



"Building a geospatially-empowered Philippines"

Annual Report

2014

Prepared by
GEOSPATIAL INFORMATION SERVICES DIVISION
Geospatial Information System Management Branch
in coordination with Policy and Planning Division and
the other NAMRIA Branches

www.namria.gov.ph

Vision

By 2020, NAMRIA is a center of excellence, building a geospatially-empowered Philippines

Mission

To provide accurate, timely, and accessible topographic maps, nautical charts, and other geospatial products and services

NAMRIA QUALITY POLICY

We at NAMRIA are committed to our clients' outmost satisfaction by providing accurate and reliable geospatial information.

We will uphold professional and ethical standards, ensure efficient utilization of resources, empower ourselves to continually improve the quality management system, and respond to the needs of changing times through world-class technology.

Mapping the Future



through ISO



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ISO 9001:2008 - CERTIFIED ORGANIZATION FOR MAPPING AND GEOSPATIAL INFORMATION MANAGEMENT

MAP SALES OFFICES

REGION	ADDRESS	MSO STAFF	CONTACT NUMBER
(Main) Taguig City	Lawton Avenue Fort Bonifacio	Alvin Lasarlo Julietta Pabaitre Ana Victoria Labor Sheila Mae Lopez Arnold Mauricio	(02) 810 48 31 to 42, local 431 (02) 810 54 67
Manila	421 Barraca Street San Nicolas	PO3 Ramon Revidad Emeralda Briones Romero Brizuela Glenn De Jesus Francis Marvin Estebillo	(02) 245 94 98 (02) 241 34 94, local 117

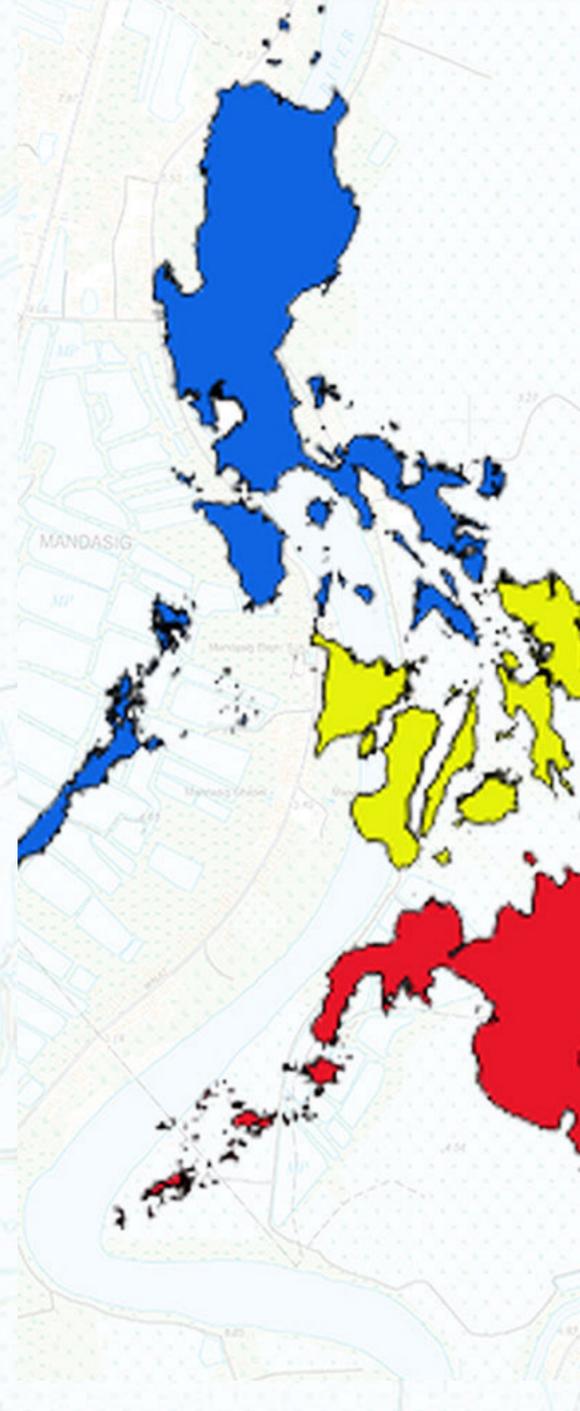
LUZON			
REGION	ADDRESS	MSO STAFF	CONTACT NUMBER
Quezon City	DENR-FMB Compound Visayas Avenue	Cielito Valino Rowena Almazan	0917 931 38 27 (02) 925 11 57
Cordillera Administrative Region - Baguio City*	DENR-CENRO Forestry Compound Cottage 1 Gibraltar Road Barangay Paedal		
Region I - La Union	DENR Government Center Barangay Sevilla City of San Fernando	Bona Perez	0999 405 69 17
Region II - Cagayan*	DENR Land Evaluation Party Building II, Barangay Carig Tuguegarao City		
Region III - Nueva Ecija*	GIS Room, WRMC Building Central Luzon State University Compound Maharlika Highway Science City of Muñoz		
Region III - Pampanga	Diosdado Macapagal Government Center Barangay Malmipa City of San Fernando	Lily Pineda	0910 372 56 23
Region IVA - Batangas	Provincial Planning and Development Office Capitol Complex Batangas City	Marcelina Cenisa Aguda	0919 925 09 07 0922 865 00 55
Region IVB - Palawan	DENR-FENRO Barangay Santa Monica Puerto Princesa City	Wamalaída Talabucon	0928 754 53 63
Region V - Albay	DENR Operation/Survey Division, Rizal Street Barangay Sagpon Legaspi City	Isabelita Climaco	(052) 480 98 25

*Temporarily closed

VISAYAS			
REGION	ADDRESS	MSO STAFF	CONTACT NUMBER
Region VI - Iloilo	DENR Forestry Building Barangay Parola, Fort San Pedro, Iloilo City	Dorothy Salvador	0919 887 38 62
Region VII - Cebu	Room 301, Osmeña Building II, Osmeña Boulevard Cebu City	Melchor Tagonon	(032) 505 99 45 0932 641 85 92
Region VIII - Leyte*	DENR Compound, Santo Niño Extension Tacloban City		

*Temporarily closed

MINDANAO			
REGION	ADDRESS	MSO STAFF	CONTACT NUMBER
Region IX - Zamboanga City	DENR-CENRO West General Vicente Alvarez Street, Zone 4 Zamboanga City	Annette Flores	0935 860 94 39
Region IX - Zamboanga del Sur	President Corazon C. Aquino Regional Government Center Barangay Balintawak Pagadian City	Josefina Valdez	0907 277 74 22
Region X - Misamis Oriental	DENR Building Barangay Macabalan Cagayan de Oro City	Jennifer Bagamaspad	0919 266 89 62 0926 414 89 76
Region XI - Davao del Sur	DENR Compound Kilometer 7, Lanang Davao City	Eduardo Deocampo	0915 612 77 70
Region XII - South Cotabato	DENR- Land Evaluation Party, Aurora Street Koronadal City	Jenylyz Bautista	0908 545 93 67 0998 984 09 21
CARAGA, Region XIII Agusan del Norte	DENR Regional Office Land Management Building Barangay Ambago Butuan City	Rodeo Bonjoc	(085) 342 61 24 (085) 341 32 50



FINANCIAL REPORT

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**STATEMENT OF FINANCIAL POSITION
FUND 101
AS OF DECEMBER 31, 2014**

	Note	Amount
ASSETS		
Current Assets		
Cash and Cash Equivalents	5 P	80,684,004.50
Receivables	6	20,114,705.78
Inventories	7	203,904,539.18
Other Current Assets	10	85,257,209.02
Total Current Assets		389,959,448.48
Non-Current Assets		
Property, Plant, and Equipment	8	2,153,195,590.74
Intangible Assets	9	147,829,519.47
Other Non-Current Assets	10	688,428.00
Total Non-Current Assets		2,301,713,538.21
Total Assets		2,691,672,986.69
LIABILITIES		
Current Liabilities		
Financial Liabilities	11	105,588,064.80
Inter-Agency Payables	12	17,748,620.88
Other Payables	13	9,001,597.97
Total Current Liabilities		132,338,283.65
Non-Current Liabilities		
Financial Liabilities	14	219,182.35
Total Non-Current Liabilities		219,182.35
Total Liabilities		132,557,466.00
NET ASSETS/EQUITY		
Accumulated Surplus/(Deficit)	24	2,559,112,520.69
Total Net Assets/Equity		2,559,112,520.69
TOTAL LIABILITIES AND NET ASSETS/EQUITY	P	2,691,672,986.69

**STATEMENT OF FINANCIAL PERFORMANCE
FUND 101
FOR THE PERIOD ENDED DECEMBER 31, 2014**

	Note	2014
Revenue		
Service and Business Income	15 P	7,907,272.27
Shares, Grants and Donations	16	5,275,828.00
Total Revenue		13,183,100.27
Less: Current Operating Expenses		
Personnel Services	17	303,894,816.99
Maintenance and Other Operating Expenses	18	492,737,701.57
Financial Expenses	19	1,050.00
Non-Cash Expenses	20	251,466,348.03
Total Current Operating Expenses		1,048,899,916.59
Surplus/(Deficit) from Current Operations		(1,034,916,816.32)
Net Financial Assistance/Subsidy	21	1,558,823,502.95
Surplus/(Deficit) for the period	P	523,906,686.63

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Republic of the Philippines
Department of Environment and Natural Resources
National Mapping and Resource Information Authority



MESSAGE



The year 2014 was full of challenges for NAMRIA because of structural and organizational changes brought about by the Rationalization Program. Notwithstanding the difficulties, the agency, thankfully, was able to overcome them owing to the skills, competence, hard work, and teamwork of its people.

During the year, NAMRIA contributed to the overall thrusts and programs of the DENR and the government through provision of geospatial information and data as basic reference for planning and decision making. The agency implemented 18 regular projects under the following major functions: Topographic Base Mapping, Hydrographic Surveys and Nautical Charting, National Geodetic Network Development, Resource Assessment and Mapping, and Geospatial Information Management.

In collaboration with other government agencies and the private sector, two locally-funded projects were undertaken, namely, the Philippine Geoportals Project and the Unified Mapping Project. Four special projects covered by Memoranda of Agreement were also undertaken, namely: Manila Bay Environmental Atlas Project; Collective Strengthening of Community Awareness for Natural Disasters (CSCAND) Project; Generation of Data on Upland/Forestland Population; and National Health Atlas Project-Phase I.

The agency responded to requests of various government agencies, the academe, and private institutions for base maps, satellite images, aerial photographs, certifications relating to land classification, geodetic data, nautical distance, tidal data, sea level and predictions; and provision of related geographic and natural resource data and publications.

A most memorable accomplishment for NAMRIA for the year was the publication of the Philippines-Indonesia Exclusive Economic Zone Boundary Chart which was co-produced with the National Hydrographic Office of Indonesia. NAMRIA was part of the 20-year negotiations that led to the historic signing of the maritime boundary agreement between the Philippines and Indonesia on 23 May 2014. Another significant event was the launching of the Philippines' first ever authoritative reference on Bajo de Masinloc or Scarborough Shoal through the book *Bajo de Masinloc (Scarborough Shoal): Maps and Documents*. The agency collaborated with the University of the Philippines Institute for Maritime Affairs and Law of the Sea to produce the compilation of historical documents that show the country's exercise of sovereignty and jurisdiction over the reef formation off Zambales Province.

