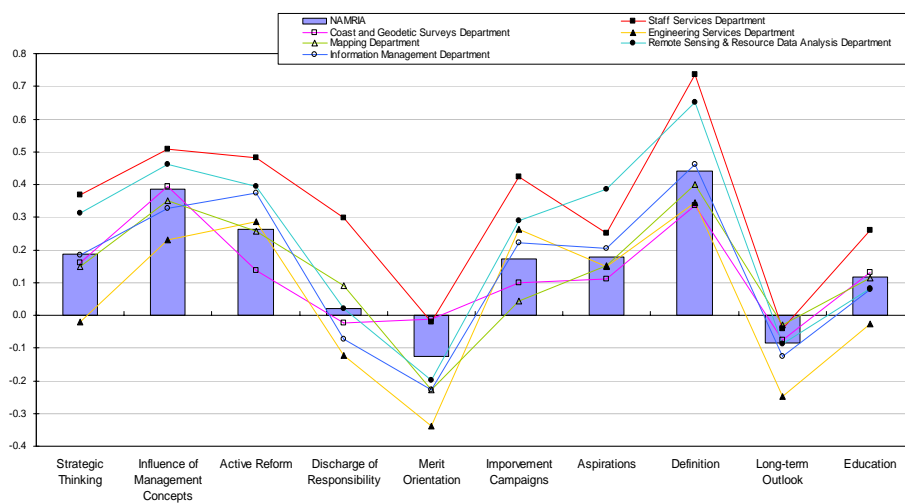
Staff Services Dept.

1. This Dept. shows the highest “Strategic Vitality” in the whole of NAMRIA Depts. This Dept. leads all of the indexes in NAMRIA Depts. and shows vitality in leading the works, except the index of “Aspirations” that is only index of inferior to “Remote Sensing & Resource Analysis Dept. which is vitalized through the inquires from a private enterprise.
2. The vitality of “Influence of management Concept”, “Discharge of Responsibility” and “Improvement Campaign” are high due to the following reasons:
 - The distance between the nerve center of NAMRIA and the Dept. is nearer than the other Depts.
 - The standard of work is controlled better than in the technology Depts. and works exceeding the standard and / or working flow are seldom requested.

Information Management Department

1. This Dept. is ranked in the average position of NAMRIA’s whole “Strategic Vitality” (degree on commitment to mapping services).
 - The role of NAMRIA and the management policy of the nerve center have spread sufficiently (“Influence of management concept”) and the Dept. fully understands what to do (“Strategic brains”) and how to do it (“Definition”) on a daily basis.
 - “Action Reform” is a little bit higher than the average, but “Discharge of Responsibility” and “Merit Orientation” are a little bit lower. That is to say, there is tendency to execute work in the Dept. However, there is tendency to leave things half-done.
 - There are many tasks worth doing for the staff. However there is no method to evaluate the activity or there is no opportunity to conduct evaluation itself.

Strategic Vitality by Department



General Keynote (3)

~"Organizational Vitality"~ Outlook for communication in the Organization

- "Respect for Dialogue" and "Appropriation Regulation" are ranked below the average of the organization in the Philippines and there is room for improvement.
 - "Respect for Dialogue"

Opinions and suggestions submitted by the lower ranked staff are not accepted nor hear out. The special executives may decide on everything (proper delegation of authority to the Depts. has not been done).
 - "Appropriation Regulation"

Proper Standards and Working Manuals have not been prepared to perform the works. Or, Carrier Pass and Training Plan have not been prepared to encourage the human power.
- "Delegation of Authority" and "Tolerance of Failure" are ranked average in the Philippines. The environment on "Respect for the Individual" has been built properly in the organization.
 - "Respect for the Individual"

There is tendency to respect individuals. However, allowing for low score of index of "Merit Orientation", staff seem to misunderstand that "Respect for the Individual" that every staff are in the same level and not to evaluate the individual ability. This tendency is the sense of values which often meets even in the private sector in the Philippines. It is necessary to discuss the following directions for improvement.

 - Implementation of training regarding "Performance Management".
 - Introduction of individual performance management based on the performance of the Dept. or the Team (though there are many problems to be solved).

General Keynote (4)

~"Organizational Vitality"~ Diagnosis for each of the Depts.

- **Staff Services Dept.**

Being near the Seat of Power, organizational circumstances such as "Delegation of Authority", "Respect for Dialogue" and "Appropriation Regulations" are, sometimes, ignored. "Unselfish Devotion" may sometimes be encouraged.
- **Information Management Department**

Open-hearted discussion is allowed on the basis of proper regulations and the "Delegation of Authority" is proper. The most balanced "Organizational Vitality" exists in the Dept.
- **Mapping Dept.**

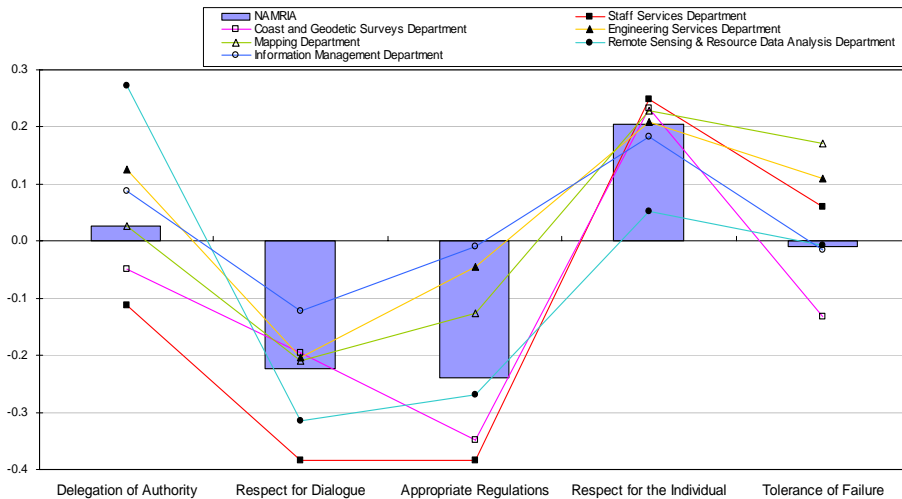
The degree of "Organizational Vitality" is typical in NAMRIA. Though the individual is respected, there exists little indulgence towards failure
- **Coast and Geodetic Surveys Dept.**

There exists a sort of "Unselfish Devotion" environment. Since "Tolerance of Failure" is also low, there is tendency that failure is not permissible.
- **Remote Sensing & Resource Data Analysis Dept.**

"Delegation of Authority" is advanced most of all, but "Respect for the Individual" and "Respect for dialogue" seem not to be given so much because a team result (probably) is requested.
- **Engineering Service Department**

The procedure of work is not secure (the analysis of "Strategic Vitality"), so some would misunderstand that the "Delegation of Authority" is complied and there is "Free spirit" existing under the proper regulations.

Organizational Vitality by Department



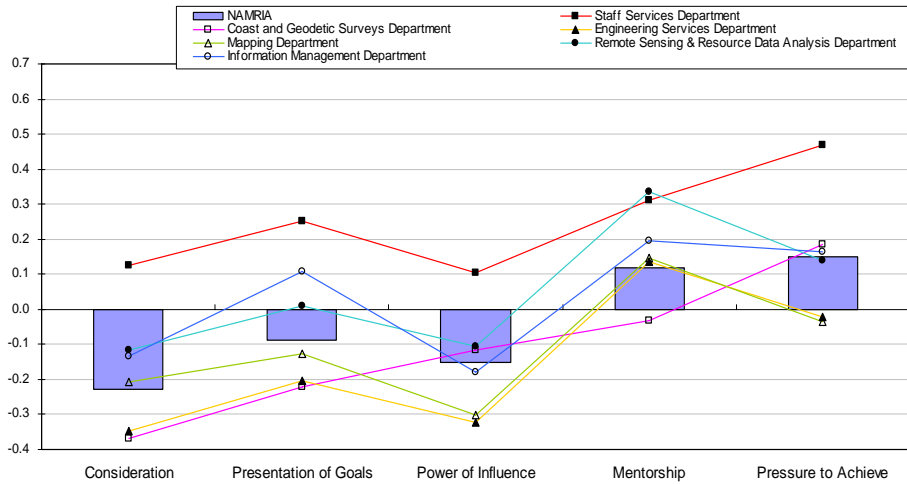
General Keynote (4)

~"Leadership"~ Whole NAMRIA /Analysis for each Dept.

- Leaders of the whole NAMRIA

"Mentorship" and "Pressure to Achieve" are ranked over the average of the whole Philippines. There are work circumstances where strict mentorship is executed. However, the "Consideration", "Presentation of Goals" and "Power of Influence" of superiors are lacking and there is a possibility that superiors are sort of incompetent that subordinates don't count on him.
- Analysis for each Dept.
 - Excellent leaders exist in the Staff Services Dept. They are equipped with the "Consideration" and "Presentation of Goals" toward their subordinates and also have the "Power of Influence" towards top management.
 - The leaders of the Mapping Dept. and the Engineering Services Dept. are regarded to not having the "Power of Influence" towards top management from their subordinates.
 - The leaders of the Coast and Geodetic Surveys Dept. and the Engineering Services Dept. are regarded as lacking "Consideration" towards their subordinates, also, "Presentation of Goals" for their subordinates are not sufficient.
 - The leaders of the Coast and Geodetic Surveys Dept. seem to have no consideration for "Mentorship" and are simply strong on "Pressure to Achieve" and so the subordinate may think of their leaders as being a disgusting fellow.
 - The leaders of the Mapping Dept. and Engineering Services Dept. are weak on "Pressure to Achieve" and the subordinates may think of them as gentle leaders. The leaders in both Depts. are regarded as weak & good person as the "Presentation of Goals" and the "Power of Influence" are also ranked low.

Leadership by Department



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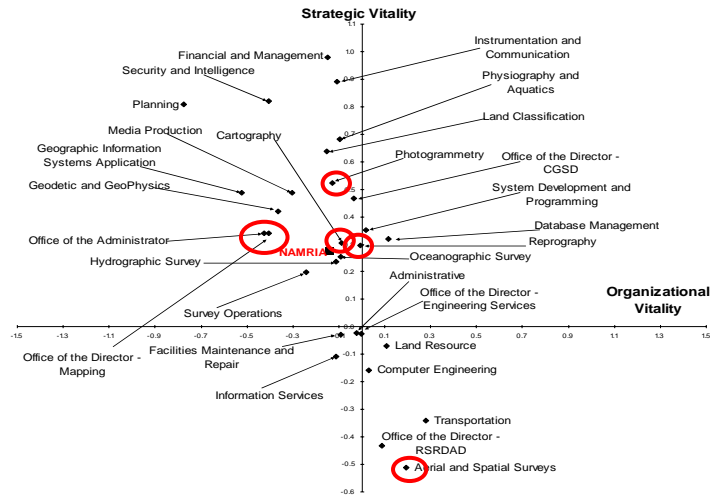
One by One Analysis for each Dept. (1)

- **Depts. in the domain of “Vibrant”:**
 - System Development and Programming Div. (IMD)
 - Database Management Div. (IMD)
- **Depts. in the domain of “Anarchy”:**
 - Land Resource Div. (RSRDAD)
 - Computer Engineering(ESD)
 - Transportation (ESD)
 - Office of Director (RSRDAD)
 - Areal and Spatial Surveys (MD)
- **Depts. in the domain of “Patay”:**
 - Office of Director (ESD)
 - Administrative Div.
 - Facilities Maintenance and Repair Div. (ESD)
 - Information Services Div. (IMD)
- **The Best 3 for “Strategic Activity:**
 - Financial and Management Div. (SS)
 - Instrumentation and Communication Div. (ESD)
 - Security and Intelligence Div. (SS)
- **The worst 3 for “Strategic Activity:**
 - Aerial and Spatial Surveys (MD)
 - Office of Director (RSRDAD)
 - Transportation (ESD)
- **Depts. that can target the domain of “Vibrant”:**
 - Reprography and Printing Div. (MD)
 - Office of Director (CGSD)
 - Cartography Div (MD)
 - Physiography and Aquatics Div. (RSRDAD)
 - Photogrammetry (MD)
- **Depts. necessary for urgent organizational improvement:**
 - Facilities Maintenance and Repair Division (ESD)
 - Information Services Division (IMD)
 - Transportation (ESD)
 - Office of Director (RSRDAD)
 - Areal and Spatial Surveys (MD)

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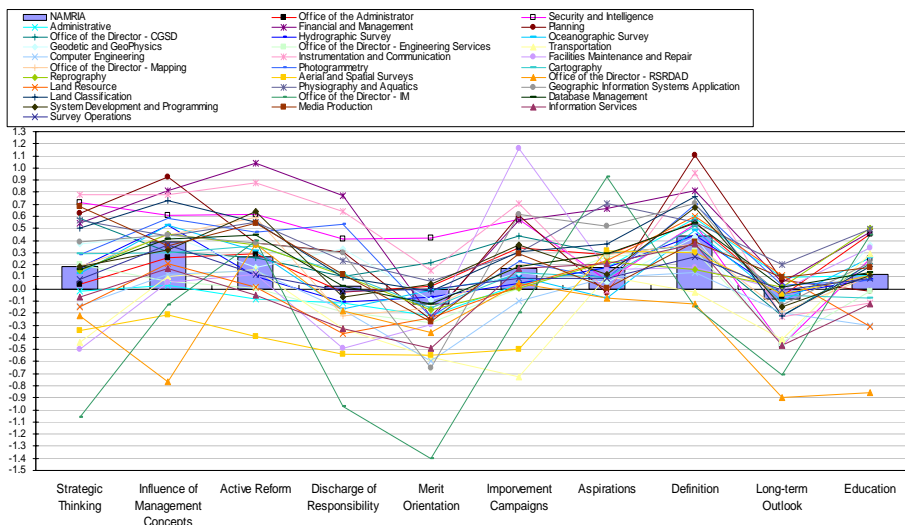
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Overall Vitality by Division



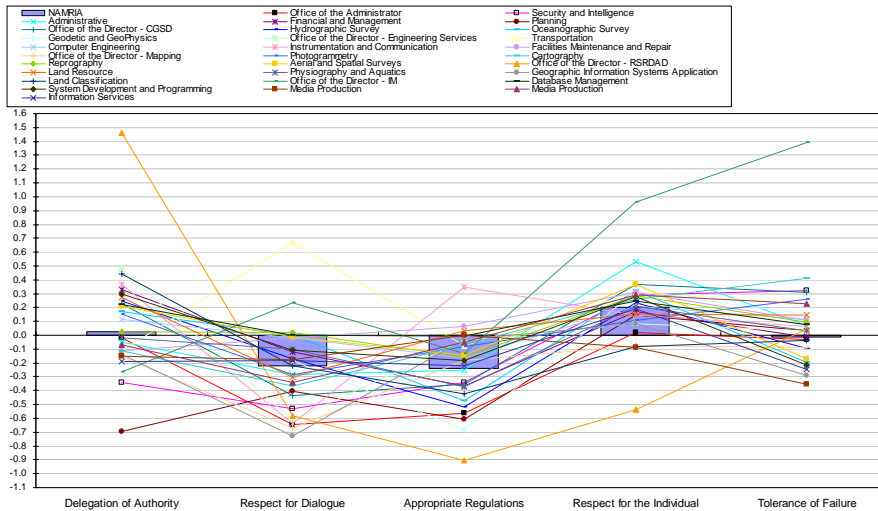
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Strategic Vitality by Division



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Organizational Vitality by Division



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One by One Analysis for each Dept. (2)

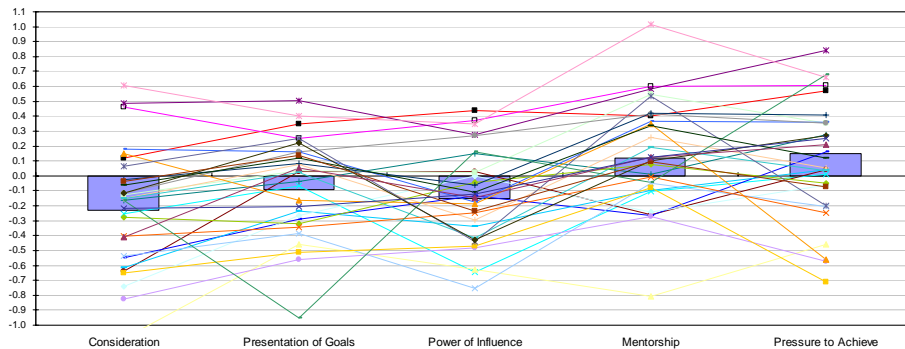
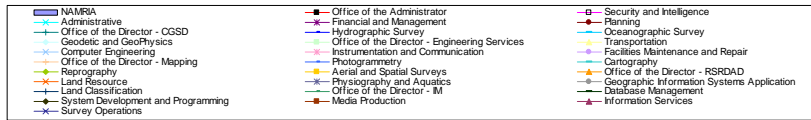
~Leadership~

- Organizations with “NAMRIA’s Treasure” - excellent leaders
 - Instrumentation and Communication Div. (ESD)
 - Financial and Management Div. (SS)
 - Security and Intelligence Div.(SS)
 - Office of the Administrator (Is this leader Mr. Ventura?)
- Organizations with potential to create excellent leaders through one more effort and training
 - Photogrammetry Div. (MD)
 - Physiography and Aquatics Div. (RSRDAD)
 - Geographic Information Systems Application Div. (RSRDAD)
 - System Development and Programming Div. (IMD)
- Organizations where leaders need considerable effort
 - Facilities Maintenance and Repair Div. (ESD)
 - Computer Engineering Div. (ESD)
 - Transportation Div. (ESD)
 - Aerial and Spatial Surveys Div. (MD)

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Leadership by Division



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On the position / One by One Analysis

■ General Keynote

- According to the order of Administration→Management→Technical post, vitality is high and the degree of contribution is also high.
- Maintenance staff falls into those who do not understand what to do, makes vitality down.