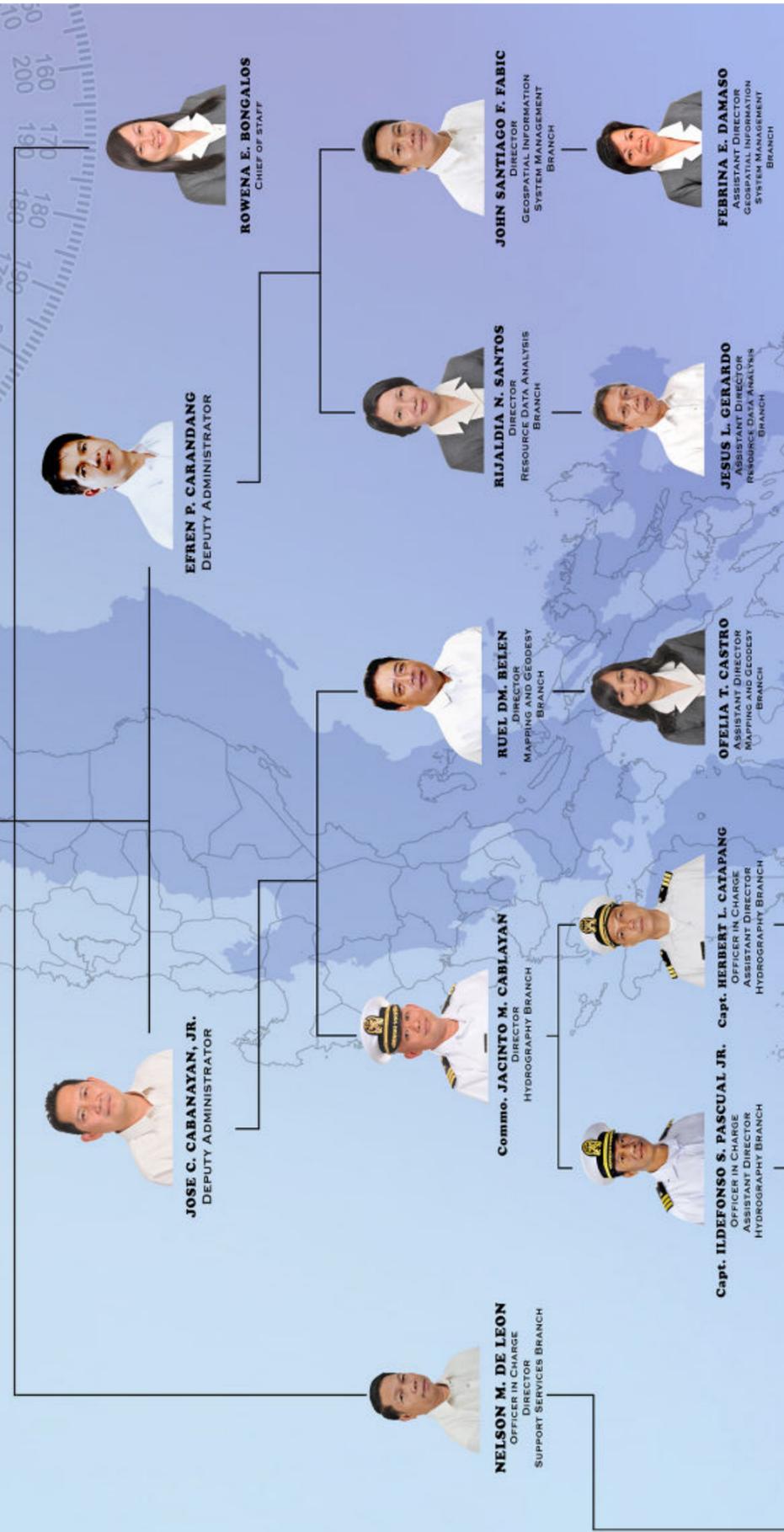
JOSELITO T. REASOL CHIEF GEOSPATIAL SYSTEMS DEVELOPMENT DIVISION	MAGELLAN C. AZUCENA CHIEF GEOSPATIAL INFORMATION AND COMMUNICATIONS TECHNOLOGY DIVISION	BENJAMIN P. BALAIS CHIEF GEOSPATIAL DATABASE MANAGEMENT DIVISION	MARIA ROMINA DR. PE BENITO CHIEF GEOSPATIAL INFORMATION SERVICES DIVISION
RAUL T. MACABO OFFICER IN CHARGE LAND RESOURCE DATA ANALYSIS DIVISION	FEDERICO D. MACARAEG OFFICER IN CHARGE PHYSIOGRAPHY AND COASTAL RESOURCE DIVISION	VIOLETA A. QUILIZA CHIEF GEOSPATIAL INTEGRATION DIVISION	BEATA D. BATADLAN CHIEF LAND CLASSIFICATION DIVISION
Engr. RONALDO C. CATCHALIAN OFFICER IN CHARGE GEODESY DIVISION	NICANDRO P. PARAYNO CHIEF PHOTOGRAMMETRY DIVISION	BRIAN A. DELA CRUZ OFFICER IN CHARGE CARTOGRAPHY DIVISION	CELEDONIO J. PILI OFFICER IN CHARGE REPROGRAPHY AND PRINTING DIVISION
Engr. TITA P. CRUZ OFFICER IN CHARGE NAUTICAL CHARTING DIVISION	RAUL S. CAPISTRANO OFFICER IN CHARGE PHYSICAL OCEANOGRAPHY DIVISION	Cdr. ROSALINO C. DELOS REYES OFFICER IN CHARGE MARITIME AFFAIRS DIVISION	Cdr. SHEILON T. CADAOS OFFICER IN CHARGE SURVEY SUPPORT DIVISION
Cdr. AMANTE R. CALUYA Jr. OFFICER IN CHARGE POLICY AND PLANNING DIVISION	NOEL R. VEGA OFFICER IN CHARGE FINANCIAL AND MANAGEMENT DIVISION	CONCEPCION A. BRINGAS CHIEF ADMINISTRATIVE DIVISION	VIRGILIO N. PANGA OFFICER IN CHARGE ENGINEERING SERVICES DIVISION



NAMRIA ORGANIZATIONAL CHART



DR. PETER N. TIANGCO, CESO I
Administrator



The agency also successfully completed the nationwide airborne gravity survey, made possible through its partnership with Denmark Technical University. The output from this survey, combined with terrestrial and satellite gravity data, will be used to develop the Philippine Geoid Model. A preliminary model has already been computed and is undergoing validation. With this model, elevation measurements using Global Navigation Satellite System (GNSS) will soon be a reality.

The Philippines represented by NAMRIA was elected as Chair of the United Nations Group of Experts on Geographical Names Asia South-East Division during the second divisional meeting held in Bandung, Indonesia on 02 April 2014. The chairmanship is for a period of four years, from April 2014 to April 2018.

As one of the government agencies under the CSCAND group, NAMRIA was also part of the information, education, and communication campaign on multihazard and risk maps for the Greater Metro Manila Area READY Project.

In 2014, the agency successfully passed the fourth surveillance audit for its continued certification to ISO 9001:2008; was conferred its Level-II accreditation status under the Program to Institutionalize Meritocracy and Excellence in Human Resource Management of the Civil Service Commission (CSC); began implementing the Strategic Performance Management System; and its Competency-Based System was integrated into recruitment, selection, and placement. To date NAMRIA continues in its efforts to maintain its Quality Management System and its CSC Level-II accreditation status, and the implementation of its other organizational development programs such as Employee Engagement and its Strategic Human Resource Development Plan.

The hard work and support of everyone in NAMRIA will ensure the realization of the agency's programs and projects for 2015. Among these is the continuing production of large-scale topographic base maps under the Unified Mapping Program and other derivative maps. With NAMRIA's procurement of very high resolution satellite imageries, the agency aims to produce a seamless orthoimage for the entire country. In Geodetic Network Development, NAMRIA is continuing to develop and maintain the National Geodetic Reference System. The agency will pursue its geodetic system modernization, by aligning it to the International Terrestrial Reference Frame.

NAMRIA will continue mapping and assessment to update environment and natural resources data on land cover, coastal resources, low-lying areas, and land classification. The agency remains as the national hydrographic office and the focal point for the International Hydrographic Organization. It will commission the two 23.55-meter catamaran hydrographic survey vessels for use in the expansion of the agency's hydrographic survey capabilities. In the first half of the year, these catamarans will conduct the hydrographic survey of Manila Bay in partnership with the Manila Bay Coordinating Office for updating of the area's environmental atlas.

NAMRIA will support scientific research programs not only in the Philippines but through international collaboration, like its hosting of a multiglobal navigation satellite systems station for the "GNSS receiver network for International GNSS Service and Navigation," or REGINA Program being spearheaded by *Centre National d'Etudes Spatiales* of France. The program aims to develop scientific applications and improve precise orbit and synchronization of REGINA satellite system which will benefit, not only NAMRIA, but the whole GNSS community worldwide.

NAMRIA will also compile and update the nautical publications and provide technical support in the delineation and delimitation of the country's maritime boundaries. In geospatial information management, the agency will continue to implement the Philippine Geoportal Project.

In support of the DENR, NAMRIA will provide technical assistance in the final mapping and preparation of draft house bills fixing specific limits of forestland of the country, including protected areas, among other mapping requirements. The agency will also continue to assist Congress in the deliberations on the following priority bills: the Maritime Zones bill, the Archipelagic Sealanes bill, the Comprehensive Land Use bill, and the Land Administration Reform bill.

As it nears its 28th year, NAMRIA remains steadfast in its commitment to continue contributing significantly to the country's development and security, as it goes onwards on its vision of becoming a center of excellence by building a geospatially-empowered Philippines by 2020. *Mabuhay!*

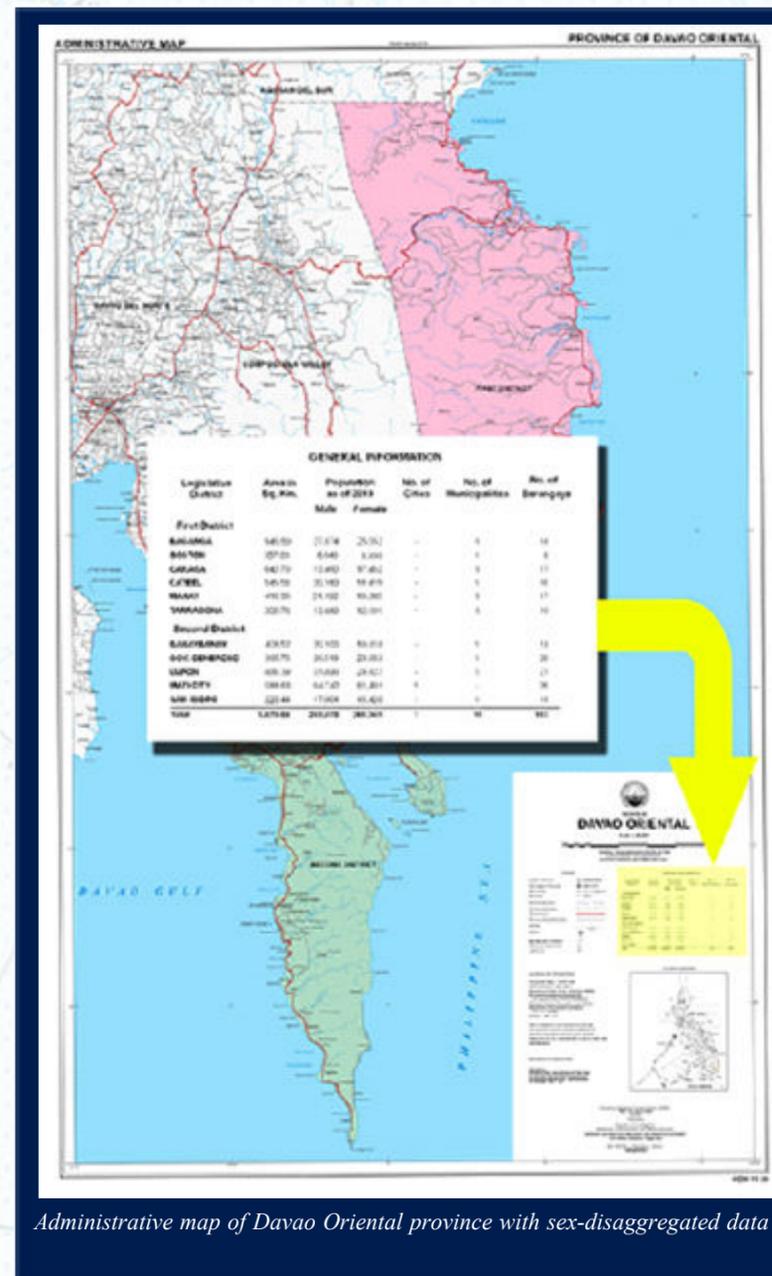
DR. PETER N. TIANGCO, CESO I
Administrator

TOPOGRAPHIC BASE MAPPING

NAMRIA produces topographic base maps at various scales, in paper form or digital data, for use by the national government agencies, local government units (LGUs), the academe, the scientific community, and the private sector. They are used as basic tools in development planning, disaster risk reduction and management, investment and research activities, among others. They are updated through the use of the latest aerial photographs and satellite imageries. Small- and medium-scale topographic maps (1:250,000 scale and 1:50,000 scale) generally cover large areas, while large-scale topographic maps (e.g., at 1:10,000 scale or larger) generally cover smaller areas but show more detail than small-scale maps. NAMRIA likewise produces updated administrative maps showing the political boundaries of provinces, regions or municipalities.

For client-focused GAD activities

- Ensured participation of women employees in the design and implementation of agency projects, programs, and activities including consultation meetings with stakeholders for the Unified Mapping Project, Development of National Geodetic Network, and Forestland Assessment and Mapping
- Produced 2 administrative maps indicating sex-disaggregated data for use by LGUs in formulating GAD-related policies and programs
- Produced a thematic map of Batangas province with gender statistics



Administrative map of Davao Oriental province with sex-disaggregated data



NAMRIA Day Care Center moving-up and recognition exercise held at the NAMRIA Lecture Hall on 28 March 2014

Accomplishments under the NAMRIA GAD program are as follows:

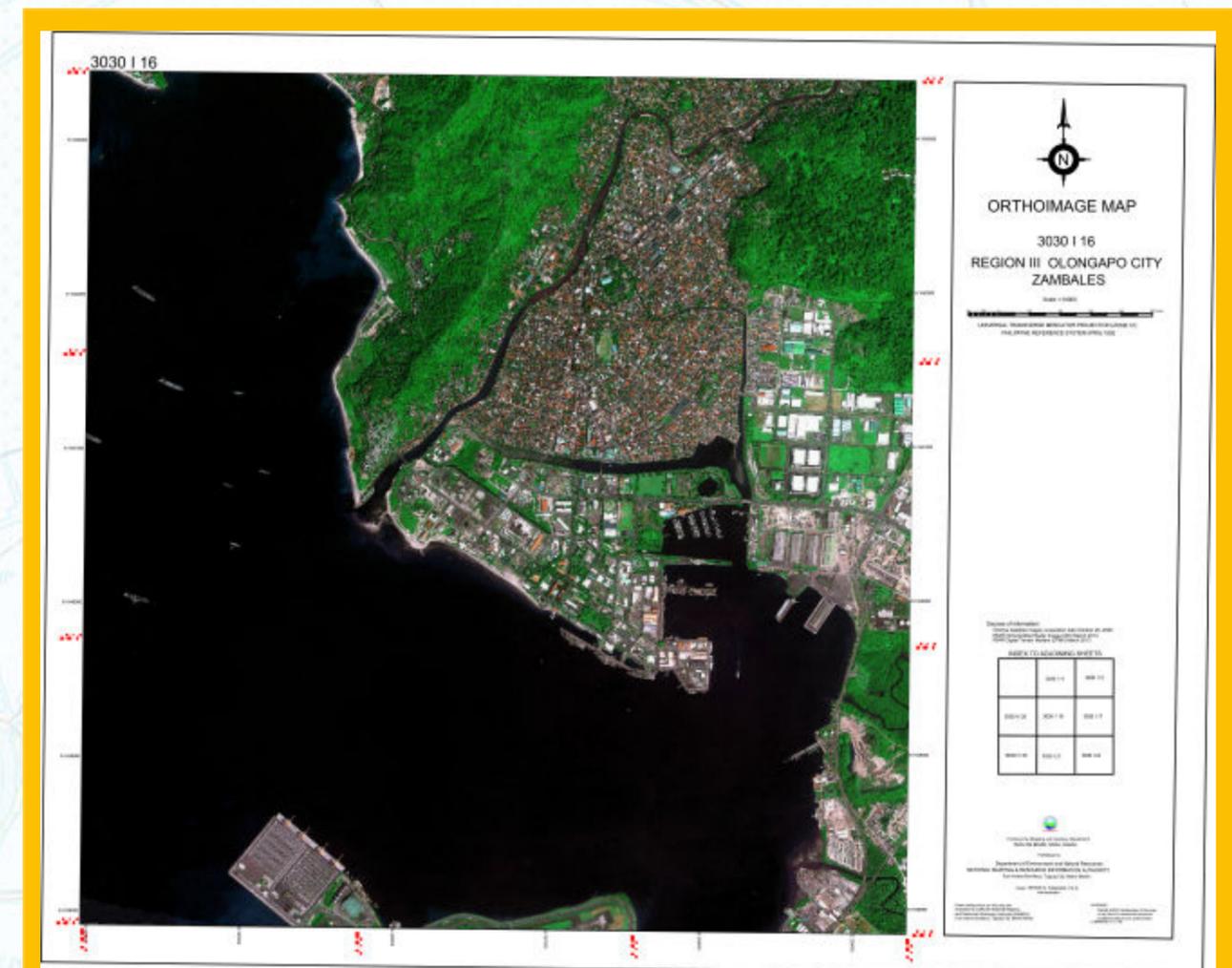
For organization-focused GAD activities

- Led the agency's celebration of Women's Month with the theme, "*Juana ang Tatag Mo ay Tatag Natin sa Pagbangon at Pagsulong* through the conduct of 15 trainings/activities
- Conducted 4 GAD Technical Working Group meetings to update members on new GAD policies/guidelines and to plan for the GAD month activities
- Continued maintenance and operation of the NAMRIA Day Care Center which served the needs of 15 young children of NAMRIA employees. *(The activities of the students included nutrition program, sociocultural events, medical and dental care.)*
- Continued maintenance of the GAD Corner located in the NAMRIA library which contains the agency's collection of books and other materials on GAD to cater to the needs of researchers and employees
- Designed and developed a GAD page in the NAMRIA website to feature the agency's GAD activities/accomplishments
- Prepared a Gender Sensitivity Assessment Report to assess gender awareness of NAMRIA employees who previously attended Gender Sensitivity Training
- Produced 43 large-scale topographic base maps with 45% female workforce involved in the project

The following were accomplished during the year:

Large-Scale Base Mapping (1:10,000)

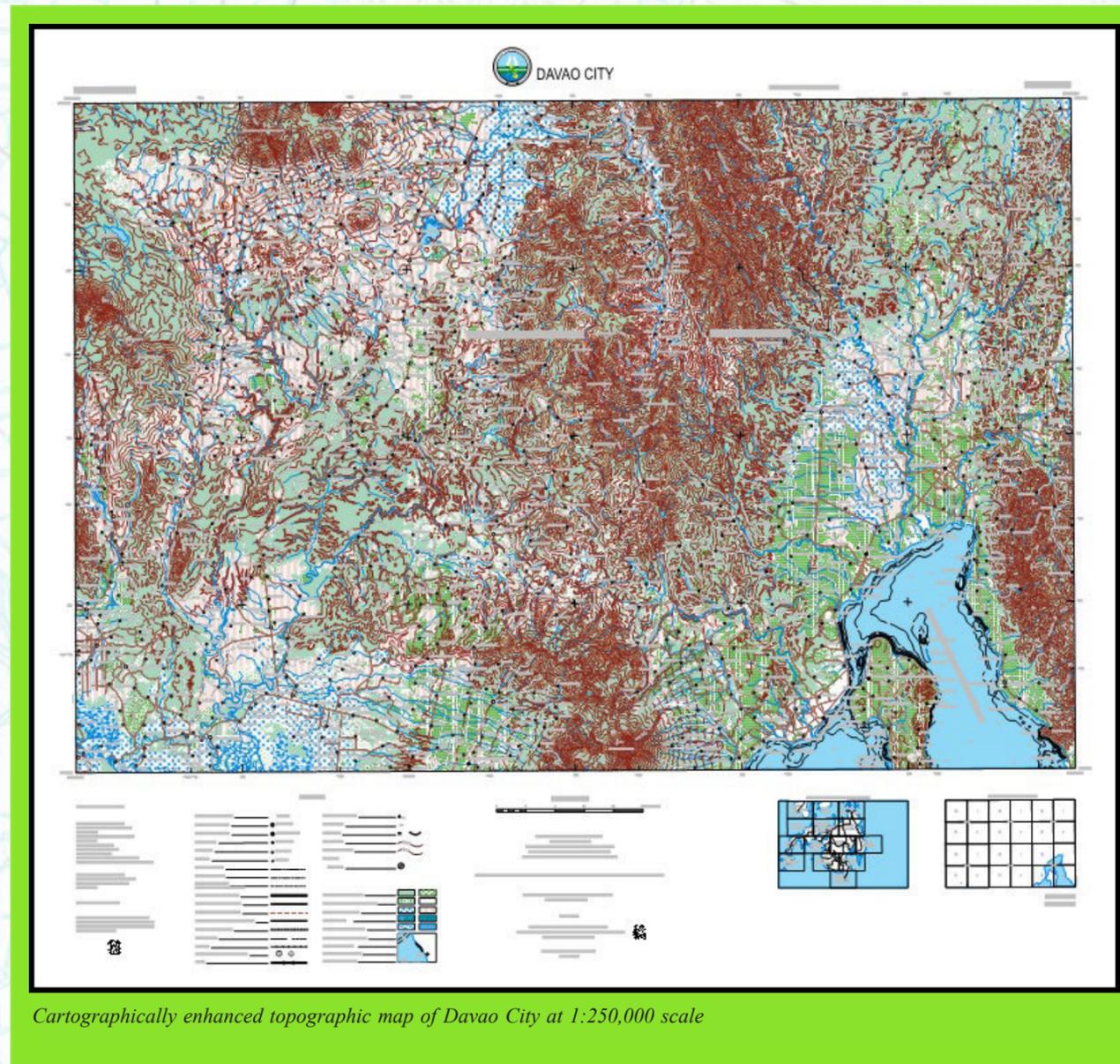
- Completed the stereo compilation/feature extraction of 34 map sheets of Baguio City, Candon City, Cebu City, Masbate City, San Fernando City, and Santiago City and 6 map sheets of Olongapo City and Subic Bay Metropolitan Authority (SBMA)
- Completed orthophoto/image mapping of 36 map sheets: 4 of Baguio City; 3 of Batangas City; 2 of Candon City; 10 of Lipa City and Cagayan Valley; 3 of Masbate City; 6 of Olongapo and SBMA areas; 4 of San Fernando, La Union; and 4 of Santiago City
- Completed the topographic databasing and conversion to GIS-ready geospatial data of 50 map sheets covering Bulacan, Candaba, Cebu City, Pampanga, and San Miguel
- Undertook large-scale cartographic enhancement of 43 map sheets of Candaba, Pampanga and San Miguel, Bulacan
- Completed the acquisition of very high-resolution satellite (VHRS) imageries and the evaluation of the VHRS imagery covering Leyte



Orthoimage map of Olongapo City, Zambales at 1:10,000 scale

Medium-Scale (1:50,000) and Small-Scale (1:250,000) Base Mapping

- Undertook cartographic enhancement of 35 map sheets at 1:50,000 scale of Albay, Camarines Norte, Camarines Sur, Catanduanes, Occidental and Oriental Mindoro, and Sorsogon; also 4 map sheets at 1:250,000 scale of Butuan City, CARAGA, Davao City, and Surigao



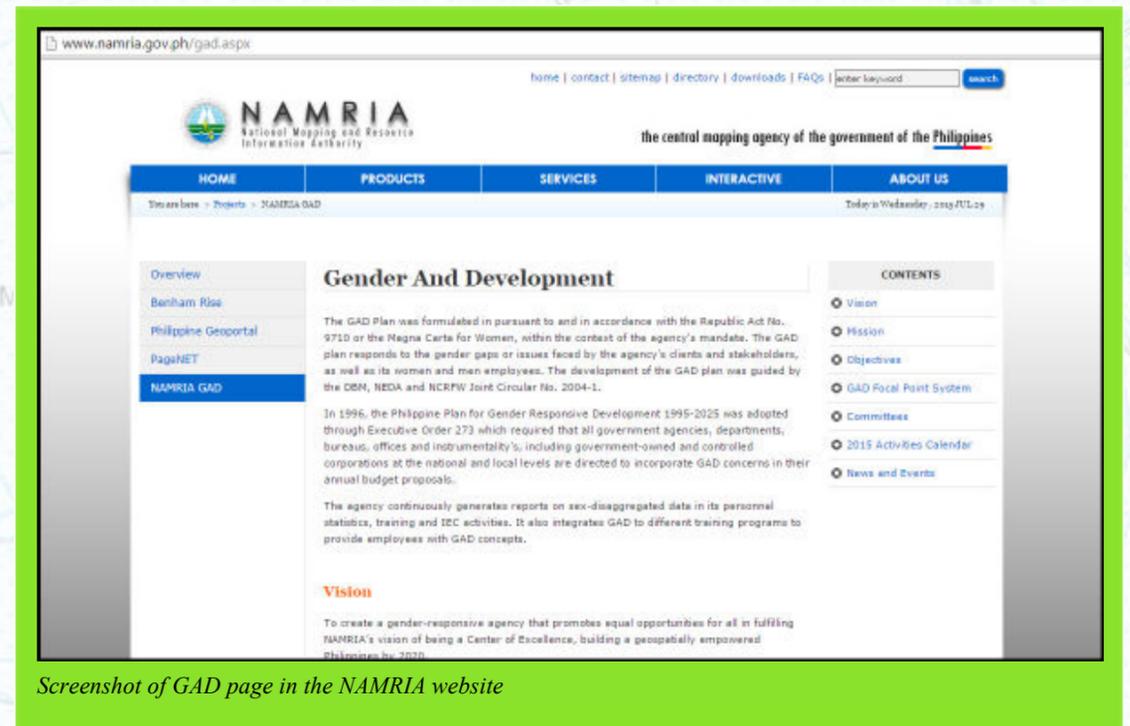
Cartographically enhanced topographic map of Davao City at 1:250,000 scale

GENDER AND DEVELOPMENT

Gender refers to a specific set of characteristics that identifies the behaviors and attitudes normally associated with masculinity and femininity within a given culture or social group. The Gender and Development (GAD) framework is integrated in the organization's plans to address the various gender needs and concerns of its employees and clients. Various activities are held to ensure that potential gender biases are removed and equal participation for both women and men are recognized by the organization.



Fun run during the Women's Month celebration in March 2014



Screenshot of GAD page in the NAMRIA website

Philippines-United States Cooperative Hydrographic Survey

The United States Naval Ship Bowditch (TAGS-62) of the United States Naval Oceanographic Office (NAVOCEANO), together with NAMRIA and the Philippine Navy-Ocean and Littoral Affairs Group, conducted hydrographic surveys in Philippine waters. The objective of the surveys was to expand the country's capabilities in hydrographic surveys as well as to enhance navigational safety and maritime security. NAMRIA provided technical assistance and support and coordinated with the LGUs as regards the conduct of the surveys in their areas. Accomplished were the following:

- One commissioned officer participated in the first leg of the hydrographic survey conducted in Surigao Strait from February to April 2014
- One commissioned officer participated in the second leg of the hydrographic survey conducted in Surigao Strait and the waters surrounding Homonhon Island from October to November 2014

Korea International Cooperation Agency (KOICA) and NAMRIA Multiyear Capacity Development Program on Ocean Observation and Hydrographic Surveying (Asia)

In line with its efforts to enhance the effectiveness and efficiency of technical cooperation, KOICA developed a multi-year capacity development program entitled, "Ocean Observation and Hydrographic Surveying (Asia)." The three-year program will be country demand-driven, i.e., tailored to different country circumstances and stages development.