■ “Strategic Vitality”

- The Strategic Vitality of the Management in NAMRIA is high.
- The segment of [no reply] who cannot understand the scope of work is weak on self-improvement consciousness, (“Strategic brains”, “Active Reform” and Improvement Campaigns” are low) and are low vitality persons.

■ “Organizational Vitality”

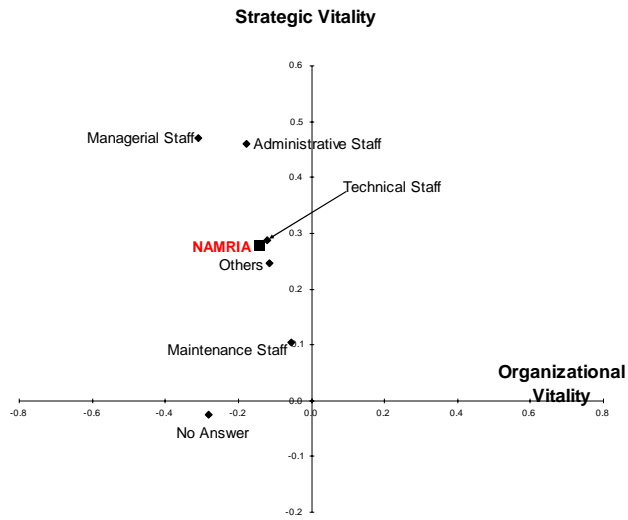
- In circumstances that lack discussions and proper regulation, the management and administrative staff are more strongly aware of the circumstances than technical staffs.

■ “Leadership”

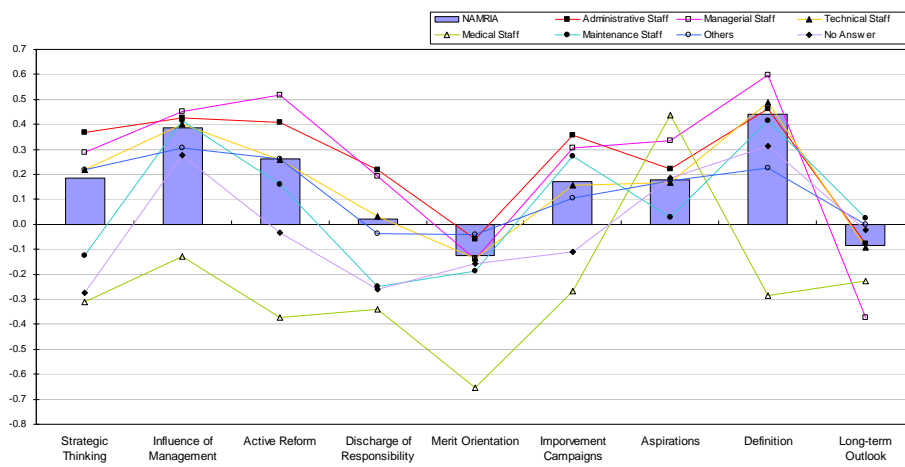
- Leadership of the administrative staff as observed by the management staff, is rather high. On the other hand, one of the management staff is observed to be lacking in “Consideration” and “Power of Influence” by the technical post staff.

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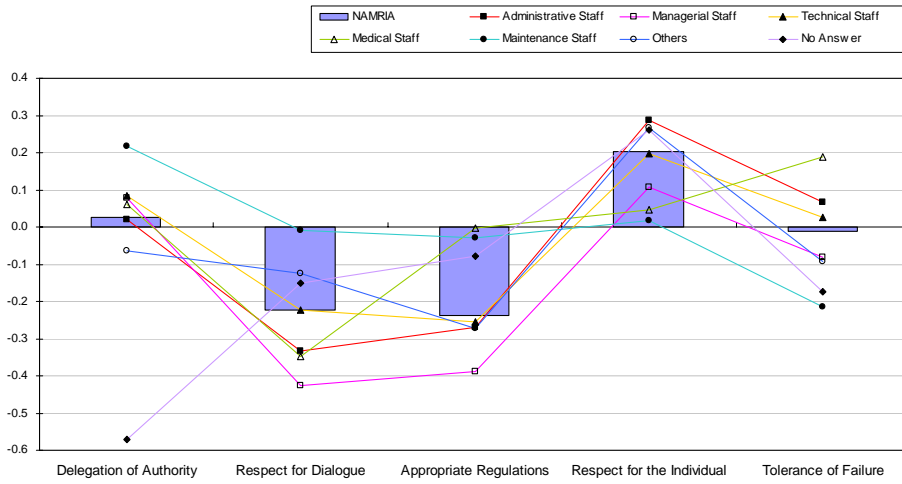
Overall Vitality by Position



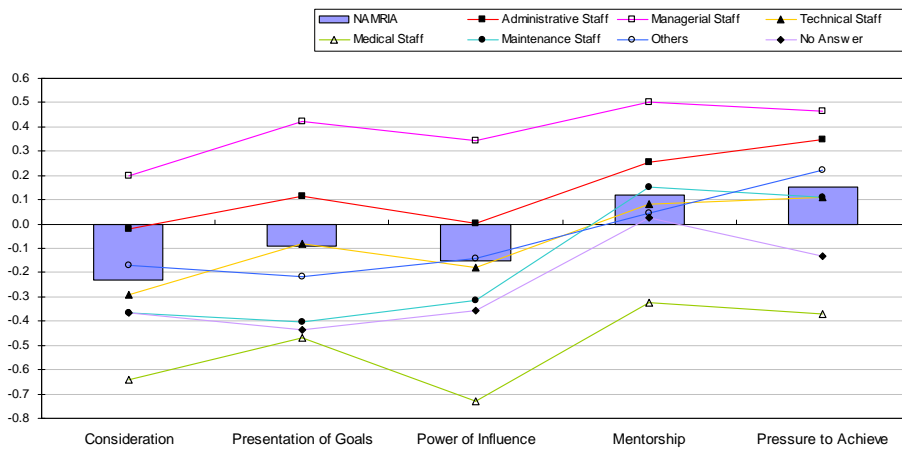
Strategic Vitality by Position



Organizational Vitality by Position



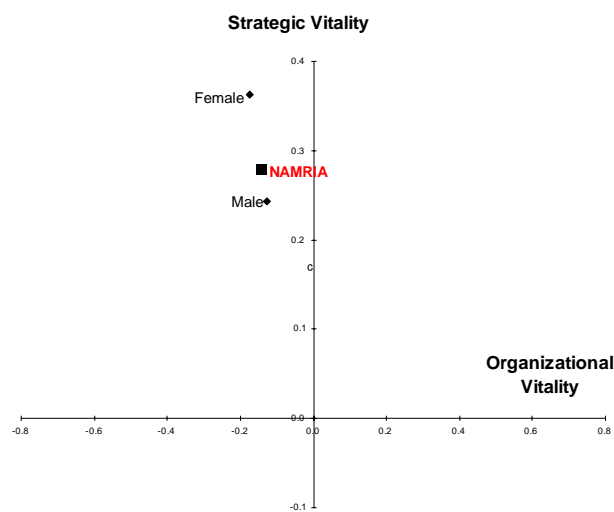
Leadership by Position



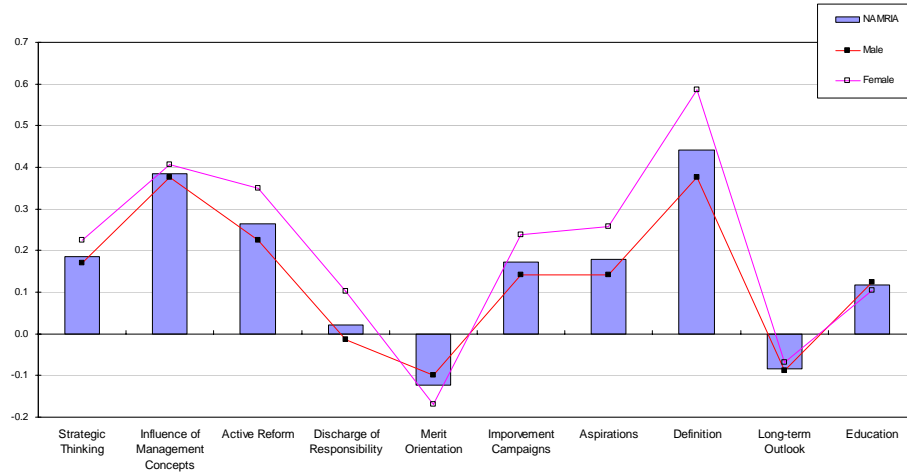
Women and Men Analysis / One by one Analysis. ~Gender Issue~

- General Keynote
 - There are effective replies from 430 males and 195 females. The vitality of females is overwhelmingly high.
- “Strategic Vitality”
 - Except for “Merit Orientation”, the vitality of females is high. However, this matter is important because the female staff feel that they are not treated equally in “Merit Orientation” with male staff. And there are circumstances that male staff has more advantage on promotion and treatment.
 - Introduction of a “Merit Orientation”, in which there is no difference between men and women, would be an urgent matter for NAMRIA.
- “Organizational Vitality”
 - As in the reflection of the circumstances on the “Merit Orientation” mentioned above, female staff has low recognition for “Delegation of Authority” and “Respect for Dialogue”.
 - The female staff have a much more higher circumstances recognition on “Tolerance of Failure”. As for “Tolerance of Failure”, there exists a sense that failure by a male would not be permissible, but that one of a female would be a bit permissible.
- “Leadership”
 - Although there is a question concerning immediate superior in the Dept., female staff have a tendency to say that their leader would be excellent compared with the male staff. It may be because of many male leaders in the Dept.

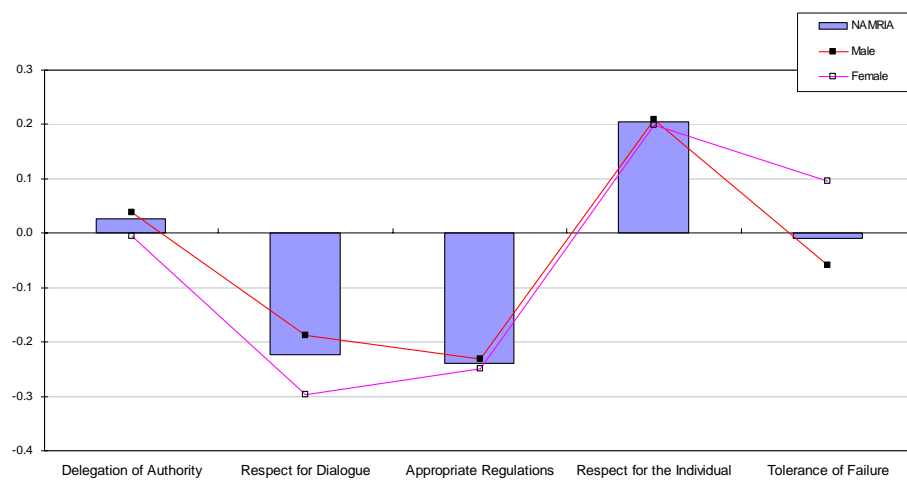
Overall Vitality by Gender



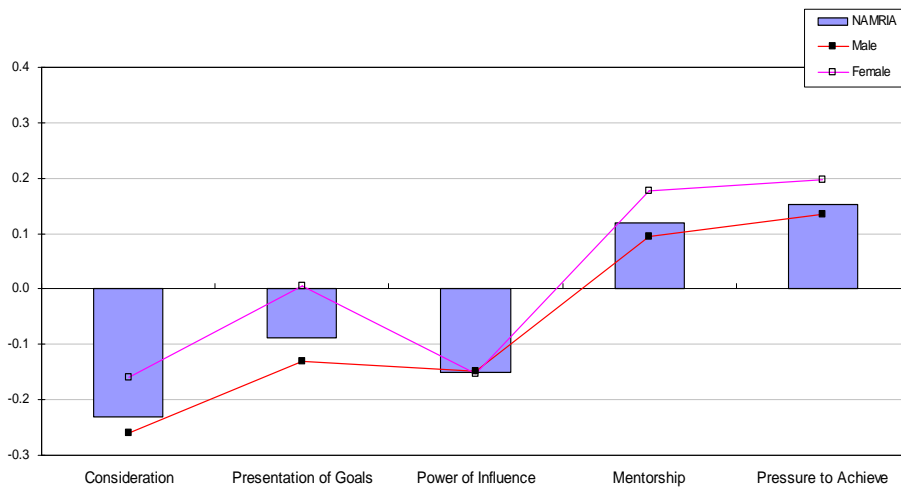
Strategic Vitality by Gender



Organizational Vitality by Gender



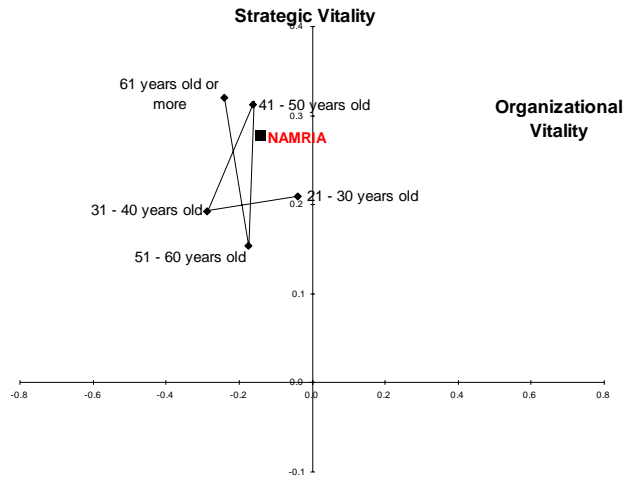
Leadership by Gender



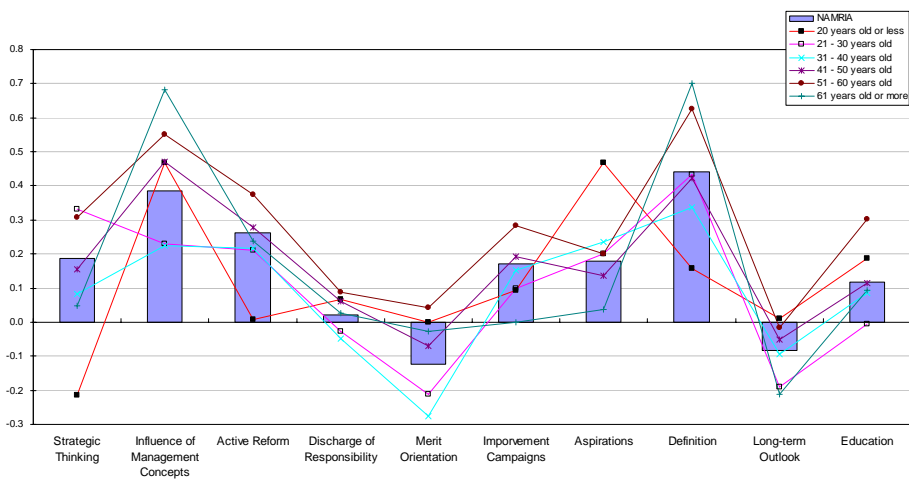
On the age / One by one Analysis

- General Keynote
 - Most staff have obtained their jobs in their twenties and by their thirties, vitality goes down because of mannerism and dissatisfaction in the organizational environment where they are placed. After that, if some of them could get promotion to a managerial position, vitality increases. It is a general case that when most of them are aware of the "Glass Ceiling", vitality goes down. This composition would not be changed regardless of the type of occupation.
- "Strategic Vitality"
 - The vitality of the twenties and thirties are lower than for the senior generations.
 - "Merit Orientation" and "Long-term outlook" are conspicuous. This shows that they will not cling on the job for a long time unless their performance are not admitted.
- "Organizational Vitality"
 - Except for the line of "under twenties" the samples are 3 only, so no considering, the trends are almost similar. It would be a matter of course that there is a high "Tolerance of Failure" in the twenties who have not had things put in their hands.
- "Leadership"
 - The thirties who are ranked in the lowest of the "Strategic Vitality" show the most severe way of thinking towards the leadership of their immediate bosses.