The program which started in October 2013 primarily aims to create a framework for cooperation between NAMRIA and KOICA. It also intends to share the advance hydrographic and oceanographic technologies and relevant experience of the Republic of Korea to partner countries in order to develop their response capabilities in case of disasters and accidents at sea and establish infrastructure for the enhancement of maritime technology. The partner countries are Philippines, Timor-Leste, Vietnam, and Cambodia. Accomplished were the following:

- Participation of 4 NAMRIA personnel in the 2nd-year capacity development program held in Busan, Republic of Korea from 17 March to 13 April 2014. *(The training involved practicums of hydrographic survey and of creating ENC. The hydrographic survey was conducted along Korea Strait aboard HAE YANG 2000, the largest research vessel of Korea Hydrographic and Oceanographic Administration.)*

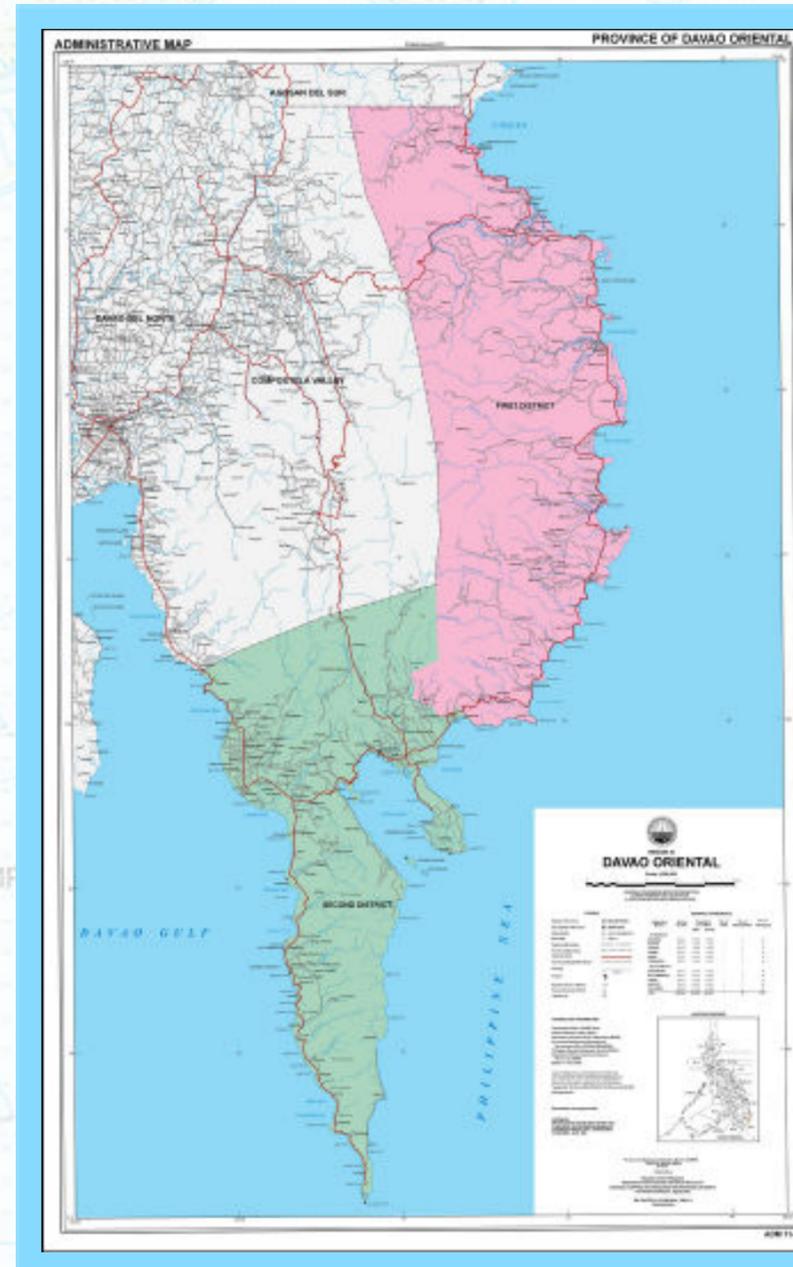
Hands-on training of NAMRIA participants on the digitization of paper chart for conversion into ENC



Administrative/Special Mapping

- Undertook cartographic enhancement of 7 provincial maps of Agusan del Sur, Davao del Norte, Davao del Sur, Davao Oriental, Ilocos Sur, Southern Leyte, and Surigao del Sur

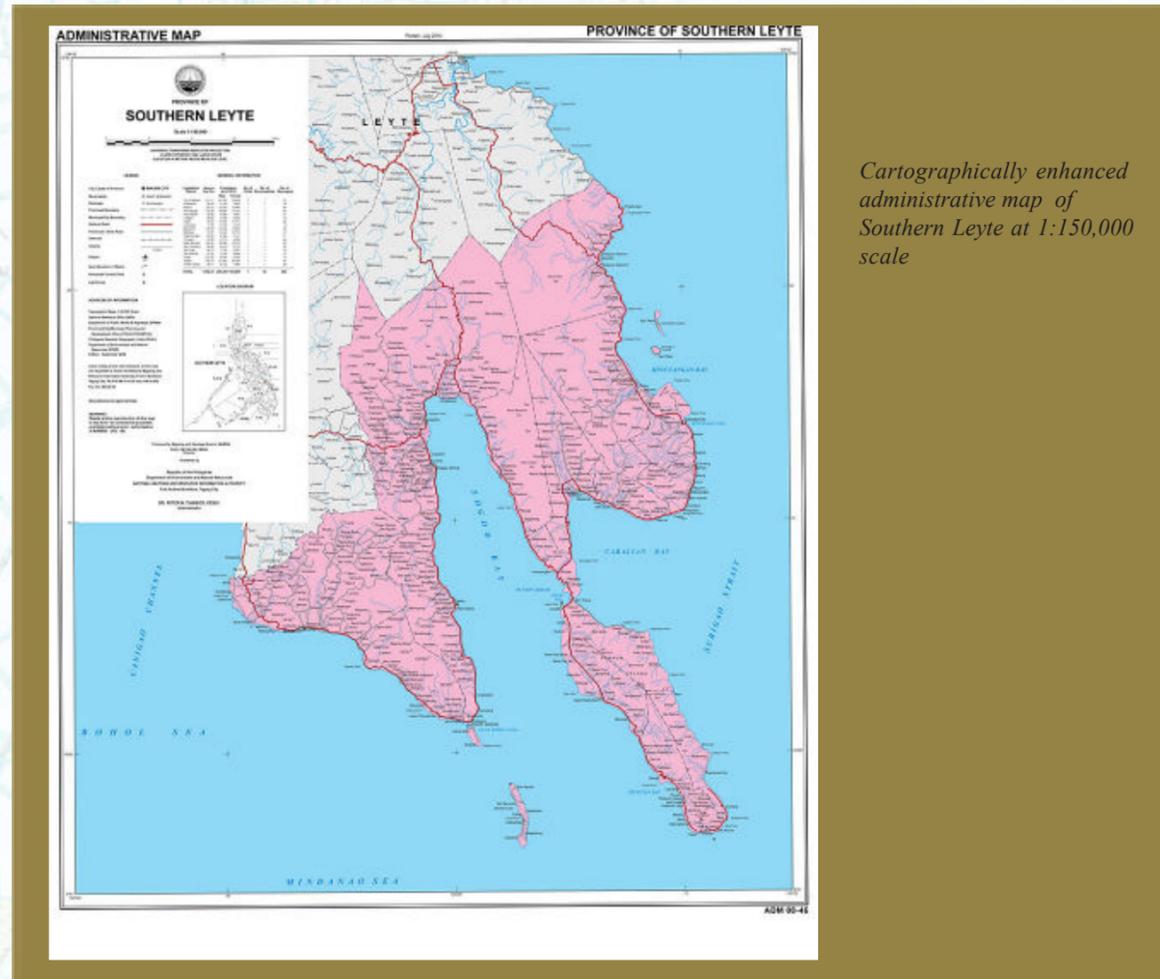
- On the *Philippine Road Atlas*: Undertook cartographic enhancement of 33 pages of the road atlas of Mindanao *(The Road Atlas of Mindanao will serve as a guide for local and foreign travelers on the existing road networks, infrastructure, and other points of interest in the area.)*



Cartographically enhanced administrative map of Davao Oriental at 1:200,000 scale

Printing of Topographic/Administrative Maps (Activities involve the regular printing of new or updated maps and re-printing of out-of-stock topographic and administrative maps of the entire Philippine area in order to maintain the map stocks in the NAMRIA map sales outlets.)

- Printed 61,328 sheets of topographic and administrative maps and nautical charts of different areas in the Philippines in order to maintain the map and chart stocks in 17 NAMRIA map sales outlets: Series 711 at 1:50,000 scale (7,639 sheets); Series 701 at 1:50,000 scale (1,368 sheets); Philippine National Topographic Map Series at 1:50,000 scale (24,809 sheets); Contoured Map at 1:10,000 scale (16,826 sheets); Nautical Charts at 1:150,000 scale (10,105 sheets); and Administrative Maps at various scales (581 sheets)
- Printed the following special publications: NAMRIA 2014 calendar (2,275 sheets); NAMRIA 2015 calendar (13,000 sheets); NAMRIA centennial calendar (5,000 sheets); liberty book (383 books); NAMRIA stationery (2,000 sheets); NAMRIA note cards (8,640 pieces); NAMRIA 2015 planners (3,000 pieces); NAMRIA stationery envelope (1,000 pieces); NAMRIA ship logbook (330 books); and 2015 Tide and Current Tables (2,000 books)



Cartographically enhanced administrative map of Southern Leyte at 1:150,000 scale

Collaboration with Japanese Universities

NAMRIA and two Japanese universities, namely: University of Tokyo in Tokyo, Japan and Kyushu University in Fukuoka, Japan, continuously collaborate to gather magnetic data for various scientific research and studies.

During the year, a 12-month record of the earth's magnetic elements was collected using the magnetometers installed in the Muntinlupa Magnetic Observatory and in the Cagayan State University in Tuguegarao City, Cagayan. The data gathered are used for the Ocean Hemisphere Network Project of the University of Tokyo and for the Magnetic Data Acquisition System and Circum-Pacific Magnetic Network Projects of Kyushu University.

In addition, there are continuous data logging and near real-time data transmission for the Earthquake Research Institute of the University of Tokyo and Kyushu University.

GCP Reobservation and Releveling in the Visayas Earthquake-Affected areas

Following a deadly magnitude 7.2 earthquake that struck Central Visayas islands, with its epicenter in the province of Bohol in the morning of 15 October 2013, NAMRIA conducted GCP reobservation and first-order releveling in the affected areas to determine the horizontal and vertical movements of GCPs and BMs, respectively. Furthermore, the re-observation will update the 3D coordinates of the GCPs while the releveling will update the BMs' elevation. Accomplished were the following:

- Reobserved 632 GCPs in Cebu and 370 GCPs in Bohol
- Releveled 539 kilometers and 583 kilometers of level lines in Cebu and Bohol



Map shows (in blue color) the releveled level lines in Bohol province



3rd planning workshop on the Updating of the MBEA Project held at NAMRIA Lecture Hall on 28 May 2014

Manila Bay Environmental Atlas Project

Along with DENR and the Partnerships in Environmental Management for the Seas of East Asia, NAMRIA was assigned to spearhead the updating of the Manila Bay Environmental Atlas (MBEA). The MBEA is a collection of information in the form of thematic maps, graphs, and tables describing the characteristics and condition of the Manila Bay area. The updated MBEA will focus on the status of the resources and environment and the impacts of climate change on the Manila Bay watershed area. Accomplished were the following:

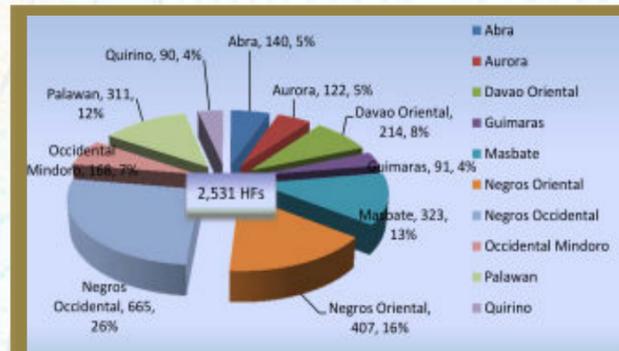
- Conducted planning activity for the bathymetry survey covering the entire Manila Bay
- Integrated/uploaded 57 MBEA geospatial layers into the Philippine Geoportal for the mandamus agencies to have access to the latest information on the state of the Manila Bay Region

National Health Atlas Project - Phase I

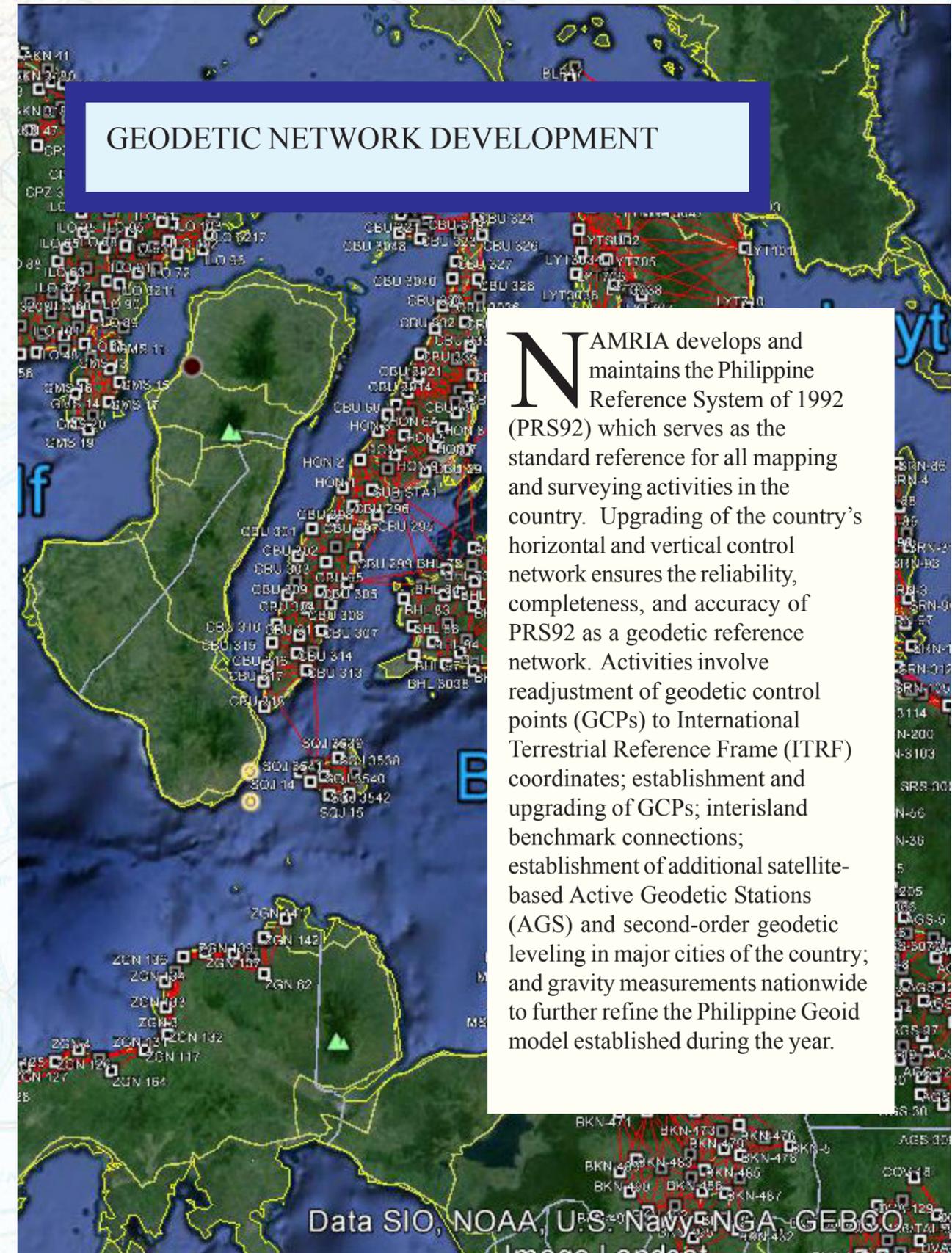
This is a collaborative undertaking between NAMRIA and the Department of Health (DOH) which aims to develop an updated National Health Atlas that would be used by the DOH for health policy development, program planning, and management. The atlas is a GIS database of health facilities covering the entire Philippines.

Initially, there were 10 provinces identified as target areas for the project, namely: Palawan, Guimaras, Aurora, Quirino, Negros Occidental, Negros Oriental, Occidental Mindoro, Abra, Masbate, and Davao Oriental. Originally, Leyte was included for the survey but due to the havoc brought about by Super Typhoon Yolanda, Leyte was replaced by Davao Oriental. Health facilities surveyed include public and private hospitals, rural health units, municipal health offices, barangay health stations/centers and other DOH facilities. Accomplished were the following:

- Collected the coordinates using GPS technology of the health facilities within the 10 pilot provinces and surveyed a total of 2,531 health facilities, exceeding the original target by 256 facilities (*The additional health facilities were prioritized by DOH representatives, municipal health officers, and provincial health team leaders during the onsite orientation/meeting prior to the actual GPS survey.*)
- Uploaded to the Philippine Geoportal the geocoded facilities



Number of health facilities surveyed by NAMRIA in 10 pilot provinces



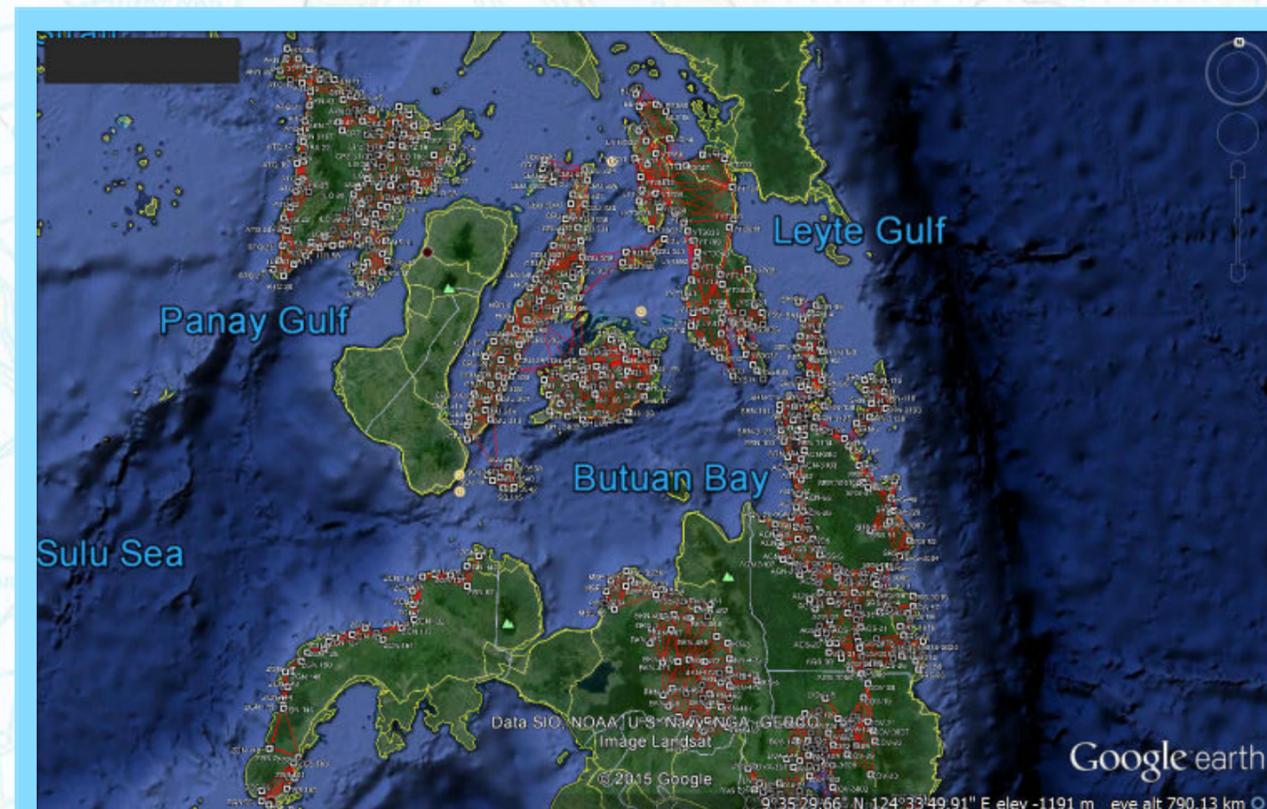
GEODETIC NETWORK DEVELOPMENT

NAMRIA develops and maintains the Philippine Reference System of 1992 (PRS92) which serves as the standard reference for all mapping and surveying activities in the country. Upgrading of the country's horizontal and vertical control network ensures the reliability, completeness, and accuracy of PRS92 as a geodetic reference network. Activities involve readjustment of geodetic control points (GCPs) to International Terrestrial Reference Frame (ITRF) coordinates; establishment and upgrading of GCPs; interisland benchmark connections; establishment of additional satellite-based Active Geodetic Stations (AGS) and second-order geodetic leveling in major cities of the country; and gravity measurements nationwide to further refine the Philippine Geoid model established during the year.

The following were accomplished during the year:

Horizontal Control Network

- Readjusted about 2,000 GCPs to ITRF 2005 coordinates
- Recovered and updated a total of 849 GCPs as part of the GCPs maintenance activity to update and provide detailed descriptions of the GCPs
- Conducted Global Positioning System (GPS) observation of 66 zero elevation points in Samar and Leyte and 34 elevation points in Mindoro
- Completed installation of 5 AGS in Batanes, Catarman, El Nido in Palawan, Masbate, and Mogpog in Marinduque (The AGS will serve as permanent reference stations for all types of surveying and mapping activities and support the broad spectrum of post-processed, relative GPS Real-Time Kinematic techniques and applications. The network of operating AGS serves to provide real-time Global Navigation Satellite System data to users, strengthens the national geodetic network PRS92, and modernizes surveying and mapping activities in the country.)



Shown and plotted on Google-Earth satellite image are the re-adjusted GCPs in ITRF 2005

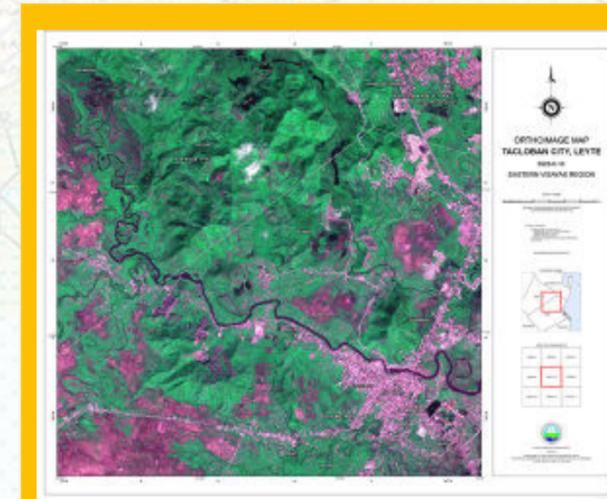
Collective Strengthening of Community Awareness for Natural Disasters (CSCAND) Projects

A collaborative undertaking initially among CSCAND Agencies, this project, funded by the United Nations Development Programme (UNDP) and the Australian Agency for International Development (AusAID), aims to capacitate national government agencies in multihazard mapping; risk assessment; and modeling scenarios for flood, severe wind, and earthquake.

It also provides assistance to LGUs in coming up with disaster risk reduction-enhanced land-use and contingency plans by integrating medium- to large-scale multihazard data in the formulation process; involving the community and other stakeholders in the establishment of community-based early warning system; and conducting an information, education, and communication campaign aimed at resulting in a more resilient and adaptive community to natural hazards.

NAMRIA provided the base maps, integrated the hazard data, and produced the final maps that were turned over to LGUs, both in print and digital form. In CY 2014, NAMRIA accomplished the following:

- Printed 1,000 risk/hazard maps covering Bulacan, Cavite, Laguna, and Rizal LGUs for the IEC campaign; and 300 final hazard maps under the READY for GMMA (Greater Metro Manila Area) Project
- Edited themes within the cities of Malabon, Manila, and Quezon



Orthoimage map of Tacloban City, Leyte at 1:10,000 scale

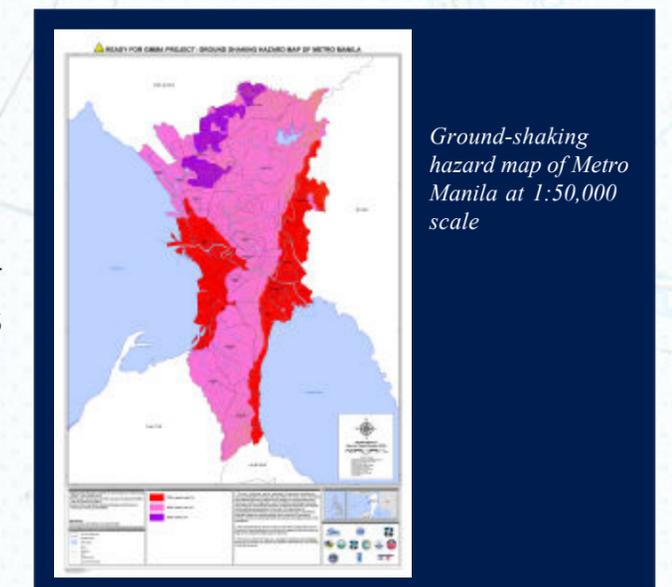
Unified Mapping Project (UMP)

The UMP aims to provide a nationwide set of large-scale (1:10,000) topographic base maps for common use of government agencies for planning and implementation of various development activities.

In December 2014, NAMRIA, through the Department of Budget and Management's Procurement Service, acquired a nationwide set of VHRS imageries using an extended license from the earlier purchase of the imageries by the Department of Agriculture. The VHRS imageries, together with the IfSAR or Interferometric Synthetic Aperture Radar high-resolution elevation data acquired through the project in 2013, are the basic inputs for base-map production.

Prioritizing the affected areas of Super Typhoon Yolanda, which covers approximately 2.4 million hectares and equivalent to 800 map sheets subdivided into six (6) clusters (Cluster 1 - Aklan, portion of Masbate, and Palawan; Cluster 2 - Antique and Capiz; Cluster 3 - Iloilo; Cluster 4 - Northern parts of Cebu and Negros Occidental; Cluster 5 - Polillo and Catanduanes; and Cluster 6 - Leyte). Completed were 1.5 million hectares with a total of 456 orthoimage maps out of the 800 target map sheets for the 6 clusters.

Other activities implemented include continuous evaluation of outsourced mapping projects; intervening special projects; providing data requests of national government agencies, LGUs, academe, and other stakeholders; and rendering client-oriented services, among others.