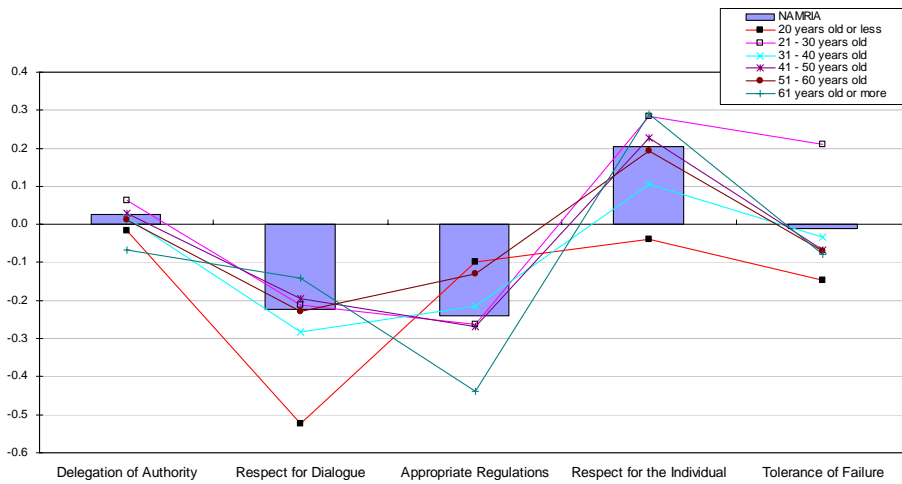
Overall Vitality by Age



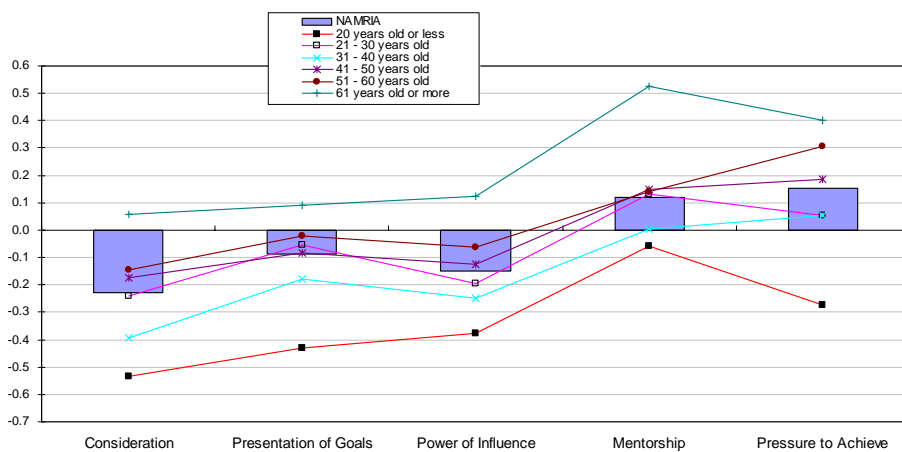
Strategic Vitality by Age



Organizational Vitality by Age



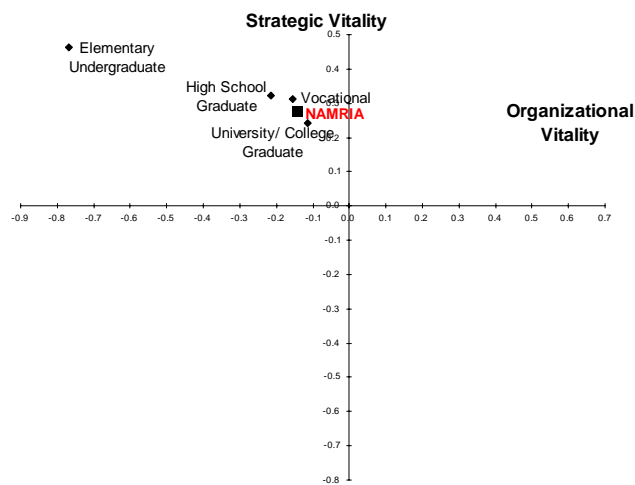
Leadership by Age



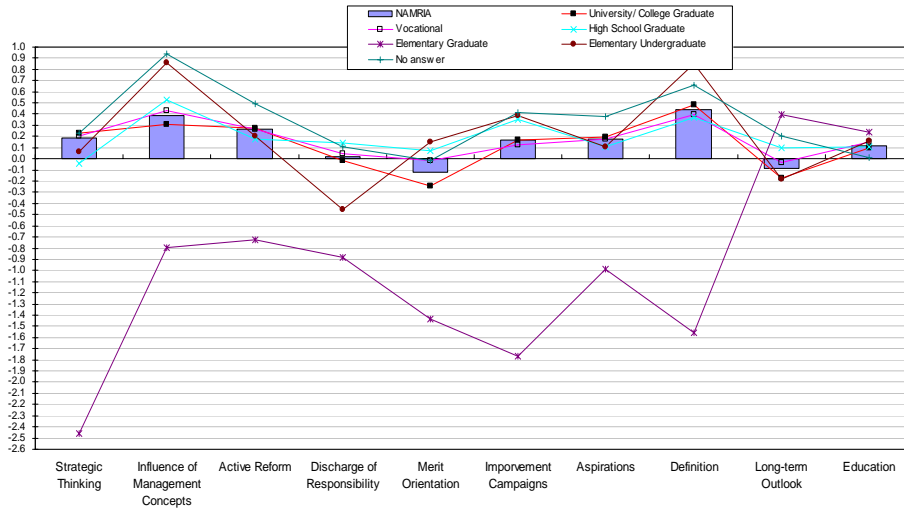
On the educational background / One by one Analysis

- General Keynotes
 - Observing the properties of the respondents, University graduate=314, Vocational School (college) graduate=231, High school graduate=67 and Elementary graduate, Leaves elementary school before graduation and no response are the total 12.
 - No significant difference was found by observing the top 3 ranking categories.
- “Strategic Vitality”
 - There is no significant difference by educational background.
- “Organizational Vitality”
 - There is no significant difference by educational background.
- “Leadership”
 - There is no significant difference by educational background.

Overall Vitality by Educational Attainment

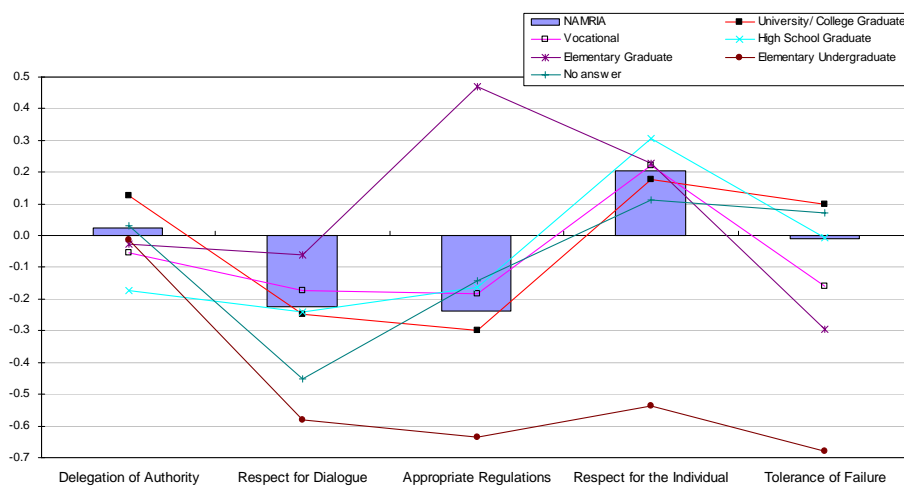


Strategic Vitality by Educational Attainment



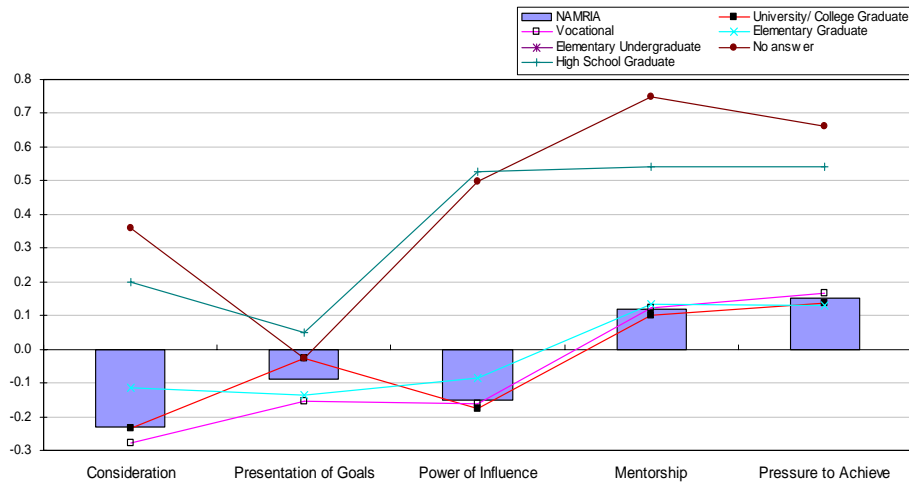
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Organizational Vitality by Educational Attainment



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Leadership by Educational Attainment



On the services period / One by one Analysis

■ General Keynotes

- Having a knack on the work in 3 years after entering NAMRIA, "Strategic Vitality" decreases every year. At the same time, "Organizational Vitality" increases gradually because of getting accustomed to the circumstances in the organization.
- It would be 4 years after entering NAMRIA that personnel will be assigned to certain responsibilities at NAMRIA. After this, "Strategic Vitality" is going up and gradually goes down when they get accustomed with the work.

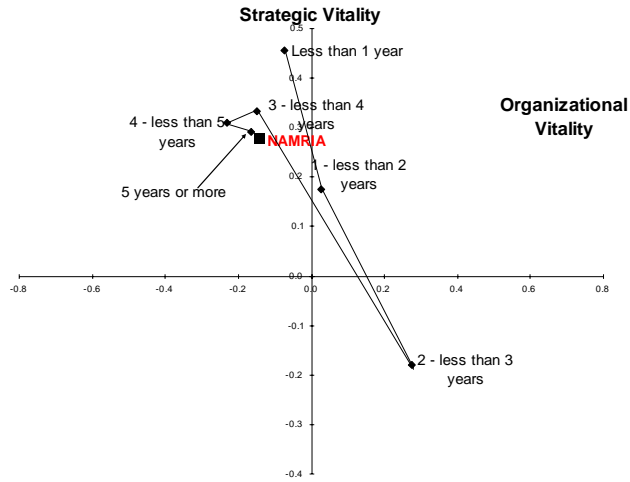
■ "Strategic Vitality"

- "Strategic brains", "Action reform" and "Definition" are so high for the staff working less than a year. That would be proof that they had started the work eagerly with passion in their roles. However, as time passes, this tendency is gone and the recognition of environment in terms of "Influence of management concept" and the "Discharge of responsibility" gets stronger.
- This tendency is generally common regardless of nationality. It can be understood that a certain period (4 years) after entering to a Dept., one would ponder to the traditional ways of an organization.

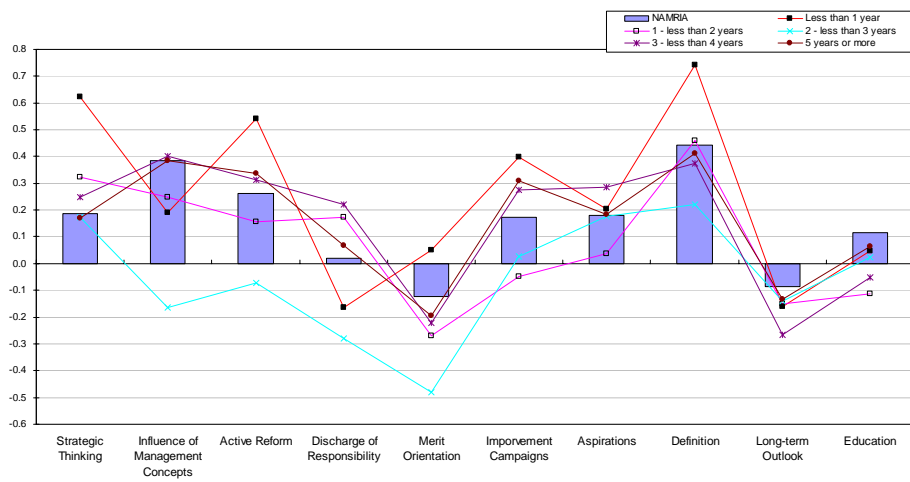
■ "Organizational Vitality"

- The fact that "Tolerance of Failure" goes down after 4 years has passed is because of the reasons mentioned above.

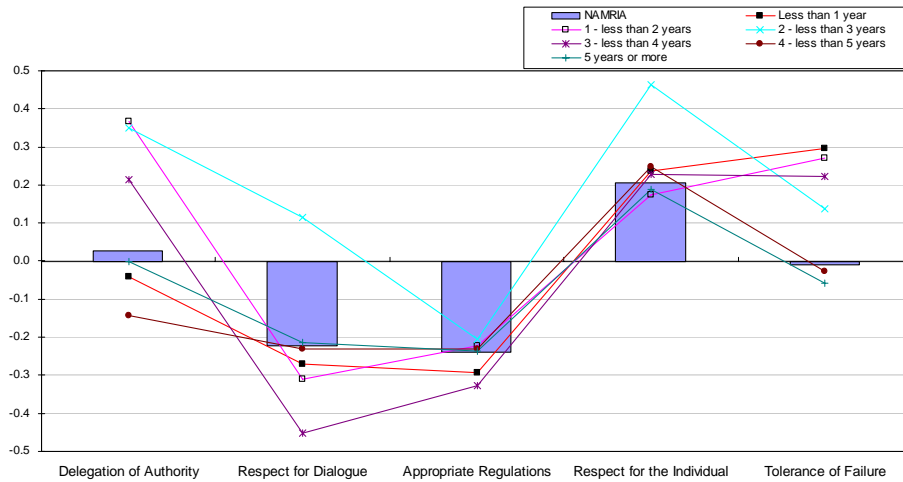
Overall Vitality by Years of Service in NAMRIA



Strategic Vitality by Years of Service in NAMRIA



Organizational Vitality by Years of Service in NAMRIA



On No. of dependent / One by one Analysis

■ General Keynotes

- The segment, without dependent shows clearly the low "Strategic Vitality".
- When he gets dependent, "Strategic Vitality" goes up. At the same time, "Organizational Vitality" tends to be restrained as the commitment to the organization increases.

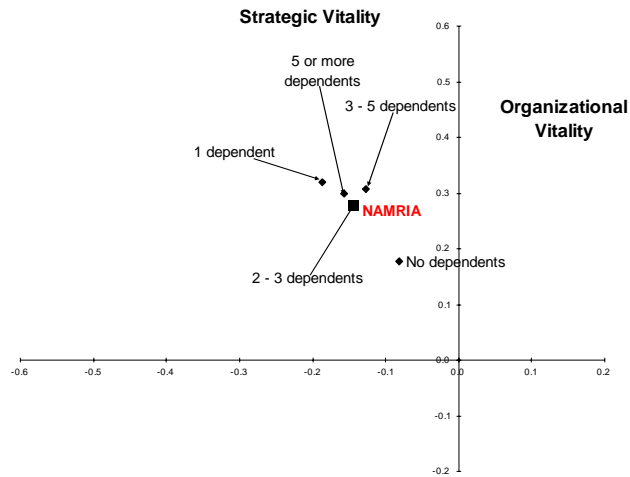
■ "Strategic Vitality"

- The class of "No dependant (56 persons)" shows low points for the "Merit orientation" and the "Long-term outlook". They are feeling that they would not stay in NAMRIA for a long time since they are not properly evaluated.
- Although those who have more than 5 dependents (56 persons) recognizes the environment on "Influence of Management Concept" and "Active Reform", the point for "Discharge of Responsibility" is low. They are feeling that their job-site is under irresponsible circumstances (although there is an insincere appeal, nobody is responsible for it).

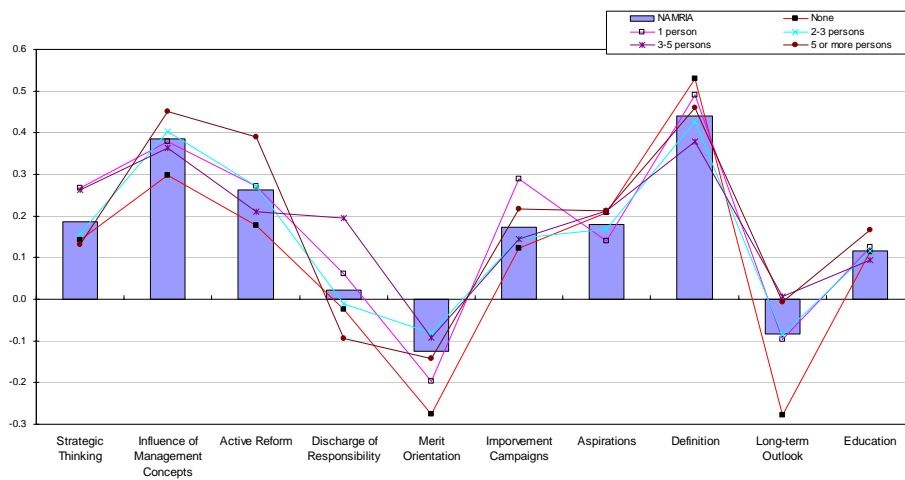
■ "Organizational Vitality"

- It would be thought that the class of "No dependant (56 persons)" has a wide influence in NAMRIA and has good communication skills (because of lightness?). Due to the reason mentioned above, the index point for "Delegation of Authority", "Respect for the Individual" and "Tolerance of failure" are high.
- On the other hand, as there is no "Appropriate regulation", they seem to feel that their performance is not evaluated properly.

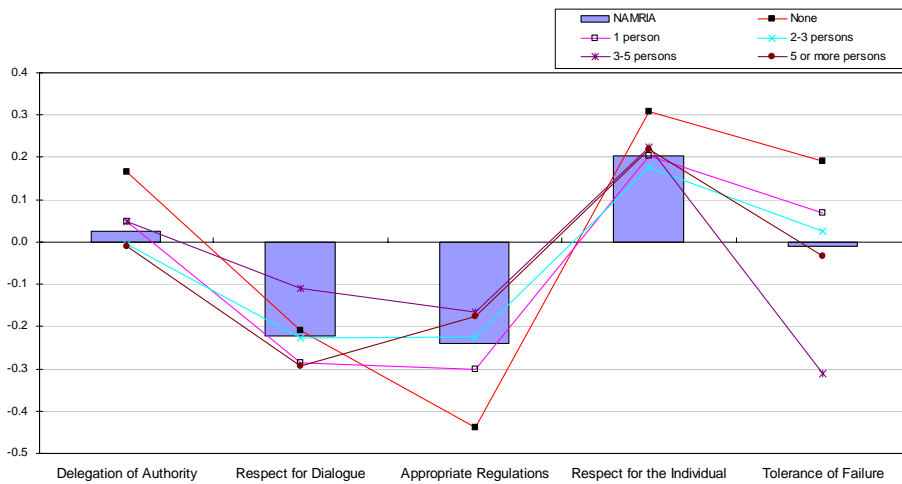
Overall Vitality by Leadership by Number of Dependents



Strategic Vitality by Leadership by Number of Dependents



Organizational Vitality by Leadership by Number of Dependents



On yes/no of the overseas training experience / One by one Analysis

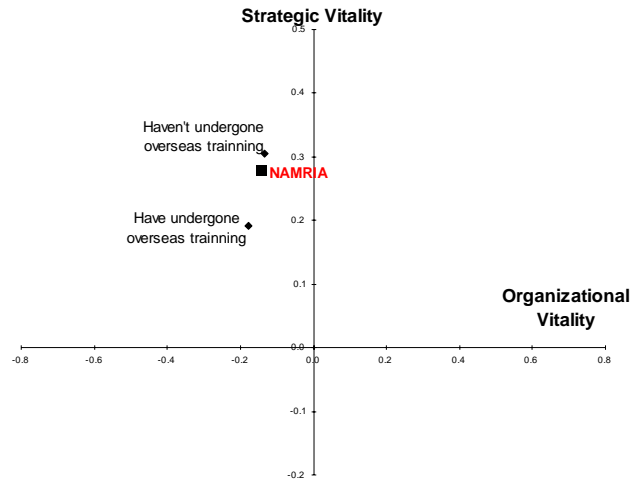
■ General Keynotes

- 133 persons had experienced overseas training. Vitality is low compared to persons who have not receive overseas training yet.
- There is room for improvement on treatment for the training participants.

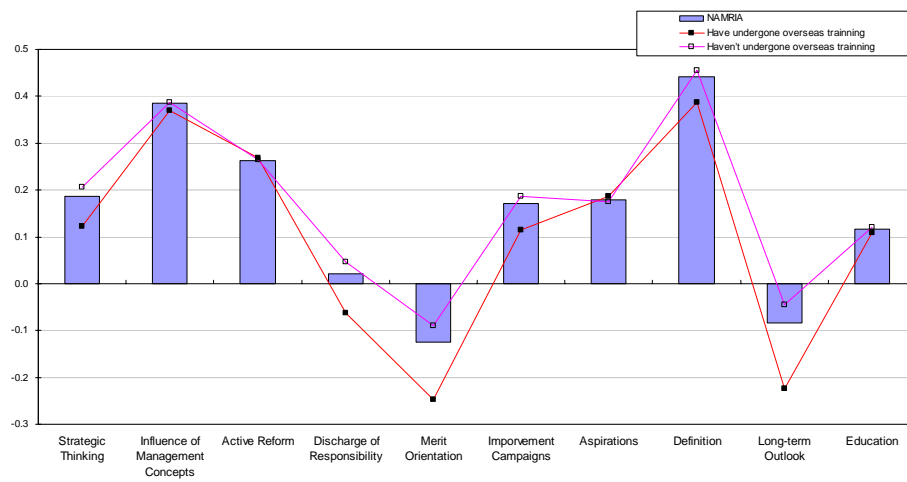
■ “Strategic Vitality” / “Organizational Vitality”

- There seems to exist dissatisfaction from the trainees who have experienced overseas training and are not given favorable treatment.
- The following dissatisfactions exist in such peoples:
 - ・ They think they are capable enough but are not evaluated properly.
 - ・ There are so many staff in their workplace who do not know what to do.
 - ・ NAMRIA does not have long-term vision.
 - ・ Sufficient discussions has not been executed in NAMRIA.
 - ・ NAMRIA is not generous towards failure.

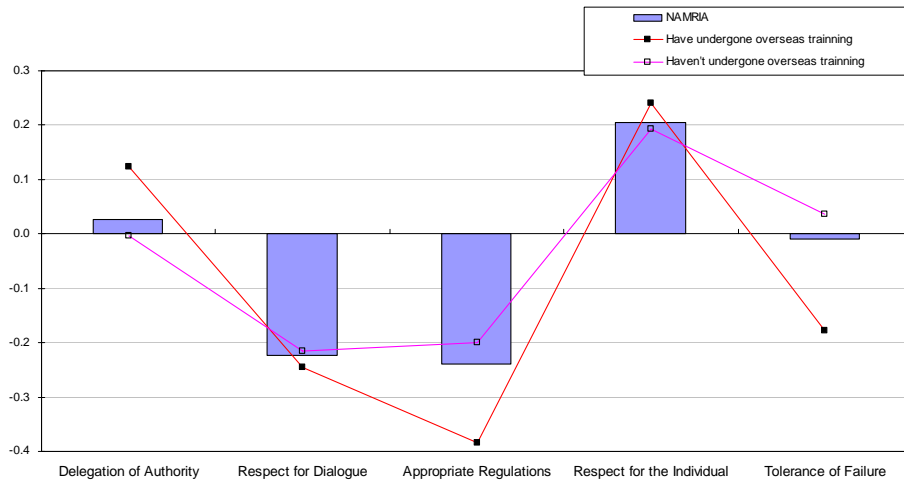
Overall Vitality by Exposure to Overseas Training



Strategic Vitality by Exposure to Overseas Training



Organizational Vitality by Exposure to Overseas Training



Don't write anything please.

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Diagnosis of the Organizational Culture

◆◆**Questionnaire Survey Form**◆◆

JICA Study Team

It is the purpose of this survey to collect basic data for measurement of atmosphere and culture of various workplaces with a view to creating better ones. Before completing the questionnaire, please note the following.

1. The questionnaire findings will be subjected to mainly statistical processing and analysis. There will be absolutely no release of any individual responses to any third parties, including your unit of NAMRIA.
2. Please feel free to answer questions frankly as the questionnaire has absolutely no connection with individual job evaluation.
3. Some of the questions may seem somewhat ambiguous. In answering them, please interpret them in accordance with your own judgment; do not consult colleagues or superiors about the meaning.
4. The survey is aimed at ascertaining the feelings of the individuals making up organizational units, not at the actual facts of those units. Although you may not know about some of the things asked, please feel free to use your imagination in furnishing a reply in such cases.
5. Please answer each and every question; your completed form will be invalid if there is even one omission or misentry.

Part A. Your unit, etc.

This part concerns the unit to which you belong in the **NAMRIA** organization. Circle only one response for each question.

※ Position(Class)	Circle only one response
1. Administrative Staff	
2. Managerial Staff	
3. Technical Staff	
4. Medical Staff	
5. Maintenance Staff	
6. Others	

※ Assigned Department.	Circle only one response
1. Staff Services (<i>Office of the Administrator, Planning Division, etc.</i>)	
2. Coast & Geodetic Surveys Department (<i>SOD Office, SHIP Support Division</i>)	
3. Engineering Services Department (<i>Transport Division, Computer Division</i>)	
4. Mapping Department (<i>Photogrammetric Division, Cartography Division</i>)	
5. Remote Sensing & Resource Data Analysis Department (<i>Land Resources, GIS Division</i>)	
6. Information Management Department (<i>Media Production, Database Management</i>)	

※ Assigned Division & Section.	Circle one division & one corresponding section
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STAFF SERVICES

1. Office of the Administrator
2. Security & Intelligence Division
3. Administrative Division
 - a. Personnel Management & Dev't Section
 - b. Map Sales Office
 - c. Records Section
 - d. Dental Clinic
4. Financial & Mgmt. Division
 - a. Accounting Section
 - b. Internal Audit
 - c. Cash Section
5. Planning Division

COAST & GEODETIC SURVEYS DEPARTMENT

1. Office of the Director
2. Hydrographic Survey Division
 - a. Hydrographic Survey Division
 - b. Camera Unit
 - c. Printing Unit
3. Oceanographic Survey Division
4. Geodetic & GeoPhysics Division

ENGINEERING SERVICES DEPARTMENT

1. Office of the Director
2. Transport Division

- 3. Computer Engineering Division
- 4. Instrumentation & Communication Division
- 5. Facilities Maintenance & Repair Division

MAPPING DEPARTMENT

- 1. Office of the Director
- 2. Photogrammetry Division
 - a. Compilation Section
 - b. Analytical Section
 - c. Enhancement Section
 - d. DPW
- 3. Cartography Division
 - a. Administrative Map Section
 - b. National Series Section
 - c. Database Section
- 4. Reprography & Printing Division
 - a. Camera Unit
 - b. Plate Making Unit
 - c. Archives Unit
- 5. Aerial & Spatial Surveys Division

REMOTE SENSING & RESOURCE DATA ANALYSIS DEPARTMENT

- 1. Office of the Director
- 2. Land Resource Division
 - a. Research Section
- 3. Physiography & Aquatics Division
 - a. Mangrove Section
 - b. Physiography Section
- 4. Geographic Information Systems Application Division
 - a. Database and Archive Section
- 5. Land Classification Division
 - a. Mapping Section
 - b. Field Operation Section
 - c. Documentation & Data Processing Section
- 6. National Remote Sensing Center

INFORMATION MANAGEMENT DEPARTMENT

- 1. Office of the Director
- 2. Database Management Division
- 3. Systems Dev't. & Programming Division
- 4. Media Production Division
- 5. Information Services Division

※ Sex Circle only one response	
1. Male	2. Female

※ Age Circle only one response	
1. 20 or less	4. 40~50 yrs old.
2. 21~30 yrs old	5. 50-60 yrs old
3. 30~40 yrs old	6. 61 or more

※ Educational Background	Circle only one response
1. University graduate and above	4. Elementary School Graduate
2. Vocational/College Graduate	5. Elementary School Under graduate
3. High School Graduate	

※ Yrs of Services Rendering to NAMRIA.	Circle only one response
1. Less than 1yr	4. 3-less than 4yrs
2. 1- less than 2yrs	5. 4 –less than 5yrs
3. 2- less than 3yrs	6. 5yrs or more

※ Number of Dependent to Your Income	Circle only one response
1. 0	3. 3 – 5 persons
2. 1 person	4. 5 or more persons
3. 2-3 persons	

※ Have you been to overseas training so far?	Circle only one response
1. Yes	
2. No	

Disagree Completely	Disagree basically	Neutral	Agree basically	Agree completely
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Question No.

Question No.

Question No.		(1) Yes	1	2	3	4	5	No
Q1.	Emphasis is placed on short-term results	(1) Yes	1	2	3	4	5	No
Q2.	Even petty matters have to be referred to the superior.	(2) Yes	1	2	3	4	5	No
Q3.	It is thought that failure does more to develop people than quick success.	(3) Yes	1	2	3	4	5	No
Q4.	The standards of evaluation are simple and easy to understand.	(4) Yes	1	2	3	4	5	No
Q5.	The agency's philosophy has been made clear by concrete examples.	(5) Yes	1	2	3	4	5	No
Q6.	People are extremely busy and chronically tired.	(6) Yes	1	2	3	4	5	No
Q7.	You can decide things as you see fit, without having to worry about what other people think.	(7) Yes	1	2	3	4	5	No
Q8.	The level of profit is more important than the level of sales.	(8) Yes	1	2	3	4	5	No
Q9.	Ideas derived from client needs receive full attention.	(9) Yes	1	2	3	4	5	No
Q10	People strongly want NAMRIA to make greater effort in new technology.	(10) Yes	1	2	3	4	5	No
Q11	There is smooth communication.	(11) Yes	1	2	3	4	5	No
Q12	Provisions and schemes faithfully reflect the Agency's philosophy.	(12) Yes	1	2	3	4	5	No
Q13	The organizational structure is simple and easy to understand.	(13) Yes	1	2	3	4	5	No
Q14	Failure is not tolerated.	(14) Yes	1	2	3	4	5	No
Q15	People often talk about their aspirations for NAMRIA and the work.	(15) Yes	1	2	3	4	5	No

Disagree Completely	Disagree basically	Neutral	Agree basically	Agree completely
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Question No.

Question No.

Question No.	Question No.	1	2	3	4	5	
Q16	There is a climate of forward momentum. (16) Yes	1	2	3	4	5	No
Q17	Once plans are put into action, emphasis is placed on sticking with them until results are achieved. (17) Yes	1	2	3	4	5	No
Q18	People's performance is evaluated with reference to figures for short-term results. (18) Yes	1	2	3	4	5	No
Q19	Decisions on even important matters are left to the person in question. (19) Yes	1	2	3	4	5	No
Q20	You can disagree with the superior without any ill feelings or consequences. (20) Yes	1	2	3	4	5	No
Q21	A unit or team may be set up to compete with others in NAMRIA. (21) Yes	1	2	3	4	5	No
Q22	New proposals are judged fairly, regardless of the number of years or rank in NAMRIA. (22) Yes	1	2	3	4	5	No
Q23	Important decisions are always made by going back to NAMRIA's basic principles. (23) Yes	1	2	3	4	5	No
Q24	Targets are too high, and the atmosphere is highly oppressive. (24) Yes	1	2	3	4	5	No
Q25	Team play is emphasized over individual action. (25) Yes	1	2	3	4	5	No
Q26	Even mid-career candidates are actively hired. (26) Yes	1	2	3	4	5	No
Q27	The opinions of others (even outside NAMRIA) are given serious consideration. (27) Yes	1	2	3	4	5	No
Q28	People think it is enough merely to do the job at hand. (28) Yes	1	2	3	4	5	No
Q29	People believe in each other. (29) Yes	1	2	3	4	5	No
Q30	Change is regarded as an opportunity instead of a threat. (30) Yes	1	2	3	4	5	No

Disagree Completely	Disagree basically	Neutral	Agree basically	Agree completely
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Question No.