Ground-shaking hazard map of Metro Manila at 1:50,000 scale

SPECIAL/LOCALLY-FUNDED PROJECTS

In fulfilling its core functions, NAMRIA is implementing several special projects with other agencies. Below are these projects with their respective accomplishments for CY 2014:

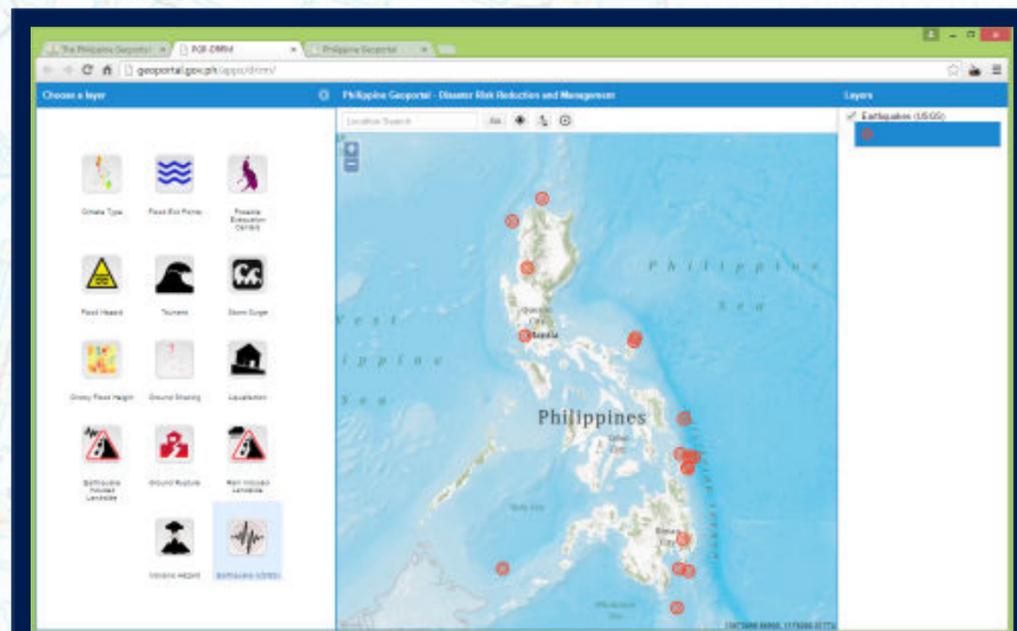
The Philippine Geoportals Project (PGP): “One Nation, One Map” - Phase II

In November 2010, NAMRIA received funding for the implementation of the project on the National Spatial Data Infrastructure known as “The Philippine Geoportals.” The PGP is the realization of previous endeavors started by the NAMRIA- led Inter-Agency Task Force on Geographic Information which intends to use a common set of consistent basemaps for all government agencies to overlay their own geospatial datasets. The geoportals will provide participating agencies access to NAMRIA’s basemaps for the generation of fundamental and thematic data.

For Phase II of the project, the activities undertaken were as follows:

- Development of geodatabases of NAMRIA’s 1:50,000 topographic maps and other agencies’ thematic maps and uploading of 181 data layers of 32 agencies to the Philippine Geoportals System (PGS);

- Deployment of ArcGIS for Maritime Charting Solution, and development and installation of Nautical Charting Information System
- Upgrading of the PGS infrastructure, including enhancement of user interface, network connectivity at 90 megabits per second, additional servers and other network equipment, and documentation updates
- Conduct of policy studies for further enhancement of the PGS, including e-payment, use of cloud-computing platforms, and public-private partnership for nationwide PGP implementation
- Development of policies and standards including the Agency Node Template, draft Philippine Geospatial Data Infrastructure, Standards and Procedures on the Use of the Philippine Geoportals, and Standards and Procedures on Data Development and Management



PGP screenshot



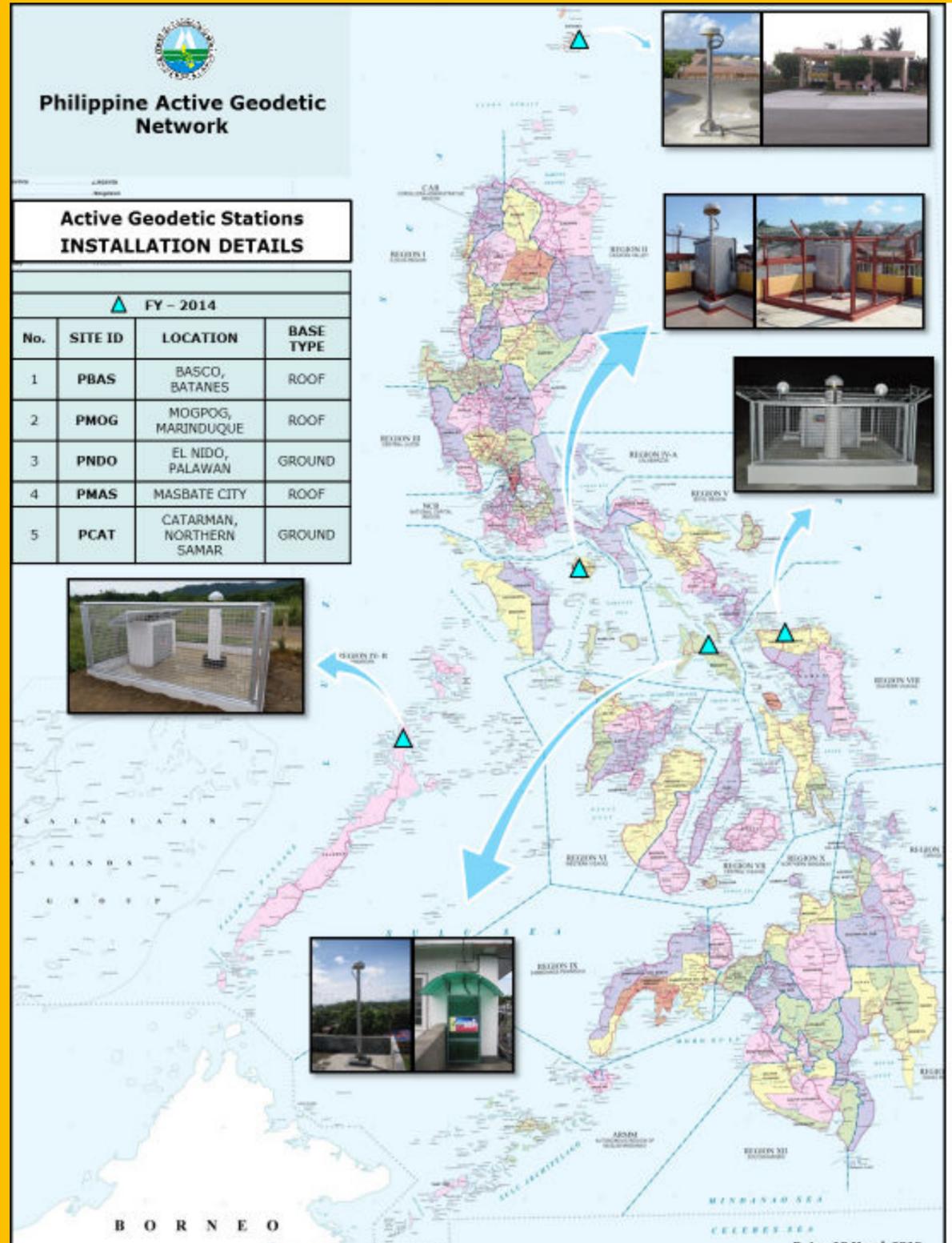
Philippine Active Geodetic Network



Active Geodetic Stations INSTALLATION DETAILS

▲ FY - 2014

No.	SITE ID	LOCATION	BASE TYPE
1	PBAS	BASCO, BATANES	ROOF
2	PMOG	MOGPOG, MARINDUQUE	ROOF
3	PNDO	EL NIDO, PALAWAN	GROUND
4	PMAS	MASBATE CITY	ROOF
5	PCAT	CATARMAN, NORTHERN SAMAR	GROUND



Date: 10 March 2015

Map shows the location of 5 AGS established in the country in CY 2014

Vertical Control Network

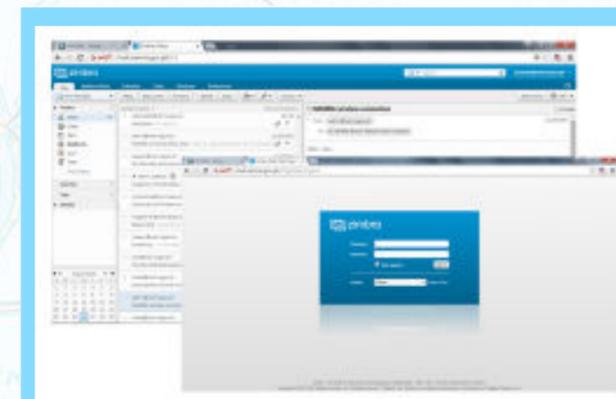
- Updated the description and determined the position of 1,500 benchmarks (BMs)
- Surveyed and determined the elevation of 1,000 kilometers of BMs in the following major cities of the country: Bacolod City, Baguio City, Butuan City, Dipolog City, Dumaguete City, Legazpi City, Puerto Princesa, Surigao City, and Tagbilaran City
- Connected 17 tide-gauge BMs to the level network located in the following provinces to provide mean sea level elevation data in preparation for the unification of the national level network: Baler (Aurora), Catbalogan (Eastern Samar), Guiuan (Eastern Samar), Makar (General Santos City), Mambajao (Camiguin), Mati (Davao Oriental), Pagadian (Zamboanga del Norte), Port Jose Panganiban (Camarines Norte), Pulpandan (Negros Occidental), San Jose (Northern Samar), San Vicente (Sta. Ana in Cagayan), Sasa Wharf (Davao City), Surigao (Surigao City), Tacloban (Tacloban City), Tagbilaran (Bohol), Tandag (Surigao del Sur), and Zamboanga (Zamboanga City)
- Connected 650 GCPs to the BM network located in Luzon and Visayas
- Observed 2 clusters of island-level networks and completed the adjustment of 2,500 kilometers of level lines in central, north, and south of Luzon in order to standardize the vertical control network in the country



Overlaid on Google-Earth satellite image, map shows the 47 tide stations (in blue boxes) located in strategic ports of the country which were connected to the level network (in orange lines) to give mean sea level elevation to the BMs

Engineering Services

- Established the Organization, Leadership, and Recruitment Board
 - Monitored and evaluated competency enhancement of employees
 - Facilitated the seal of good governance compliance through Philippine Government Electronic Procurement System postings and 100% Statement of Assets, Liabilities, and Net Worth submission
 - Implemented procurement process based on the Annual Procurement Plan (APP) in accordance with RA 9184 and ISO QMS (procurement process monitoring)
 - Conducted physical count of property, plant, and equipment
 - Implemented the Document and Records Information Management System (DRIMS)
 - Promoted the use of the ZIMBRA web-mail for tracking and dissemination of correspondences
 - Implemented the NAMRIA Records Disposition Schedule (RDS) to determine period of retention in coordination with GISMB
 - Controlled documents and records in support to ISO Quality Management System (QMS)
 - Updated the NAMRIA Record Holdings in compliance with the National Records Inventory of the National Archives of the Philippines in coordination with GISMB
 - Implemented List of Due and Demandable Accounts Payable Advice to Debit Account (LDDAP-ADA)
 - Maintained maps and rare books on surveying and mapping
 - Provided library information services to researchers from academe, LGUs, private sector, non-government organizations, and national government agencies.
- Did preventive and corrective maintenance for communications equipment, office machines, DORIS Beacon, AGS instruments, and other technical equipment
 - Installed the following: 2 short-message service gateway for near real-time data transmission system at NAMRIA San Nicolas, Manila and Fort Bonifacio, Taguig City main office; 2 sea-level monitoring and data transmission instruments in Catbalogan and San Carlos tide stations; 4 preventive and corrective maintenance of sea-level monitoring and data transmission instrument in Tagbilaran, Tacloban, Virac, and Bulan tide stations; and 7 AGS instruments in Batanes (Basco), Cebu City, Dumaguete City, Marinduque (Mogpog), Masbate City, Northern Samar (Catarman), and Palawan (El Nido)
 - Maintained and repaired buildings, appurtenances, grounds, and air-conditioning/plumbing facilities
 - Performed preventive and corrective maintenance for NAMRIA vehicles
 - Provided transport services for officials and employees



Screenshot of ZIMBRA web-mail



Installation of AGS instruments on the rooftop of the Fire and Rescue building at Basco airport in Batanes

The following were accomplished during the year:

Policy and Planning Services

- Prepared FY 2015 Budget Proposal and Work and Financial Plan
- Updated Forward Estimates (FEs) and NAMRIA inputs to the ENR Framework Plan, Philippine Development Plan Action Plan Matrix, and Public Investment Program
- Updated the NAMRIA Organization and Operations Manual (NOOM)
- Prepared the monthly, semestral, and FY 2014 accomplishment reports
- Implemented the Strategic Performance Management System (SPMS)

Financial and Management Services

- Prepared, processed, and submitted: Check disbursement; Advice of checks issued; Advice to Debit Account (ADA); ATM payroll; and Reports of Checks Issued and ADA, Disbursement, Accountability, Daily Cash Position, and Collection
- Deposited daily sales and collection to Land Bank of the Philippines
- Submitted online to the Department of Budget and Management (DBM) the prescribed Budgetary Execution Documents (BED) 1, 2 and 3
- Disseminated the Status of Funds to all divisions via e-mail in their respective ZIMBRA accounts for regular monitoring



Employees' self-assessment for NAMRIA's competency-based system held at the NAMRIA Lecture Hall on 12 December 2014