Question No.

Question No.		(31) Yes	1	2	3	4	5	No
Q31	Personnel capabilities are developed through day-by-day rather than manuals or explicit learning methods	(31) Yes	1	2	3	4	5	No
Q32	The key to success is regarded as lying more in reinforcing strengths than in shoring up weaknesses.	(32) Yes	1	2	3	4	5	No
Q33	The work at hand is viewed as more important than aspirations for the future.	(33) Yes	1	2	3	4	5	No
Q34	Decisions are made promptly.	(34) Yes	1	2	3	4	5	No
Q35	A clear definition has been made of management responsibility and authority.	(35) Yes	1	2	3	4	5	No
Q36	Long-term visions are given more importance than short-term plans.	(36) Yes	1	2	3	4	5	No
Q37	Becoming the top in the government is emphasized in each type of work.	(37) Yes	1	2	3	4	5	No
Q38	People can work without being shackled by rules and procedural regulations.	(38) Yes	1	2	3	4	5	No
Q39	Emphasis falls on harmony and opposing views rarely surface.	(39) Yes	1	2	3	4	5	No
Q40	The organization is flexible enough for the formation of special (ad-hoc) teams as necessary.	(40) Yes	1	2	3	4	5	No
Q41	NAMRIA staff receive treatment commensurate with their performance, regardless of seniority.	(41) Yes	1	2	3	4	5	No
Q42	In-depth discussions are conducted when a difference of opinion surfaces.	(42) Yes	1	2	3	4	5	No
Q43	Many people truly empathize with NAMRIA's philosophy.	(43) Yes	1	2	3	4	5	No
Q44	Small-group activities are enthusiastically executed for problem-solving.	(44) Yes	1	2	3	4	5	No
Q45	New proposals are implemented only after careful analysis and study.	(45) Yes	1	2	3	4	5	No

Disagree Completely	Disagree basically	Neutral	Agree basically	Agree completely
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Question No.

Question No.

Question No.		(46) Yes	1	2	3	4	5	No
Q46	Personnel transfers and re-postings make sense.	(46) Yes	1	2	3	4	5	No
Q47	New needs is created in the market through the development of new technology and products.	(47) Yes	1	2	3	4	5	No
Q48	The targets posted are achieved.	(48) Yes	1	2	3	4	5	No
Q49	Activities adapt promptly to change.	(49) Yes	1	2	3	4	5	No
Q50	There is an attitude of giving new ideas a chance to work.	(50) Yes	1	2	3	4	5	No
Q51	The training program is linked to the organizational setup and systematically implemented.	(51) Yes	1	2	3	4	5	No
Q52	Opportunities are emphasized over what NAMRIA can do itself.	(52) Yes	1	2	3	4	5	No
Q53	Importance is attached to the steady build-up of small improvements.	(53) Yes	1	2	3	4	5	No
Q54	The person at the top is trusted.	(54) Yes	1	2	3	4	5	No
Q55	People always bear in mind how the results of the job at hand will be carried over in succeeding projects.	(55) Yes	1	2	3	4	5	No
Q56	Anyone can participate in projects of their choice if they have the enthusiasm and capability.	(56) Yes	1	2	3	4	5	No
Q57	Decisions that appear to be over-reaching are sometimes made.	(57) Yes	1	2	3	4	5	No
Q58	Employees are constantly checked to see whether or not they are observing rules.	(58) Yes	1	2	3	4	5	No
Q59	You want to continue working at your current workplace.	(59) Yes	1	2	3	4	5	No
Q60	Your activity at this workplace is contributing to your personal growth.	(60) Yes	1	2	3	4	5	No

Disagree Completely	Disagree basically	Neutral	Agree basically	Agree completely
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Question No.

Question No.

Q61	Sometimes asks subordinates to challenge tasks that are nearly impossible.	(61) Yes	1	2	3	4	5	No
Q62	Presents specific targets that are to be met.	(62) Yes	1	2	3	4	5	No
Q63	Adapts smoothly to all situations.	(63) Yes	1	2	3	4	5	No
Q64	Attaches importance to the on-the-job attitude and outlook.	(64) Yes	1	2	3	4	5	No
Q65	Says what should be said to NAMRIA officers.	(65) Yes	1	2	3	4	5	No
Q66	Gives subordinates long-term tasks as well as immediate tasks.	(66) Yes	1	2	3	4	5	No
Q67	Relays information which he or she has obtained from inside or outside NAMRIA to subordinates.	(67) Yes	1	2	3	4	5	No
Q68	Tries to help subordinates find the pattern or formula for success themselves.	(68) Yes	1	2	3	4	5	No
Q69	Honors the feelings and standpoints of subordinates.	(69) Yes	1	2	3	4	5	No
Q70	Puts the business results before all other considerations.	(70) Yes	1	2	3	4	5	No
Q71	Has power of influence with other organizational units.	(71) Yes	1	2	3	4	5	No
Q72	Makes sure that subordinates implement plans once they have been approved.	(72) Yes	1	2	3	4	5	No
Q73	Is not bound by conventional patterns and attempts new approaches.	(73) Yes	1	2	3	4	5	No
Q74	Communicates NAMRIA management policy to subordinates and seeks their understanding of the same.	(74) Yes	1	2	3	4	5	No
Q75	Pays serious attention to problems or issues raised by subordinates.	(75) Yes	1	2	3	4	5	No

Disagree Completely	Disagree basically	Neutral	Agree basically	Agree completely
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Question No.

Question No.

Question No.		(76) Yes	1	2	3	4	5	No
Q76	Respects the views of subordinates.	(76) Yes	1	2	3	4	5	No
Q77	Pulls subordinates along in accordance with his or her own philosophy.	(77) Yes	1	2	3	4	5	No
Q78	Has subordinates experience various work to assist their growth.	(78) Yes	1	2	3	4	5	No
Q79	Discloses on-the-job know-how to subordinates.	(79) Yes	1	2	3	4	5	No

APPENDIX IV PROJECT CYCLE MANAGEMENT

JICA STUDY FOR MAPPING POLICY AND TOPOGRAPHIC MAPPING FOR INTEGRATED NATIONAL DEVELOPMENT PLAN IN THE REPUBLIC OF THE PHILIPPINES

PCM WORKSHOP COMPLETION REPORT

Submitted

on: 23 May 2006

by:



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PROJECT CYCLE MANAGEMENT (PCM) WORKSHOP
The Study for Mapping Policy and Topographic Mapping for
Integrated National Development Plan in the Republic of the Philippines

COMPLETION REPORT

1.0 Introduction

The three-year study is being conducted with the support of the Japan International Cooperation Agency with the National Mapping and Resource Identification Authority (NAMRIA) as the counterpart agency. The main objective of the study is the formulation of an implementation plan for NAMRIA to promote nationwide deployment of topographic mapping at a scale of 1:50,000. One of the components of the study is the formulation of an organizational development plan to enhance the capacity of NAMRIA to undertake the task of updating the topographic maps. The capacity assessment entails the conduct of the Diagnosis of Corporate Culture (DCC) and the Project Cycle Management (PCM) Workshop.

SEED was requested to conduct the PCM Workshop focusing on problem and situation analyses.

2.0 Objective of the Workshop

The PCM Workshop was conducted to analyze the existing situation (in terms of updating the topographic maps), identify the major problems of the situation and to define the desirable and realistically achievable situation.

3.0 Date and Venue

The workshop was held on 17 May 2006 at the Lecture Hall, NAMRIA Office, Fort Bonifacio, Taguig City.

4.0 Participants

There were 17 participants in the workshop distributed as follow: Financial Management Division (1); Plans and Operational Division (1) and the five departments (15) with the following breakdown:

Department	No of Participants
Coast and Geodetic Surveys Department	1
Engineering Services Department	3
Mapping Department	6
Remote Sensing & Resource Data Analysis Dept	4
Information Management Department	1

Capt. Jose Galo Isada, Jr., Manager of the Mapping Department was also present. Observers included the representatives from the JICA Philippine Office, the JICA Experts assigned in NAMRIA; and the members of the JICA Study Team.

The list of participants and observers is in **Attachment 1**.

5.0 Highlights of the Proceedings

5.1 Workshop Preliminaries

Mr. Takano welcomed the participants to the workshop. He explained that the conduct of the PCM workshop is in connection with the ongoing JICA Study and that the workshop was meant to study or analyze the present situation at NAMRIA in connection with the preparation of the topographic maps at a scale of 1:50,000. Topographic maps in the Philippines had been prepared in the 1950s and there is an urgent need to update said maps since these are used as base data for the national development policy planning, regional development project planning and infrastructure development planning. He also pointed out that the activity would be an informal one and that the participation of everybody would be very essential in the discussion.

Ms. Corina Manansala of the JICA Study Team introduced the facilitators from Small Economic Enterprises Development (SEED) Inc., Ms. Anita Ambrosio and Ms. Erlinda Ederadan, the JICA Philippine Office representatives, the JICA experts and the JICA Study Team members.

Ms. Ederadan requested everybody to introduce him/herself in the group. She then explained that one of the objectives of the study is the formulation of the organization development plan that would necessitate the conduct of the capacity assessment. The assessment has static and dynamic research methods. The static research method is the diagnosis of the corporate culture while the dynamic method adopts the project cycle management (PCM) approach. She informed the participants that this workshop would focus only on the problem and situation analyses.

5.2 Introduction to the Methodology

Ms. Ambrosio provided the participants some background information about the PCM method. She explained that the PCM is a tool for managing the entire cycle of a project; that is from formulation, implementation, monitoring and evaluation, appraisal through the Project Design Matrix (PDM). The PDM reflects the Activities, Inputs, Objectives, Important Assumptions and Objectively Verifiable Indicators required for a development project and the most importantly,

the logical relationships among them. The PCM method is characterized by consistency (through the use of the PDM); logical relationships (cause and effect and means-ends) and participatory approach. One of the important steps of the PCM Method is **participatory planning** that comprises of *analysis stage* (participation analysis, problem analysis, objectives analysis and project selection or alternatives analysis) and *planing stage* (formulation of project design matrix and plan of operations).

She reiterated that for this workshop the participants would undergo the problem and the objectives analysis; two of the critical steps in participatory planning.

She then proceeded to the discussion of the rules of the PCM workshop; the highlights of which is as follows:

- Uses visualization technique through the use of cards; hence there is no need for long explanation
- One idea per card (writing to be legible; same argument or theme = same color of the card)
- All participants are considered equal
- Everybody owns the cards the moment these are placed on the board
- There is no need to identify the person who wrote the idea in the card

5.3 Workshop on Problem Analysis

5.3.1 Preliminaries

Prior to the workshop, it was explained that the Problem Analysis is a set of technique for (a) analyzing the existing situation surrounding a given problem situation; (b) identifying the major problems of the situation; (c) visualizing the relationships between the cause and effect in a diagram. The output of this workshop is the Problem Tree.

The following important notes on undertaking Problem Analysis was imparted to the participants:

- Identify only existing problems, not theoretical ones.
- Write only one problem per card.
- Problems should be described in negative style.
- A problem is not the absence of a solution but an existing negative state.

An example of a Problem Tree was flashed on the board to illustrate the cause-effect relationship in its formulation.

5.3.2 Highlights

(1) Idea generation and categorization of cards

To generate ideas, the question "Why is it that NAMRIA is not able to provide the topographic maps at a scale of 1:50,000" was posed to the participants. They were asked to write their ideas in the cards.

Each card was read to the participants before posting to the board. Related cards were temporarily grouped into clusters. Each cluster was then discussed and clarification was sought from the participants regarding the ideas expressed in the card.

(a) Organizational Concerns

- organizational collaboration is not cohesive
- relevant data not shared by other agencies

It was explained that other agencies of the government are also gathering relevant data that NAMRIA could utilize in the upgrading of its topographic maps; however, such data are not shared with NAMRIA. These data include satellite imageries, aerial photos, road condition, etc. The other government agencies mentioned are the Department of Agriculture (DA), Department of Agrarian Reform (DAR) and the Department of Public Works and Highways (DPWH).

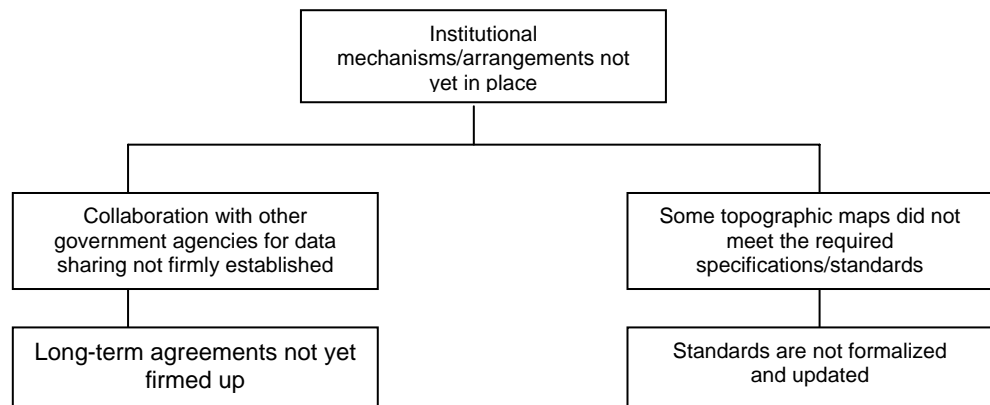
This could be partly attributed to the inactive status of the Inter-Agency Committee of NAMRIA. The Committee could help initiate the firming up of the collaboration agreements between NAMRIA and the other government agencies to complement or maximize resources.

(b) Standards and policies

- set of standards, policies on updating of topographic maps not well documented/properly written
- unclear targets (what is an updated topographic map)

The standards, as defined by the participants, are the specifications and the appropriate procedures to be observed (how to's). The standards encompass *data acquisition* (what types of information to be gathered and how to source out these information) and *data processing*. The participants further explained that most of the standards and policies being applied at present in the preparation of the topographic maps are patterned after those being utilized by other countries. They have not yet been modified to suit the local conditions. In addition, while these standards, policies, procedures/specifications are available, these have not been yet properly compiled as a one whole document that could be used as a reference material not only by the NAMRIA employees but also by its clients.

The clusters of cards were combined under one major cluster; as follows:



(d) Manpower

- limited number of skilled manpower to update existing topographic maps
- insufficient training
- rapid turn-over of skilled personnel

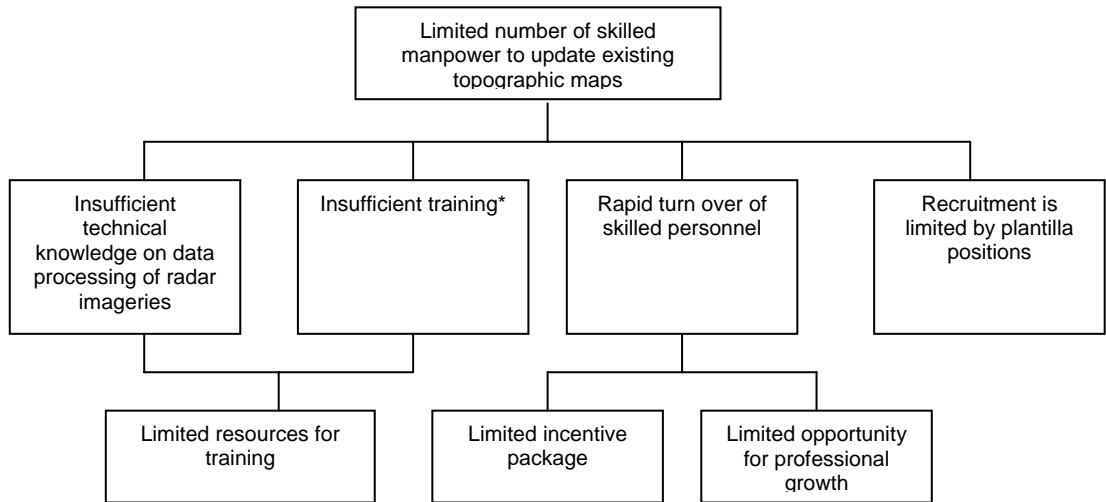
Clarifications were undertaken in this cluster to further define the types of skills training required and to validate the reasons for insufficient training and rapid turn over of skilled personnel.

The participants identified the following needed skills training activities:

- data processing of radar imageries
- map production
- image processing
- cartographic enhancement
- digital photogrammetric
- ground survey training
- upgrading on topographic map production

The limited opportunity for professional growth and limited incentive package compel the skilled personnel of NAMRIA to seek better employment opportunities (high paying jobs) abroad and in the private sector. The participants also mentioned that the per diem allowance of P300 has not yet been adjusted to cover costs incurred in undertaking fieldwork activities (part of the limited incentive package). The recruitment of personnel is also limited by available plantilla positions in the organization.

This cluster of cards has been re-arranged into:



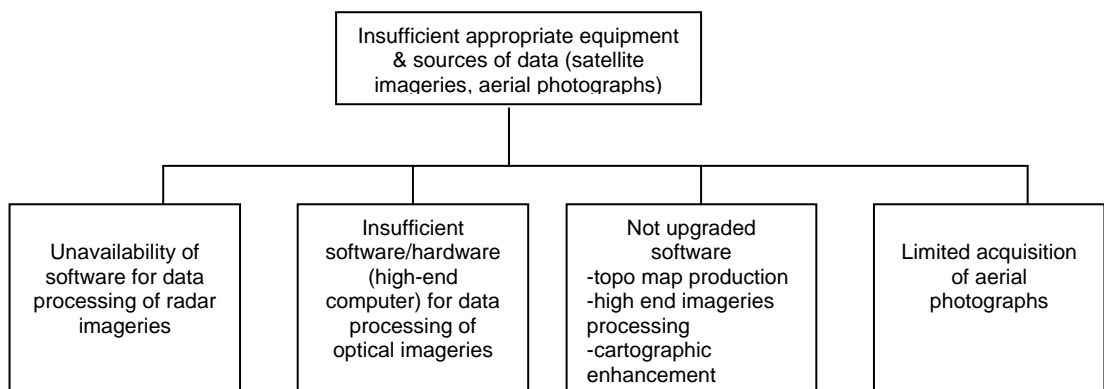
*Map production, image processing, cartographic enhancement, digital photogrammetric, ground survey training, upgrading on topographic map production

(e) Equipment

- appropriate equipment is insufficient
- insufficient software and hardware
- aerial photography not easily obtained
- uncontrollable weather condition resulting to cloud cover

This was further elaborated to identify the types of equipment and software needed. It was also clarified that given the necessary equipment, the weather condition will not be a problem in getting the needed data. There is a need for the acquisition of radar imageries to complement the optical imageries. Radar imageries will help in the data processing especially during bad weather condition. It was verified in the discussion that there are already existing radar imageries but only for Luzon areas. Further, the participants noted that there is a need to upgrade the skills of the staff on data processing of radar imageries.

The ideas were written in the cards and were re-arranged into:



(f) Budget

- high cost of imageries needed for updating
- limited budget in acquiring satellite imageries
- limited or insufficient budget to update topographic maps production
- limited resources available for topographic maps production
- lack of incentives to personnel going to the field

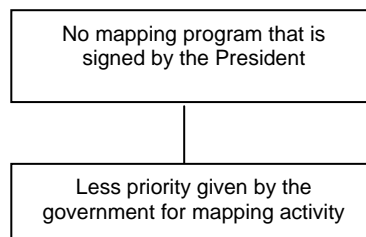
Since there is no mapping program signed by the President, it follows that funding for mapping activities is given less priority by the government. Hence, NAMRIA has difficulty getting the needed manpower and equipment. It was decided not to reflect this cluster anymore in the Problem Tree.

(g) Mapping program

- no mapping program that is signed by the President
- less priority given by the government for mapping activity

It was explained that NEDA did not accept the proposal on National Common Spatial Database (NCSD) that was submitted by NAMRIA on the grounds that it is a non-economic project. This is despite the contention of NAMRIA that for every dollar spent on data; four (4) dollars went back to the economy. This is based on Australia's experience. With this situation, *funding for mapping activities is given less priority.*

The cluster of cards was also re-arranged as follows:



(2) Stating the core problem

The core problem was initially formulated as follows:

"NAMRIA IS NOT ABLE TO PROVIDE TOPOGRAPHIC MAPS AT A SCALE OF 1:50,000"

It was revised following the comments and suggestions by the participants and now read:

Core Problem

NAMRIA IS NOT ABLE TO UPDATE TOPOGRAPHIC MAPS AT A SCALE OF 1:50,000" (GIS READY) ON A SUSTAINED BASIS.

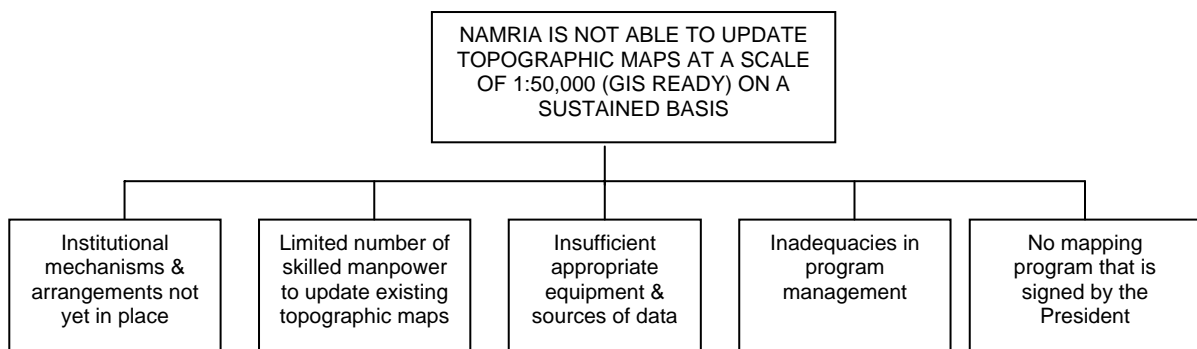
The participants explained that NAMRIA has the capacity to update the maps however, this is not being done on a sustained basis. Hence the revision of the core problem statement.

(3) Stating the causes of the core problem

There was a lengthy discussion on how to state the major causes of the core problem. Some of the suggestions are:

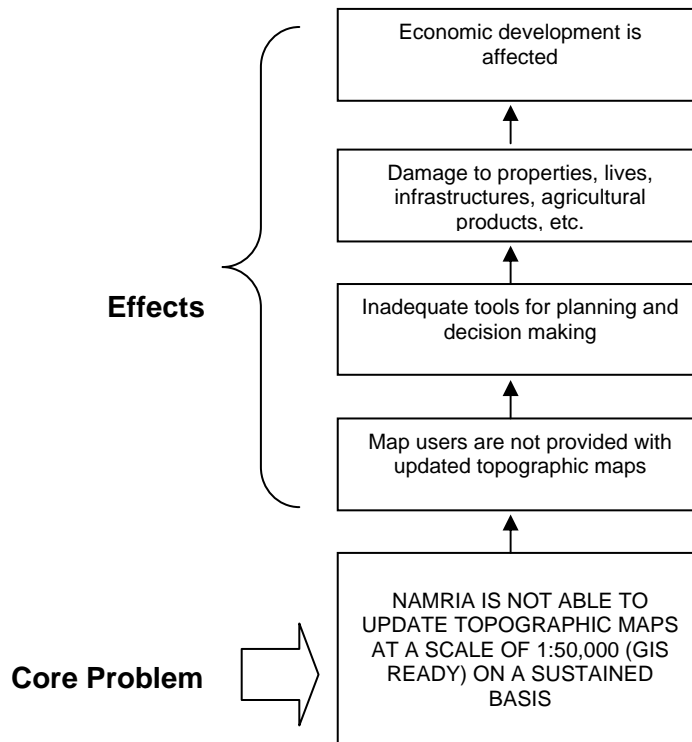
- Lack of institutional mechanisms and arrangements
- Ineffective human resource development/management
- Absence of appropriate policies, guidelines and procedures
- Inadequacies in program management
- Inadequacies in funding/financial outsourcing
- Inability of the agency to articulate continuous updating of maps

It was agreed that the major causes of the core problem would be stated as follows:



(4) Effects of the core problem

The participants identified the following as the possible effects of the core problem:



The Problem Tree is presented in **Attachment 2**.

5.4 Workshop on Objectives Analysis

5.4.1 Preliminaries

Ms. Ederadan explained that the Objectives Analysis is a set of techniques for (a) describing a desirable and realistically achievable future situation that would be attained if problems were solved; (b) analyzing systematically the relationships between interlinked means and end.

She also provided some important pointers in conducting the Objectives Analysis. These are:

- All negative conditions of the problem tree are transformed into positive conditions.
- The statements should describe conditions that are (a) desirable and realistically achievable.

- New objectives that need to be added if these appear to be relevant and necessary in order to achieve the stated objective (s) at the next level.
- Objectives may need to be deleted that do not appear to be necessary.

An example of an Objectives Tree was presented to the participants to illustrate the means-end relationships in its formulation.

The participants were divided into two (2) groups afterwards for this workshop. Each group presented the outputs in the plenary.

The Objectives Tree is in **Attachment 3**.

5.4.2 Salient Points Discussed

(a) On concrete institutional mechanisms/arrangements approved and implemented

(a.1) Collaboration institutionalized

The participants opined that the Board of Governors should address this matter upon the recommendation of the management. This body is composed of key officials from different government agencies.

(a.2) Standards adopted and followed

The responsibility of formulating the standards is with the Development Standards and Studies Office (DSSO). It was mentioned that an initial draft has been completed and submitted to the management for comments/approval. The draft was the result of a series of discussion with all the line departments particularly the Mapping Department.

(b) On adequate skilled manpower for topographic map production and updating

(b.1) new mapping technology acquired; and

(b.2) continuous training program developed and implemented

The participants noted that although the Administrative Division is responsible for the conduct of the training program, each line department is also undertaking training activities for its own staff. The training activities could either be in-house or abroad. They also suggested for a more aggressive effort in sourcing out training courses by the concerned line department and the Personnel and Manpower Development Section.

(b.3) controlled and tolerable turn-over

There were three means identified to address this situation; namely:

- (1) efficient recruitment - it will identify prospective employees who will be interested and willing to join NAMRIA despite its limitations
- (2) knowledge on management systems established - this will address the issue of ensuring that knowledge and accumulated experience of people leaving NAMRIA will remain intact with the agency
- (3) incentive package developed and implemented - regarding the query on how this will be addressed; the following were suggested:

- research and development program involving science and technology personnel developed and implemented

Involvement with research and development activities will provide opportunities for professional growth.

- Magna Carta on Science and Technology implemented in NAMRIA

According to the participants, the law provides provisions of incentive package for the employees.

- Personnel allowed by management to work outside NAMRIA in accordance with existing laws and policies

It pertains to involvement in consultancy work with the personnel going on official leave to take a consultancy position outside of the agency. This is somewhat a "new" idea or suggestion that would afford the opportunity for an employee to attain professional growth and at the same time to get better pay. This arrangement will still be subject for further discussion and will require the approval of the management.

- Scholarships promoted

This will respond to the need of the employees to be abreast of the latest technology on map production.

(c) On sufficient appropriate equipment and sources of data made available and maintained properly

The participants mentioned that the limited acquisition of appropriate equipment is being partially addressed to as a result of the implementation of the Geo-Hazard Mapping Project. The project enabled NAMRIA to plan the purchase of the following:

- Radar imageries and software in Quarter 4 of 2006, 2007 and 2008
- State-of-the-art cartographic enhancement software in Quarter 1 of 2007
- Remaining 50% of satellite imageries to be delivered within the year (2006)
- Data acquisition (aerial photography) in Quarter 1 2007

5.5 Next Session

Mr. Takano informed the group that the PCM workshop has enabled the participants to:

- (a) discuss the present situation and problem resulting to the formulation of the Problem Tree; and
- (b) set the direction for improvement of the situation with the formulation of the Objectives Tree.

In the next session, the participants will be able to assess the development potential of direction for improvement of the situation as defined by the Objectives Tree. Details of specifying who, what, when, where and how will also be undertaken in this session.

The participants were informed that the next session is scheduled in June.

**JICA Study for Mapping Policy and Topographic Mapping for
Integrated National Development Plan
In the Republic of the Philippines**

**PROJECT CYCLE MANAGEMENT (PCM) WORKSHOP
17 May 2006**

Lecture Hall, NAMRIA Building, Fort Bonifacio, Taguig City

ATTENDANCE

1.0 Participants

	Name	Position	Division/Department
1.1	Roberto Almuete	Officer-in-Charge	Finance Management Division
1.2	Randolf S. Vicente	PO I	Plans & Operations Division
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1.4	Nelson M. de Leon	Engineer V	Facilities Maintenance & Repair Division, Engineering Services Department
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Name	Position	Division/Department
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2.0 JICA Study Team

Name	Position
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Masashi Takano	Deputy Team Leader/Organizational Analysis/Capacity Development
Hisashi Mori	Human Resource Development/Technology Transfer

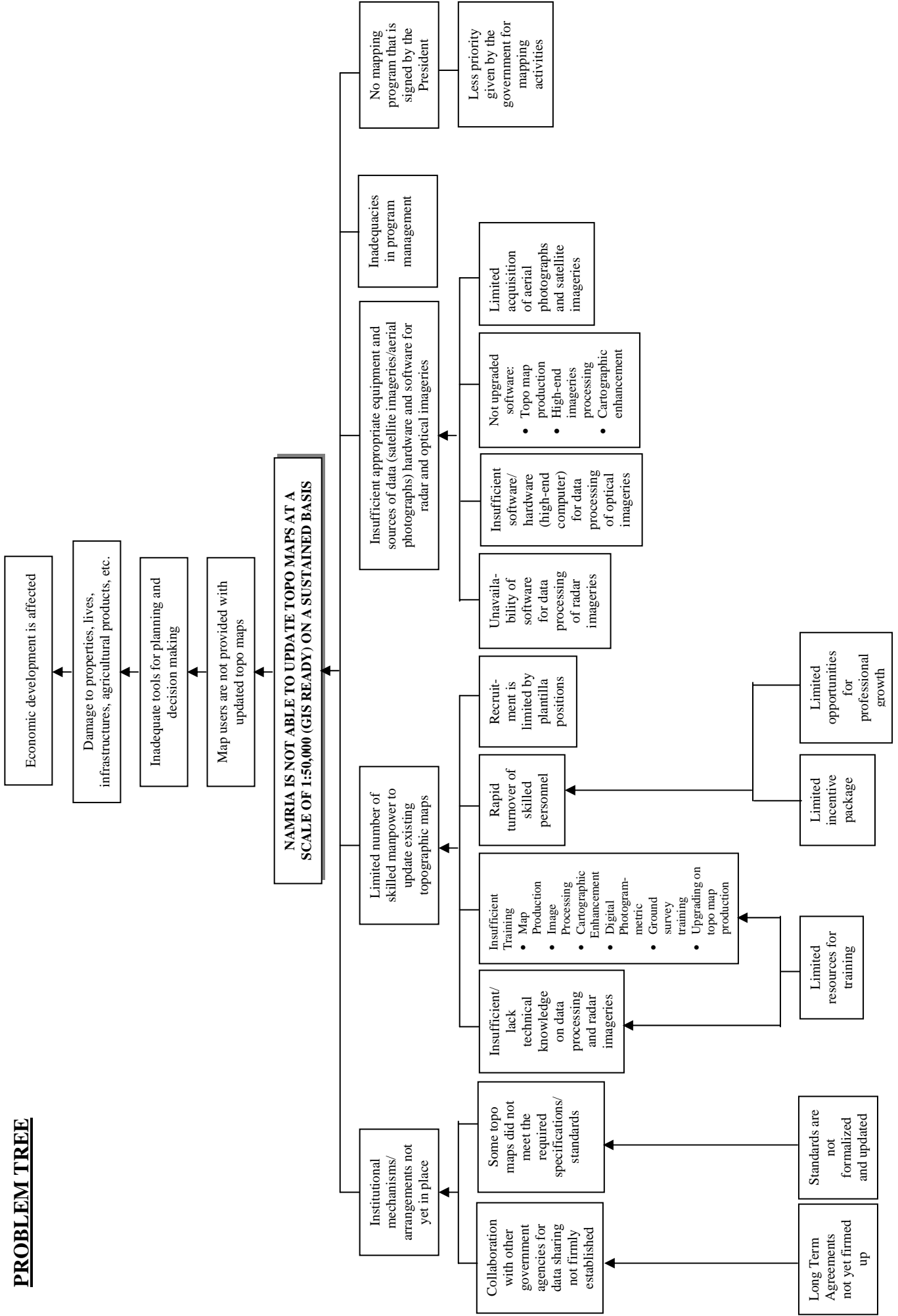
3.0 JICA Experts

Name	Division/Department
Shoki Kokuta	Coast and Geodetic Surveys Department
Heiji Sakamoto	Coast and Geodetic Surveys Department