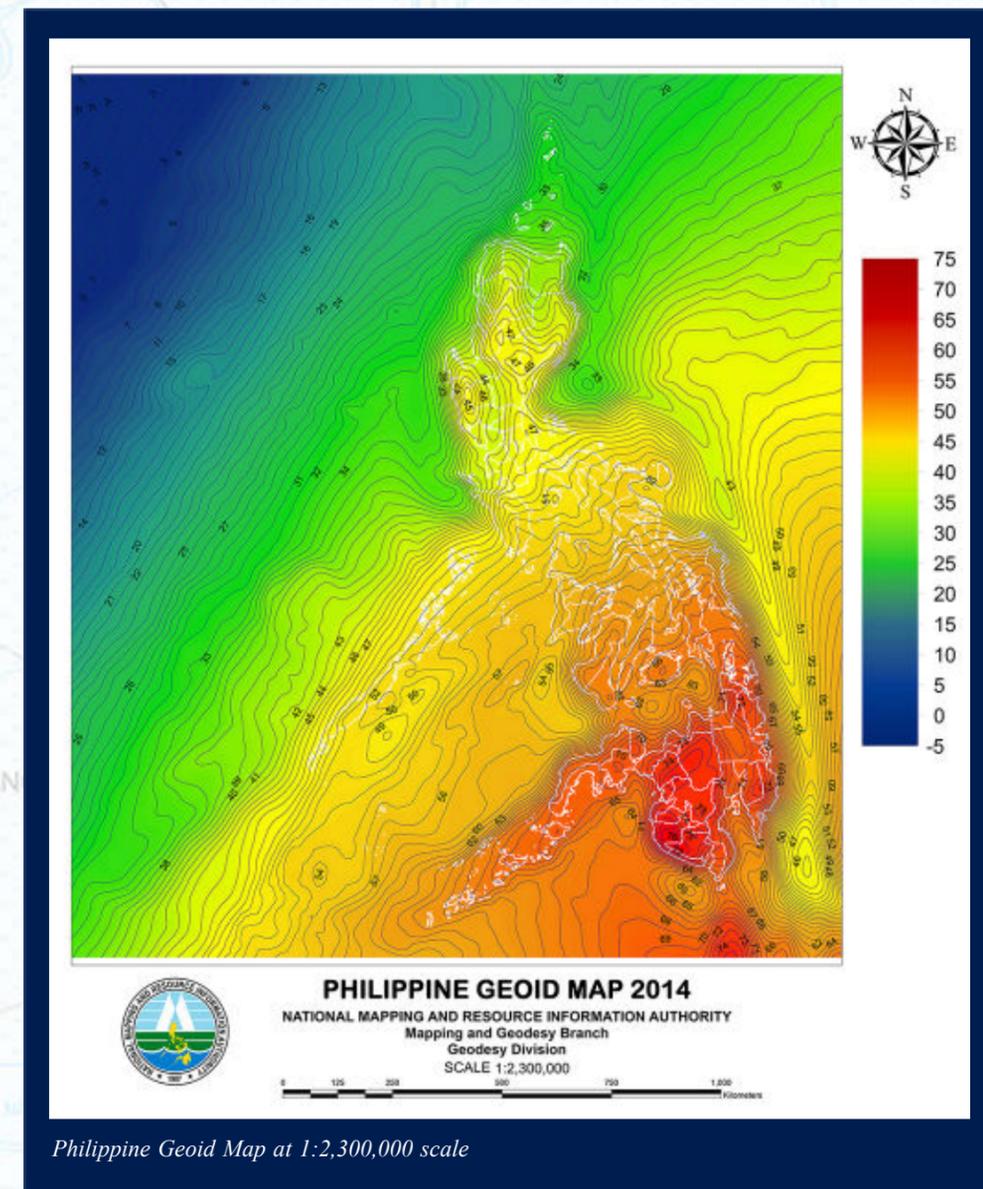
Meeting to update the NOOM held at the NAMRIA Boardroom on 26 June 2014

Administrative Services

- Facilitated the recertification of Level-II accreditation status by the Civil Service Commission
- Filled up 80% of plantilla positions through recruitment and promotion after approval of the Rationalization Plan
- Established Morale and Welfare Program for the employees such as the:
 - Provident Fund
 - Emergency Response
 - *Bayanihang Bayan*
 - Senior Citizens and Persons with Disability
 - Health and Wellness
 - Working Environment
 - Livelihood
- Maintained the Human Resource Information System (HRIS)
- Facilitated the approval of the Competency-Based System job description manual
- Provided human resource intervention for employees through local and foreign scholarships, trainings/seminars and orientations
- Established employee engagement program through coaching and mentoring
- Developed NAMRIA Strategic Human Resource Development (HRD) Plan in partnership with the Philippines Australia Human Resource and Organizational Development Facility (PAHRODF)

Gravity Network

- Established 350 2nd-order gravity stations in 21 provinces in Mindanao in order to densify the gravity stations in the country (i.e., Agusan del Norte, Agusan del Sur, Bukidnon, Compostela Valley, Davao del Norte, Davao del Sur, Davao Occidental, Davao Oriental, Lanao del Norte, Lanao del Sur, Maguindanao, Misamis Occidental, North Cotabato, Saranggani, South Cotabato, Sultan Kudarat, Surigao del Norte, Surigao del Sur, Zamboanga del Norte, Zamboanga del Sur, and Zamboanga Sibugay)
- Completed airborne gravity survey in May 2014 and conducted a Geoid Computation Workshop wherein a Philippine Geoid Model was produced. (The workshop was held at the MGB conference room in October 2014 with staff from the Gravity Section, Geodesy Division of the Mapping and Geodesy Branch [MGB] as participants.)



Philippine Geoid Map at 1:2,300,000 scale

RESOURCE ASSESSMENT AND MAPPING

NAMRIA conducts nationwide land resource assessment and mapping of various thematic geospatial information on land cover, coastal resources, low-lying areas vulnerable to sea-level rise and upland/forestland population, among others. Also included is the validation of protected areas and other ENR datasets. These fundamental datasets serve as vital inputs in policy formulation, physical and developmental planning, provision of social services, disaster-risk management, and climate-change mitigation and adaptation studies at various levels.

In addition, the agency continues to provide information on the classification of lands of the public domain as well as technical assistance to DENR-national and DENR-Autonomous Region in Muslim Mindanao on the delineation of forestland boundaries in support to the legislation of the final limits of forestlands and national parks.

GENERAL ADMINISTRATION AND SUPPORT SERVICES

General Administration and Support Services are crucial to the operations and efficient implementation of NAMRIA's mandated functions.

Policy and Planning Services encompass overall strategic and operational policy formulation, planning, and strategic studies that aim to ensure that NAMRIA's programs, activities, and projects are aligned with national thrusts and priorities, implemented efficiently and effectively, and in compliance with government regulations on budgeting. *Financial and Management Services* take charge of NAMRIA's budget program; the formulation, review, and recommendation to top management for policies, guidelines, systems, and procedures related to budgeting; the attendant reporting requirements; fiscal control involving the receipts and disposition of government funds and properties; periodic examination of the financial system; and review of the internal control system for safeguarding money and property. *Administrative Services* involve the formulation and implementation of policies, programs, guidelines, rules and regulations pertaining to human resource management and development; management of goods and services; records management; library management; and cash management. Programs are aligned and supportive of the strategic initiatives of the agency, thus, providing a sufficient pool of competent human resources and enhanced organizational capacity. Finally, *Engineering Services* deal with the development, upgrading, and maintenance of information technology equipment and technical and communications equipment; management and operation of the motor pool; and repair and maintenance of motor vehicles including buildings and facilities.

- On the information, education, and communication (IEC) materials production:

- Published and distributed the NAMRIA 2013 *Annual Report, Infomapper 2012-2013* (Volume XX), and 83 issues of *NAMRIA Newscoop*; Set up 28 photo/map and technology exhibits with majority of the exhibits for the Greater Metro Manila Area (GMMA) and the Risk Analysis Project (RAP) IEC campaigns; Conducted 2010 digital photo and 70 video documentation for various

NAMRIA projects and events/activities; Produced 2 Audio-Visual Presentations (AVPs): NAMRIA Institutional AVP and draft AVP on PGP; Published 2 photo releases in *The Philippine Star* and 3 institutional advertisements in *Manila Bulletin*, *The Philippine Star*, and UPLB 104th anniversary souvenir program; Provided editorial, writing, and graphic arts services to NAMRIA branches; Served as secretariat in the agency's ISO 9001:2008 activities



IEC materials published and disseminated in CY 2014

Information and Communications Technology (ICT) Resource Management

- Conducted preventive and corrective maintenance (i.e., twice a year) of 606 computer systems and peripherals
- Maintained 606 units of computer systems including hardware/software
- Managed and performed preventive/corrective maintenance of the Network/PGP Production Data Center
- Maintained ICT resources/infrastructure in support of the PGP Phase III
- Continued implementation and administration of the ZIMBRA web-mail

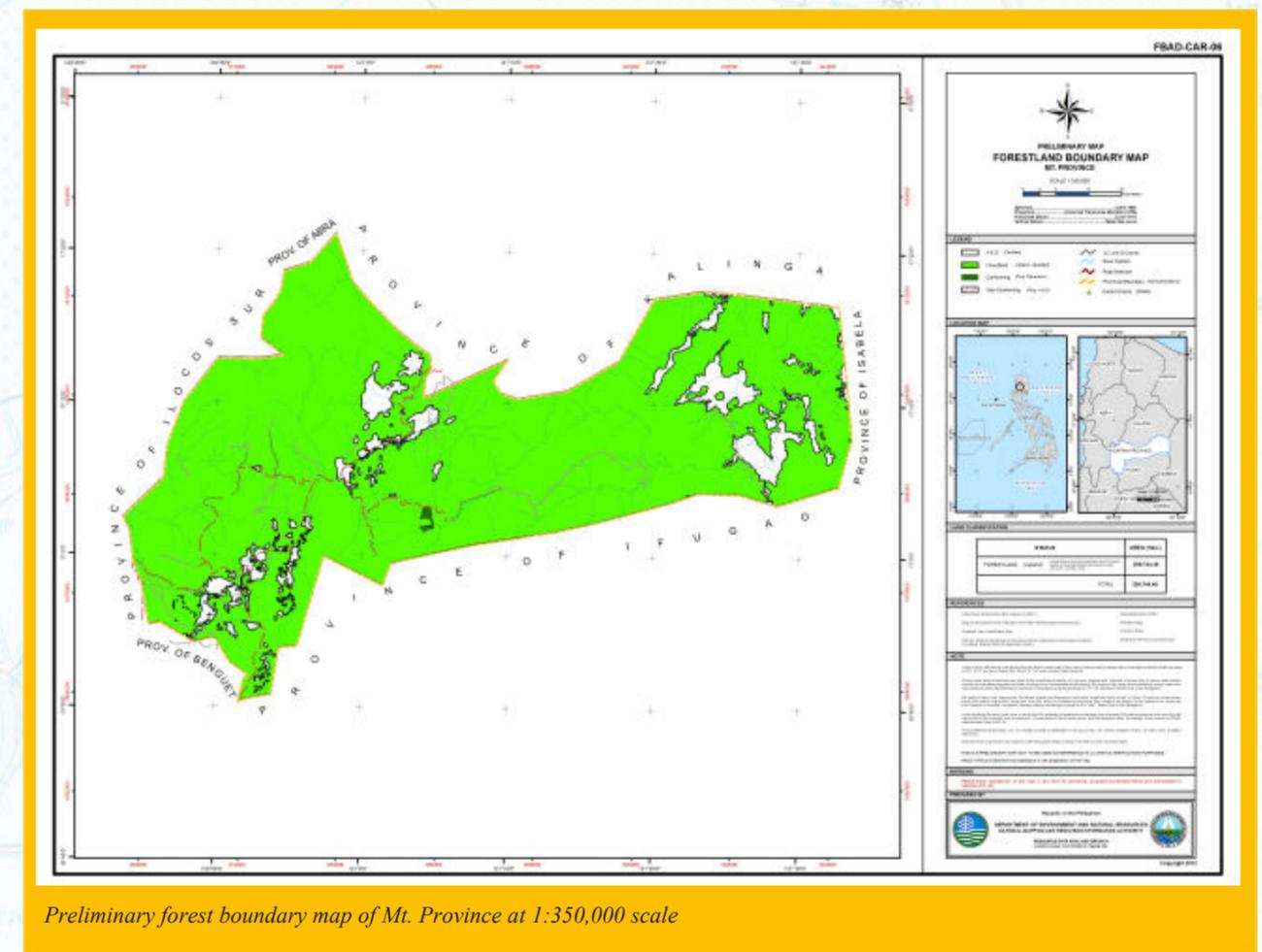
The following were accomplished during the year:

Forestland Evaluation and Mapping

The project was implemented to provide maps relative to the land classification (LC) status and other LC-related data/information and technical assistance to the DENR and its regional offices, other government agencies, local government agencies and private entities. Also through this activity, NAMRIA provided technical assistance to the Biodiversity Management Bureau (BMB) in their mapping of Protected Areas (PAs)/National Integrated Protected Areas System (NIPAS) which will serve as reference in their demarcation project.