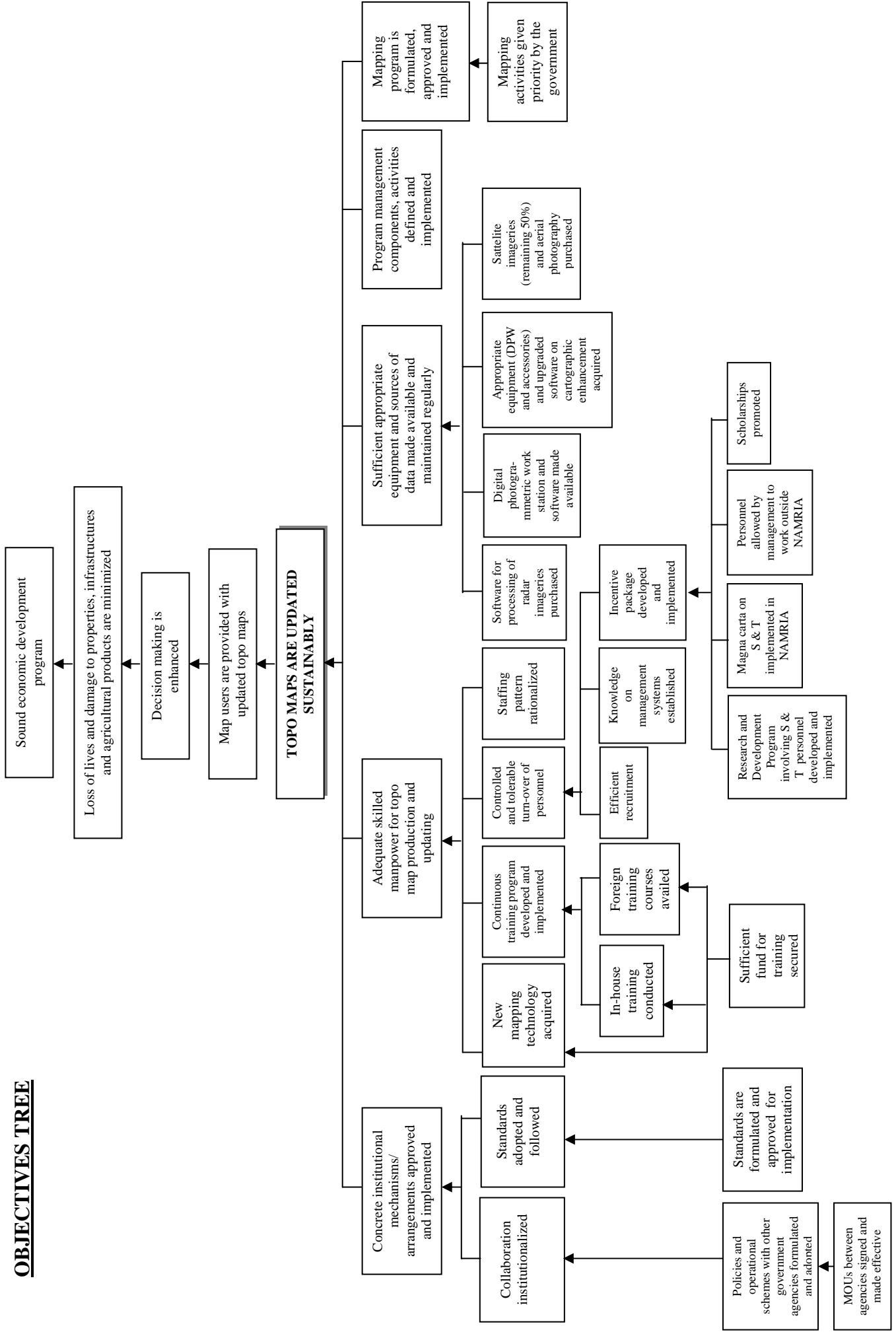
4.0 JICA Philippine Office

Takeshi Kanome
Mae Leyson

PROBLEM TREE



OBJECTIVES TREE



**JICA STUDY FOR MAPPING POLICY
AND TOPOGRAPHIC MAPPING FOR
INTEGRATED NATIONAL
DEVELOPMENT PLAN IN THE
REPUBLIC OF THE PHILIPPINES**

**PCM WORKSHOP II
COMPLETION REPORT**

Submitted

on: 21 July 2006

by:



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PROJECT CYCLE MANAGEMENT (PCM) WORKSHOP II
JICA Study for Mapping Policy and Topographic Mapping for
Integrated National Development Plan in the
Republic of the Philippines

COMPLETION REPORT

1.0 Introduction

The first PCM workshop was undertaken on 17 May 2006 to analyze the existing situation in terms of updating the topographic maps at a scale of 1:50,000, to identify the major problems of the situation and to define the desirable and realistically achievable situation. Through this workshop, the participants were able to formulate the Problem Tree and the Objectives Tree.

It was agreed that the PCM Workshop II would be held to focus on the assessment of the development potential of direction for improvement of the situation as defined in the Objectives Tree.

The conduct of the PCM Workshop II was undertaken in July 2006 through a series of discussions to tackle the major issues identified in the prior workshop; namely: (a) policy related issues; (b) human resources issues; (c) facility, hardware and software; and (d) internal program management issues.

This report documented the said series of discussions conducted with the section heads and staff from key departments in NAMRIA.

2.0 Objectives of the Workshop

The objectives are as follow:

- (a) to clarify and consolidate the objective tree that has been prepared in the first PCM workshop;
- (b) to identify the required action plans/projects to address the four (4) main issues; and
- (c) to define the roles of concerned division/department/key officials in each action plan.

3.0 Dates and Venues

The discussions were held on the following dates and venues:

Topic	Date	Venue
Policy Related Issues	July 04	NAMRIA Board Room
Human Resources Issues	July 06	NAMRIA Board Room
Facility, Machines & Software	July 11	NAMRIA Lecture Hall
Internal Program Management Issues	July 13	NAMRIA Board Room

4.0 Participants

Topic	Number of Participants	Remarks*
Policy Related Issues	12	MD - 5 IMD - 2 POD - 1 RSRDAD - 3 DSSO - 1
Human Resources Issues	9	MD - 3 POD - 1 RSRDAD - 1 FMD - 1 AD - 2 DSSO - 1
Facility, Machines & Software	10	MD - 4 ESD - 1 POD - 1 IMD - 1 CGSD - 1 FMD - 1 DSSO - 1
Internal Program Management Issues	9	MD - 5 POD - 2 CGSD - 1 DSSO - 1

- * MD - Mapping Department
- IMD - Information Management Department
- POD - Plans and Operations Division
- RSRDAD- Remote Sensing and Resource Data Analysis Department
- DSSO - Development Studies and Standards Office
- FMD - Finance Management Department
- AD - Administrative Division
- ESD - Engineering Services Department
- CGSD - Coast and Geodetic Survey Department

The JICA Study Team and NAMRIA selected the participants to these sessions.

The list of the participants per session is included in **Attachments 1-2, 2-2, 3-3 and 4-2.**

5.0 Highlights

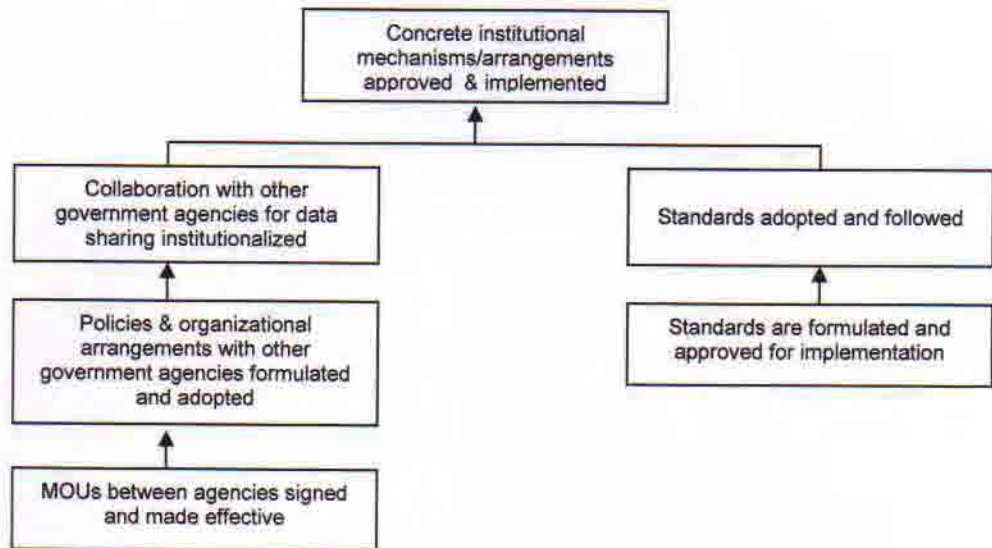
In every session, a summary of the results of the 1st PCM Workshop was shared with the participants prior to start of the discussion. It was highlighted by the presentation of the Problem Tree and the Objectives Tree. It was explained to the participants that the Objectives Tree is usually used as a basis for coming up with the long-term and the short-term plans. They were informed that the PCM Workshop II would be focusing on the development of short-term projects/action plans per issue with the participation of the key officers and staff of NAMRIA. Hence, there would be four (4) sessions to cover the four (4) issues defined in PCM Workshop I. The JICA Study Team would consider the workshop outputs in the preparation of the project design.

Among the 4 sessions conducted, it was the session on Human Resource Issues that resulted to a significant change in the Problem Tree and Objectives Tree signifying the extent of human resource related issues that are not mainly experienced by the Mapping Department but by NAMRIA itself.

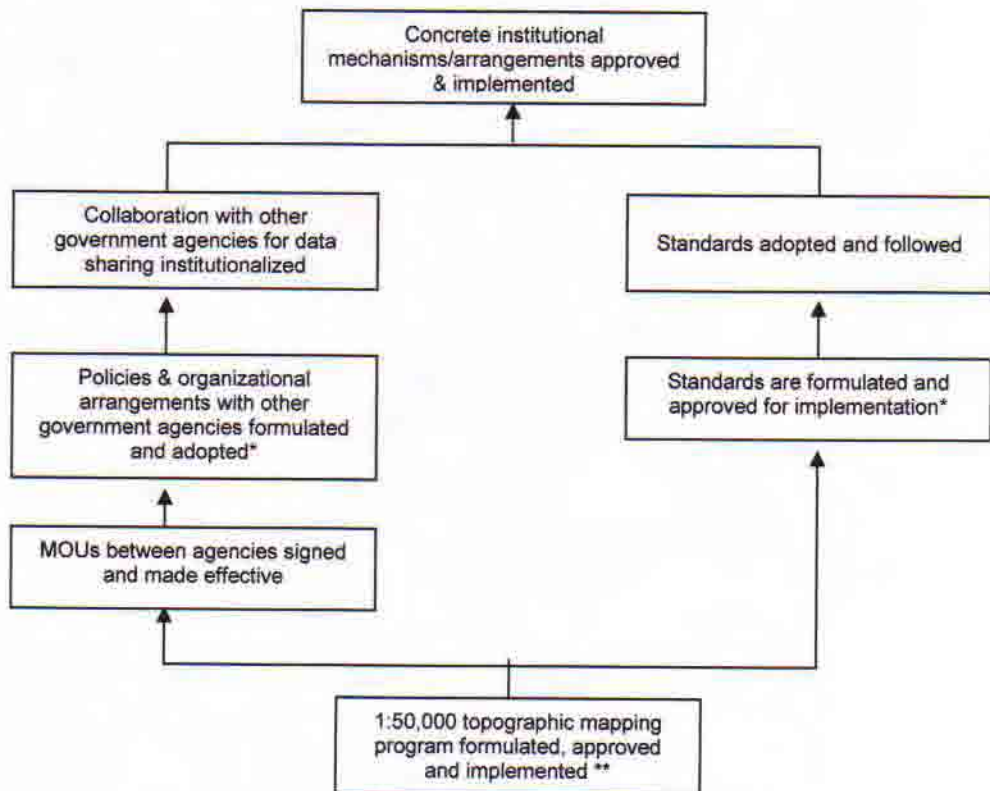
5.1 Session 1 : Policy Related Issues

5.1.1 Revisions

Original Cluster



Revised



*With action plan

**With action plan (refer to Item 5.4 of this report)

Salient Points Discussed:

- (a) The participants noted that the presence of an approved mapping program would greatly contribute in securing the full cooperation of the other agencies that are also engaged in mapping activities even without formalizing any agreement. In addition, the approval of a mapping program would also address the issue of the formulation and implementation of the standards. Further, the approval of such mapping program would also strengthen the role of NAMRIA as a regulatory body responsible for mapping and mapping related activities. Hence, the modification in the Objectives Tree.
- (b) There was also a common perception among the participants that NAMRIA is not getting the full support that it need from other agencies since its programs and services are not included in the priorities of the national government. It is only during the occurrence of calamities (e.g. the floods in Quezon; the landslides in Leyte particularly in Guinsaugon, St. Bernard) that full support is provided by the government to NAMRIA in undertaking its functions.
- (c) The issue of the difficulty of NAMRIA in securing external funds (particularly loans) through NEDA for the implementation of its programs was also noted. An example of this is the proposal for the Establishment of the National Common Spatial Database (NCSD) in the Philippines that was not approved for funding since it was a non-economic project. The proposed project entails the 1:50,000 mapping as well as the 1:10,000 mapping.
- (d) On the other hand, the participants agreed that the formulation of standards should include the preparation of manuals on seamless data base, data classification (layers), data definition, map symbolization and classification (i.e. color, font style and size).
- (e) There was also a suggestion to include the following in the discussion in the next sessions:
 - Establish a culture of sharing in NAMRIA
 - Ensure and strengthen interdepartmental cooperation (within NAMRIA)
- (f) The participants prepared the action plans for the following objectives:
 - Policies & organizational arrangements with other government agencies formulated and adopted

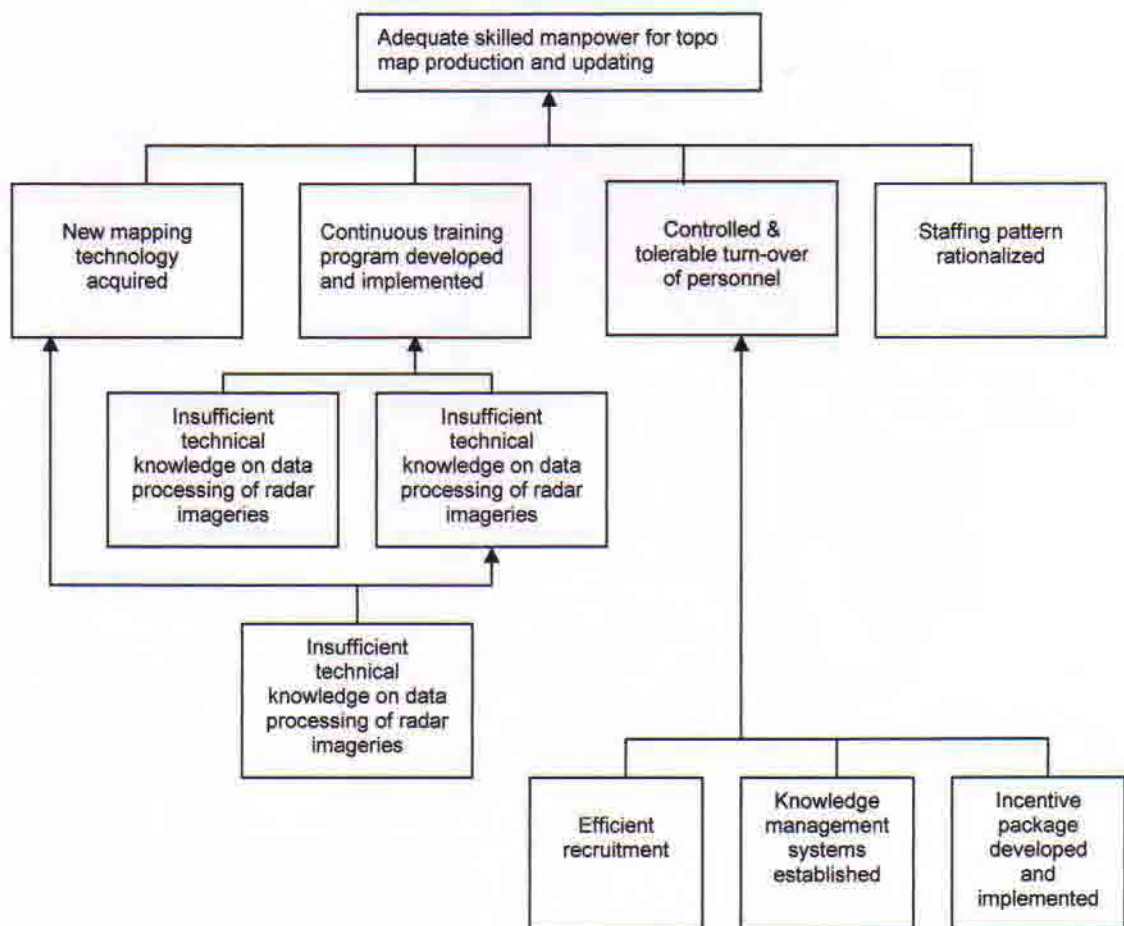
- Standards are formulated and approved for implementation

The action plan for "1:50,000 topographic mapping program formulated, approved and implemented" was discussed in the 4th session and is, therefore, reflected in **Item 5.4**.

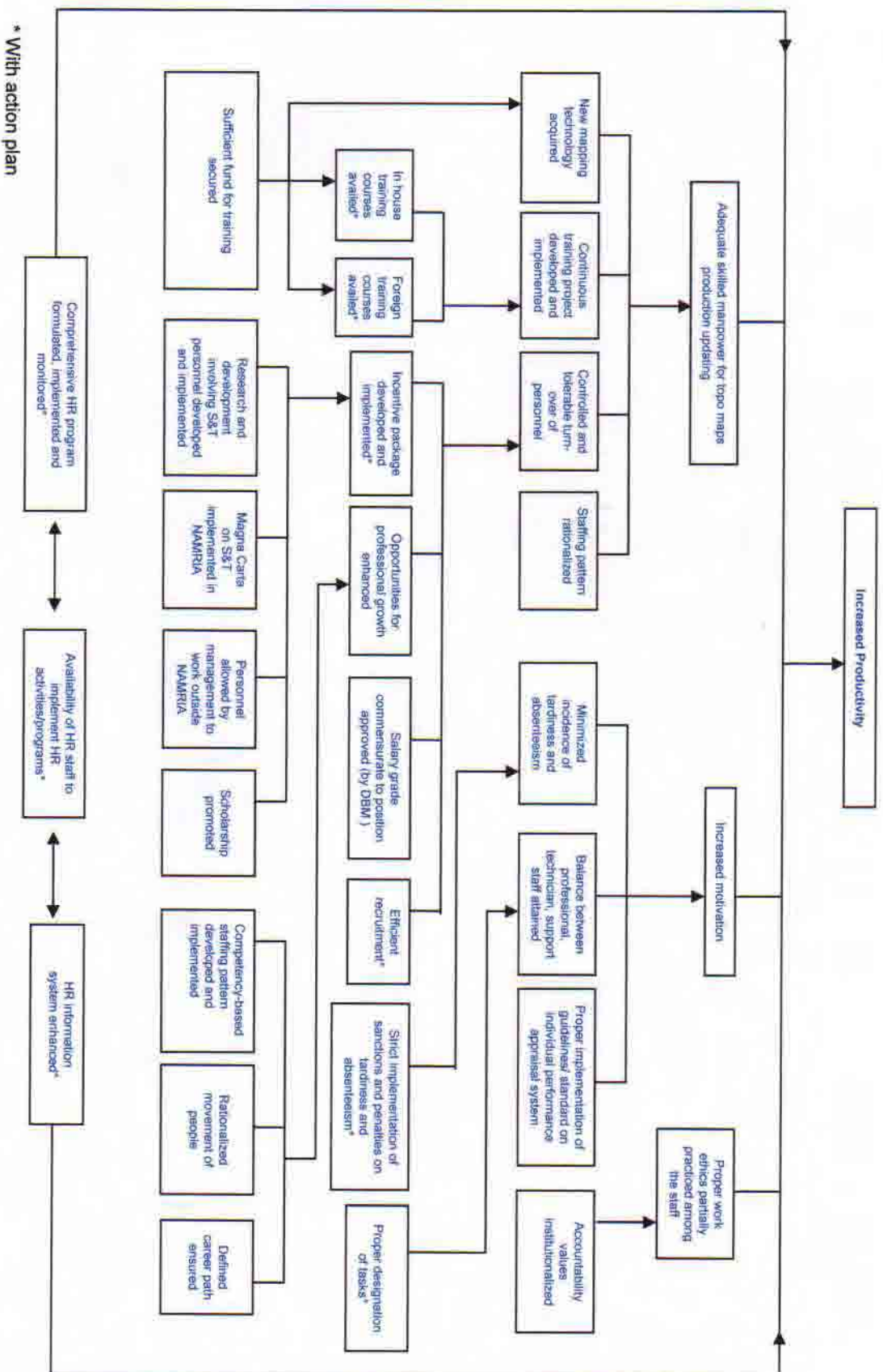
The Action Plans on Policy Related Issues are in **Attachments 1-1a to 1-1b** while the List of the Participants is in **Attachment 1-2**.

5.2 Session 2 : Human Resources Issues

Original Cluster



Revised Cluster



Salient Points Discussed

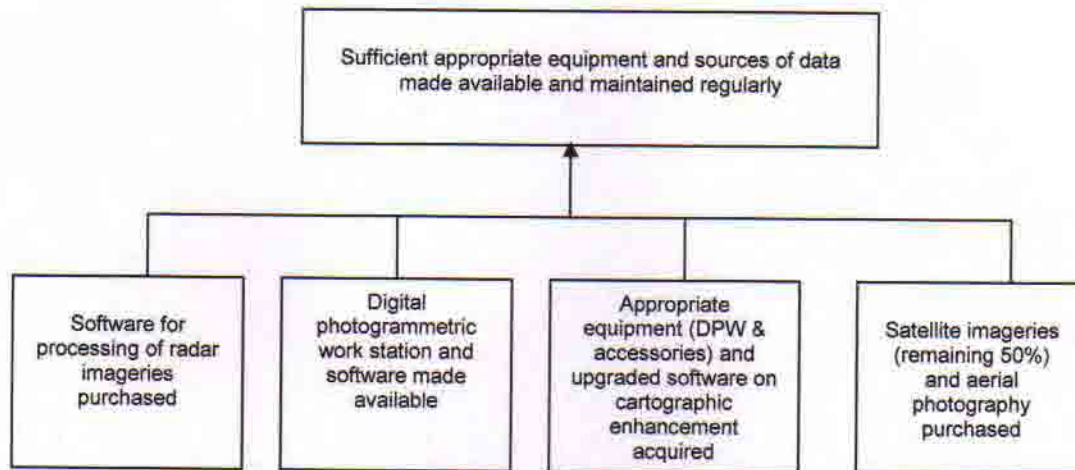
- (a) Several problem cards were proposed for inclusion to the existing problem tree; to wit:
- Over utilized staff
This happens when (a) the staff is the only capable one to handle the tasks; (b) he/she is the only one among the staff whom the immediate supervisor trusts; and (c) the section/division/department is undermanned.
 - Under utilized staff ("as if doing something") - when the situation described previously is reversed.
 - Uncontrolled movement of people (particularly at the management level) - a situation when key officials/staff are being transferred from one position to another or from one office to another without any logical reason.
 - No staff assigned for policy development and research in the Mapping Department
This has reference to the fact that there is a need to ensure that the Mapping Department personnel are always abreast with the state-of-the technology or approaches as far as their work is concerned. At present, the research and policy development concerns is one of the built-in functions of the Division Chiefs and the Assistant Director at the departmental level.
 - No quick response or customer relations staff assigned in the Mapping Department.
This responsibility is also a built-in function of the Division Chiefs who are responsible for responding immediately to a request or a task at hand. This administrative function at the department level, on the other hand, is part of the functions of the Assistant Director. An efficient and timely response to any request would contribute to establishing and maintaining a good relationship between NAMRIA and its clients (other government and private agencies).
 - Low morale among the staff that is brought about by the following:
 - Hazardous working environment and working condition but with no incentives;
 - No hazard pay for field works;
 - Problems on tardiness and absenteeism;
 - Actual functions not consistent with position and job description;
 - Slots for conferences/training and seminars (within the country and abroad) are very limited due to the government's on going austerity program; and
 - Lack/absence of a comprehensive human resource development program.
 - Limited human resource (HR) information system
 - Limited HR staff to implement HR activities and programs
 - No compiled HR manual of operations (Personnel Section)
 - Unclear and politicized career path
 - Low salary grade (starting salary) for highly technical positions
 - "Mapping Department" used as training ground only
 - Low productivity

- Knowledge management not yet institutionalized
 - Lack of competency-based staffing pattern
 - Inappropriate implementation of standards for individual Performance Appraisal System (PAS)
- (b) After the participants agreed to the inclusion of the additional cards and the preparation of the revised objectives tree, the prioritization of the objectives followed according to the following:
- (b.1) Objectives that are within the control of the Mapping Department:
- proper designation of tasks
 - rationalized movement of people
 - in-house training courses availed
- (b.2) Objectives that the Mapping Department has partial control in their attainment:
- competency-based staffing pattern developed and implemented
 - efficient recruitment
 - strict implementation of sanctions and penalties on tardiness and absenteeism
- (b.3) Objectives that the Mapping Department has no control in their attainment:
- foreign training courses availed
 - incentive package developed and implemented
 - HR information system enhanced
 - comprehensive HRD program formulated, implemented and monitored
 - availability of HR staff to implement HR activities and programs
- (c) It was clarified that the problems pertaining to the human relations and development are not exclusive to the Mapping Department only.

The Action Plans on the Human Resources Issues are in **Attachments 2-1a to 2-1j**. The List of the Participants is in **Attachment 2-2**.

5.3 Session 3 : Facility, Machines & Software

There was no modification in this cluster of objectives.



The discussion mainly focused on the following:

- (a) the estimated quantity, specifications and costs (if available);
- (b) possible sources of funds;
- (c) maintenance of the facility and hardware; and
- (d) the types of projects that must be initiated to facilitate the purchase of the needed equipment;

Salient Points Discussed

- (a) To identify the types of equipment required, the participants first defined the activities in topographic map production and updating such as (1) data acquisition; (2) data processing; (3) data packaging; and (4) data distribution. They then proceeded to determine the number, the specifications and the estimated costs of the facility, hardware and software (only those with available data).

Attachment 3-1 presents the List of Facility, Machines and Software.

- (b) When requested to prioritize, the results are as follows:

Priority no. 1: Data acquisition (the outright purchase of aerial photographs, optical satellite images, radar images)

Priority no. 2: Hardware and software for data processing, data packaging and ground control survey

Priority no. 3: Other hardware and software for data acquisition, data processing, data packaging and data distribution

Prioritization is also presented in **Attachment 3-1**.

- (c) The possible sources of funds to finance the purchase of the facility, hardware and software are the following:
 - JICA for the piloting of the topographic maps on a scale of 1:50,000;
 - JBIC for the establishment of the National Common Spatial Database (NCSD); and
 - the Philippine Government for the Geo Hazard Project.

- (d) As for maintenance, the in-house maintenance responsibilities (routine check-ups, minor repairs) are with the Engineering Services Department (ESD). This is usually undertaken during the years that the warranty for the equipment is in effect. Upon the expiration of the warranty, the ESD facilitates the execution of the maintenance contract with a private contractor to handle the regular maintenance and major repairs of the equipment.

Each division/department prepares its annual budget for the maintenance of equipment and other office facilities and submits it to the ESD for inclusion in the overall budget for maintenance and repairs.

- (e) When queried on other projects that could facilitate the purchase of the facility, hardware and software mentioned earlier, the participants mentioned the (1) establishment of the National Common Spatial Data Base in the Philippines; and the (2) continuation of the Geo Hazard Project.

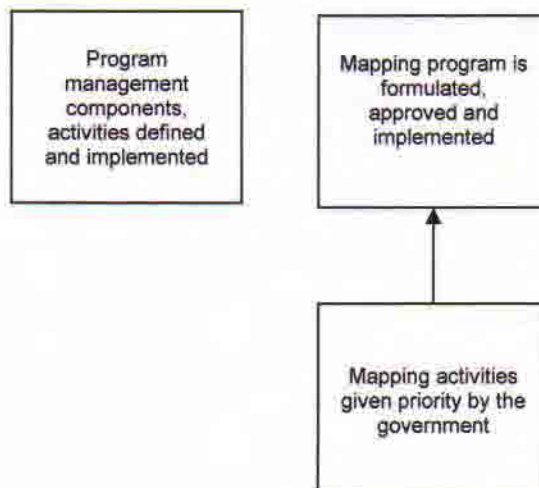
Since NAMRIA's programs are basically non-economic in nature and are not considered as priority programs of the government, the participants also felt that it will be difficult to secure external loans to finance the purchase of the needed hardware and software for topographic mapping.

The Action Plan is in **Attachment 3-2a** and the List of Participants is in **Attachment 3-3**.

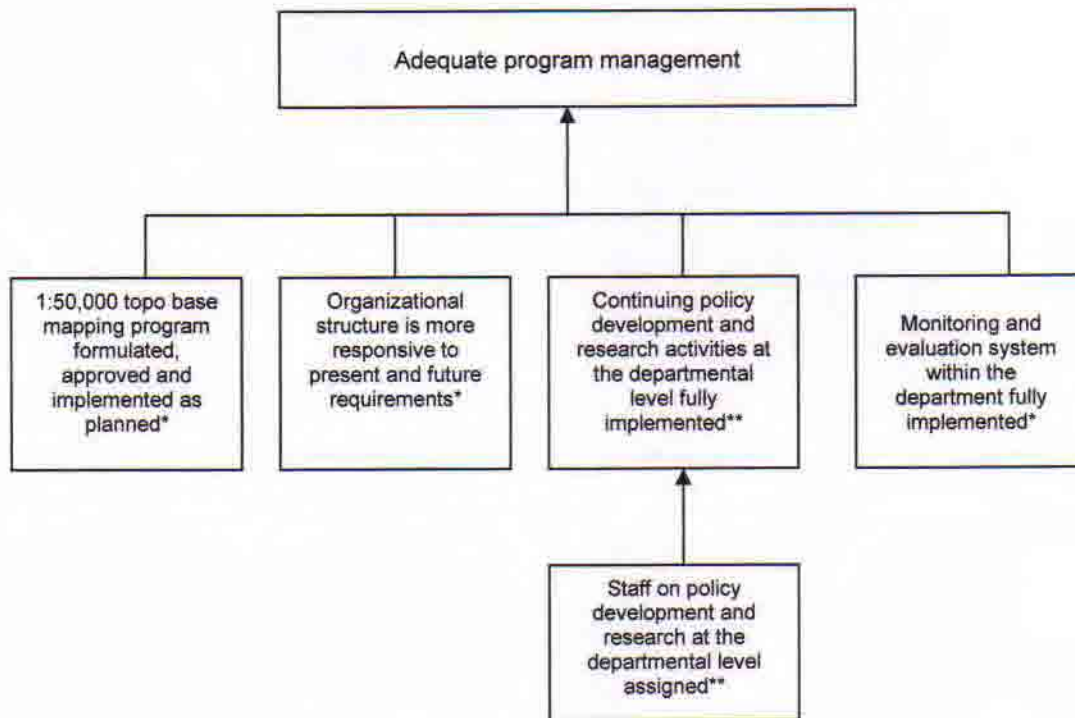
5.4 Session 4 : Internal Program Management Issues

The discussion in this session has also resulted to the modification of the Objectives Tree; as follows:

Original Cluster



Revised



* With action plan

** Discussed in Session 2: Human Resources Issues but found to be more relevant in this cluster; for validation with the participants

Salient Points Discussed

- (a) The objective of formulating a mapping program is clarified to be limited to the 1:50,000 topo base mapping program which is the responsibility of the Mapping Department. Hence this objective was re-stated.

In terms of planning functions, the DSSO is tasked with the preparation of the long-term plans (i.e. 10 years); while the POD is responsible for the short-term and medium-term planning.

- (b) The Mapping Department is undertaking internal organizational changes as needed.

Attachments 4-1a to 4-1d reflect the Action Plans. The List of Participants is in **Attachment 4-2**.

6.0 Revised Problem Tree

The Problem Tree was revised as a result of the discussion during the series of sessions in PCM Workshop II (**Attachment 5-1**) Please refer to **Attachment 5-2a to 5-2d** for the presentation per cluster.

7.0 Revised Objectives Tree

Correspondingly, the Objectives Tree was also modified (**Attachment 6-1**). The presentation per cluster is in **Attachments 6-2a to 6-2d**.

8.0 Next Activity

During Session 4, the participants requested the possibility of a session that will focus on the presentation of the revised Problem Tree and Objectives Tree for validation. It was quite difficult for them to appreciate the outputs since the discussion was undertaken in a series of sessions. It was agreed that those who have attended the sessions will be the ones to be invited for this activity.

Mr. Leo Milarion relayed the request to Mr. Takano and informed the participants that such session could be held in September 2006.