- Generated maps and statistics of upland/forestland occupants in 16 regions: Regions 1 to 12 including Region IV-B, ARMM, CAR, and CARAGA

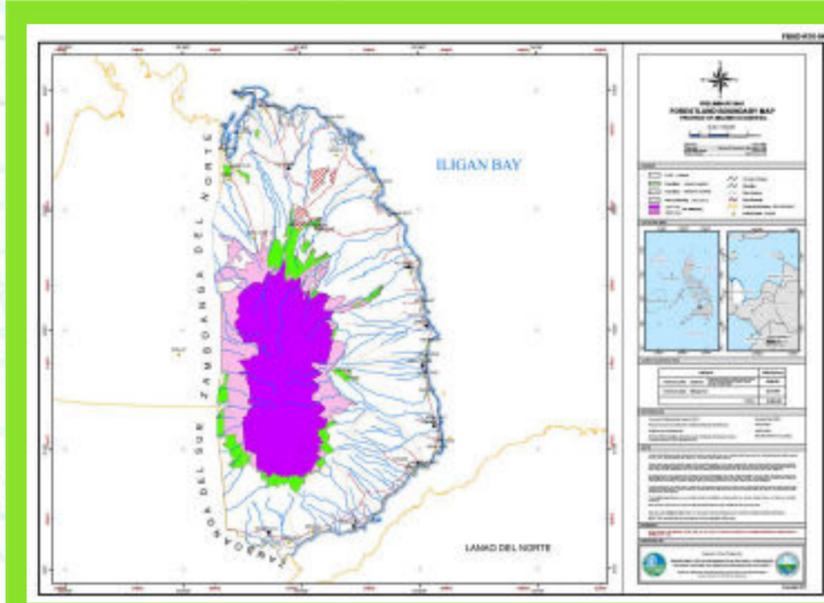
- Replotted and undertook conversion into digital format alienable and disposable blocks of analog LC maps of 10 provinces: Aklan, Capiz, Eastern Samar, Ifugao, La Union, Leyte, Negros Occidental, Northern Samar, Sorsogon, and Western Samar
- Completed the digital conversion and printing of LC control maps of 22 provinces: Agusan del Norte, Aklan, Apayao, Bukidnon, Cavite, Dinagat Island, Ifugao, Isabela, Kalinga, Metro Manila, Mt. Province, Negros Oriental, Occidental Mindoro, Oriental Mindoro, Palawan, Saranggani, Siquijor, Sorsogon, South Cotabato, Sultan Kudarat, Surigao del Norte, and Surigao del Sur



Preliminary forest boundary map of Mt. Province at 1:350,000 scale

- Assessed forestland boundary delineation maps and drafted bills for 82 provinces and 2 cities in 16 regions
- Validated and updated 25 NIPAS maps: Bawa-Wangag (formerly Casecnan), Calabaan Watershed Forest Reserve (WFR), Carac-an, Casamata National Park (NP), Casecnan Protected Landscape, Dibalo-Pingit-Zabali-Malayay WFR, Dipaculao-Pingit-Zabali-Malayay WFR, Ilocos

Norte Metro WFR, Jalaur River WFR, Mado Hot Spring NP, Malagos Watershed, Masinloc-Oyon Bay, Minalungao, Lopez Lake Dapao NP, Mt. Arayat NP, Mts. Iglit-Baco NP, Mt. Pulag, Olongapo WFR, Palompon in Malagos Watershed, Pantabangan-Caranglan WFR, Paoay Lake NP, Talavera, Tubbataha Reefs NP, Tumauni WFR, and Santa WFR



Map showing the forestland boundary of Misamis Occidental at 1:300,000 scale

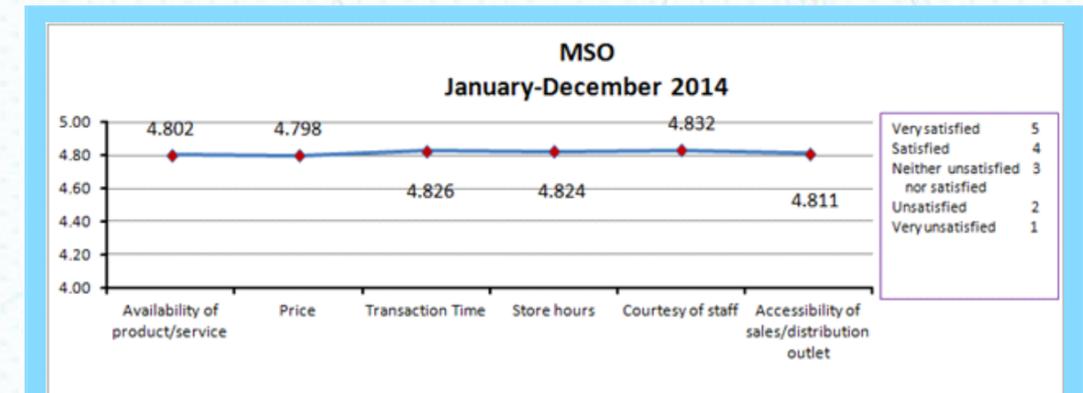
Draft bill defining the forest limits of Misamis Occidental Province

Geographic Information Services

- On promotions, marketing, and client service provision:
 - Distributed 280 information materials on NAMRIA Products and Services; Updated the Fiscal Year (FY) 2013 Geomatics Training Center participants and client databases; Conducted 43 trainings (i.e., 14 regular, 25 MOA-based, 2 special, and 2 in support to NAMRIA projects); Prepared the 2013 Sales and Analysis Report, Client Profile and Feedback Report, Quarterly Summary of Client Perception Report, and Map Sales Office (MSO) client database; Conducted information campaign activities for the Philippine Geoportal Project and NAMRIA products and services; Submitted to the National Archives of the Philippines the agency's request for authority to dispose of records



Basic/Advanced GIS Training conducted at the NGTC



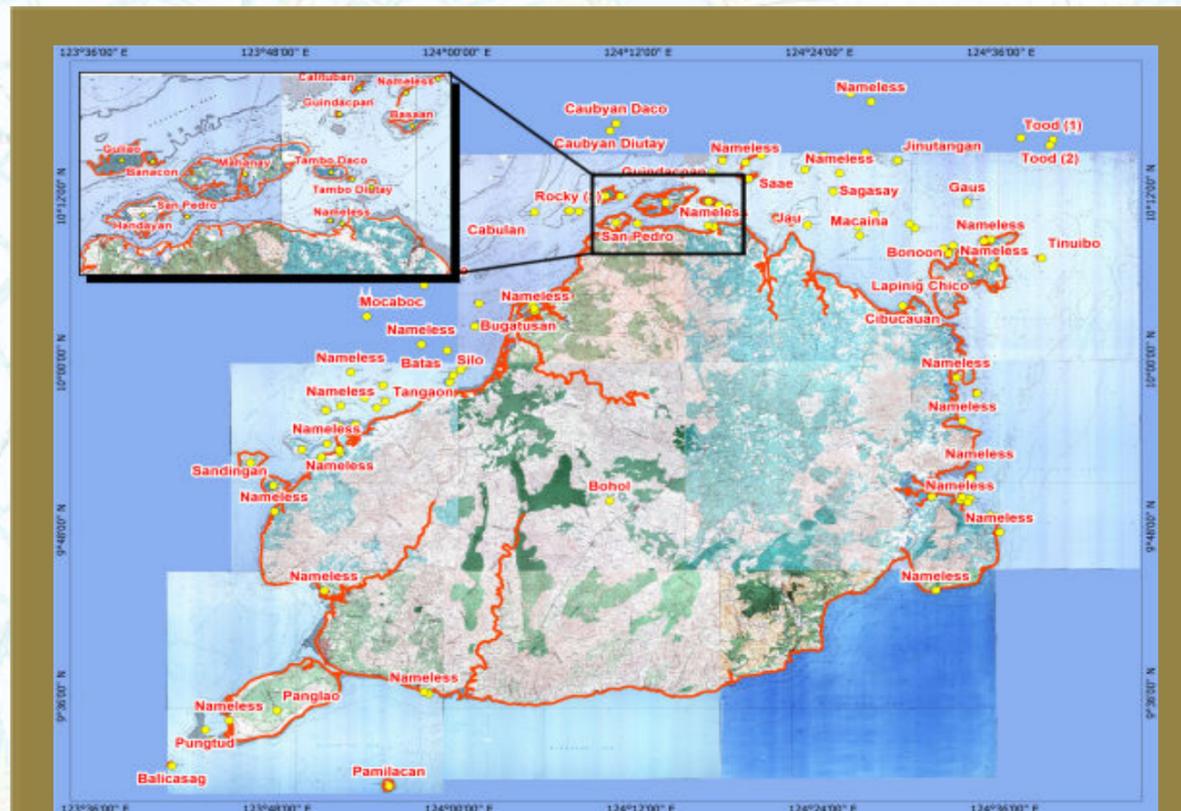
Graph shows the client satisfaction rating in percent average for NAMRIA over-the-counter (OTC) services for MSOs in Fort Bonifacio, Taguig City and San Nicolas, Manila.

Criteria	Very unsatisfied	Unsatisfied	Neither unsatisfied nor satisfied	Satisfied	Very satisfied	Total
Availability of product/service	0.1508%	0.1000%	0.3450%	19.2643%	80.1399%	100%
Price	0.1394%	0.0366%	0.4686%	18.7322%	80.6233%	100%
Transaction Time	0.1507%	0.0000%	0.1302%	17.7429%	81.9762%	100%
Store hours	0.1296%	0.0366%	0.1148%	17.6341%	82.0850%	100%
Courtesy of staff	0.1297%	0.0702%	0.2725%	17.2051%	82.3225%	100%
Accessibility of sales/distribution outlet	0.1127%	0.0530%	0.4993%	18.1217%	81.2133%	100%
Average	0.1355%	0.0494%	0.3051%	18.1167%	81.3934%	100%
No. of Respondents	6	4	15	857	3982	4864

Based on the indicated criteria, clients rated NAMRIA OTC services at 99.51% level of satisfaction.

Geospatial Database Development and Maintenance

- On the geospatial data holdings buildup:
 - Validated 240 metadata records stored in the database and created new metadata records
- On the Philippine Islands Database buildup:
 - Coordinated with concerned LGUs the field validation activities conducted in the provinces of Batangas, Bohol, and Surigao del Norte; Created database records and updated the maps of the three provinces
- On the Philippine Geoportal Project-One Nation One Map database buildup and development:
 - Digitized and validated 160 tiles of building footprints for road center lines and river systems based on the Metro Manila Development Authority 2013 and Risk Analysis Project Land Use Polygon
 - Reviewed and updated technical standards for the data dictionary
 - Incorporated geospatial data in the Philippine Geoportal System and monitored and audited the geospatial data of PGP Phases I and II stakeholders
 - Participated in project planning and formulation of PGP policies, technical standards, and protocols
- On LGU GIS Capability Inventory:
 - Prepared survey questionnaires on available LGU geospatial data holdings and disseminated these to 1,714 LGUs nationwide

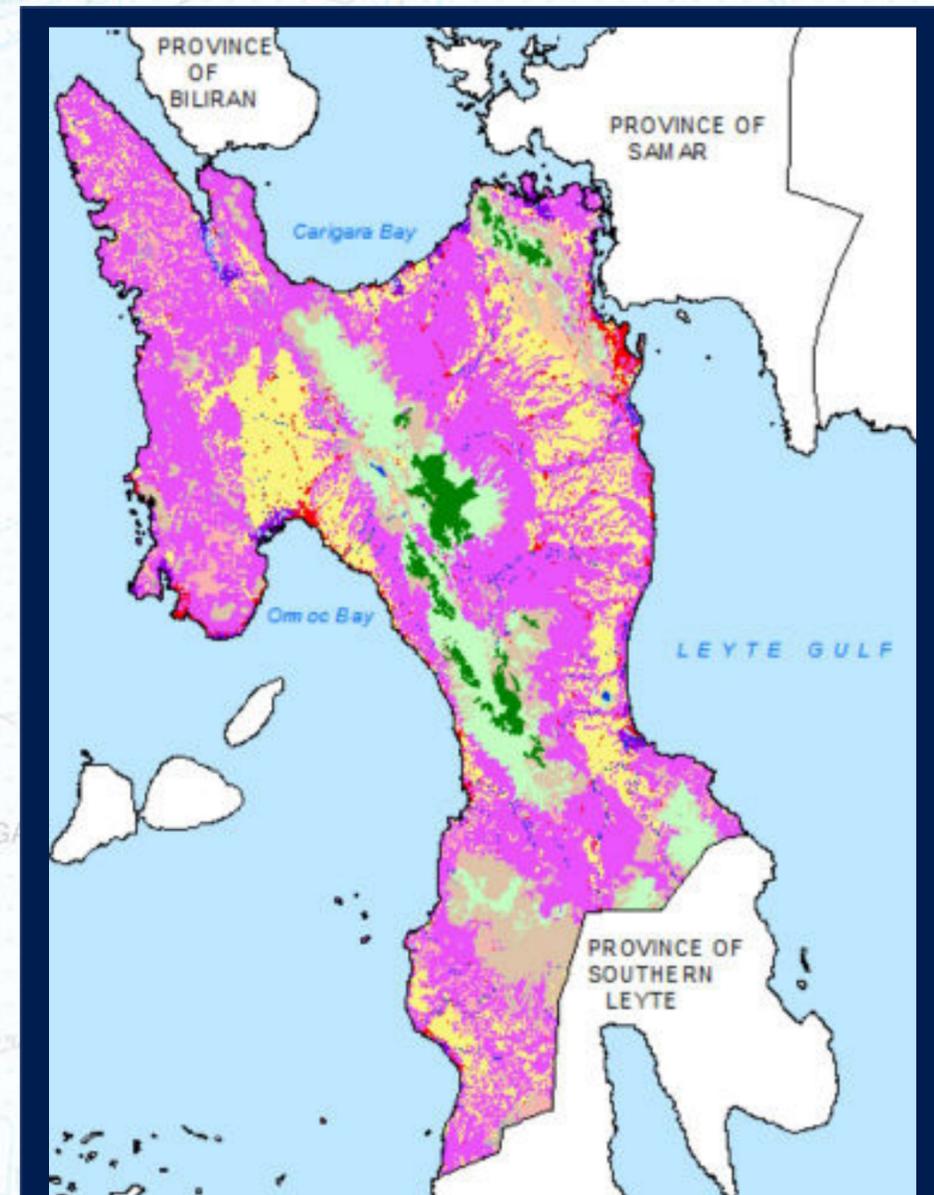


Updating the Philippine Islands Database Project - Map shows (in red letters) the identified islands in Bohol province based on topographic maps at 1:50,000 scale, volume 5 of the 1941 Census Atlas of the Philippines, and field validation activity

Land Cover Mapping

The project aims to support the National Land Use Act/ Program of the government. Using the latest remote sensing data, updated nationwide land cover maps and statistics per province will be produced which will serve as inputs in the proper utilization and management of the country's land resources. Updated land cover information are significant inputs in physical and development planning as well as in climate change mitigation and adaptation efforts. NAMRIA regularly undertakes updating of land cover data.

- Completed the preliminary mapping and validation of land cover maps in 20 provinces: Bataan, Biliran, Eastern Samar, Guimaras, Ifugao, Ilocos Norte, Ilocos Sur, Iloilo, La Union, Leyte, Mt. Province, Negros Occidental, Negros Oriental, Northern Samar, Nueva Ecija, Pangasinan, Samar, Southern Leyte, Tarlac, and Zambales

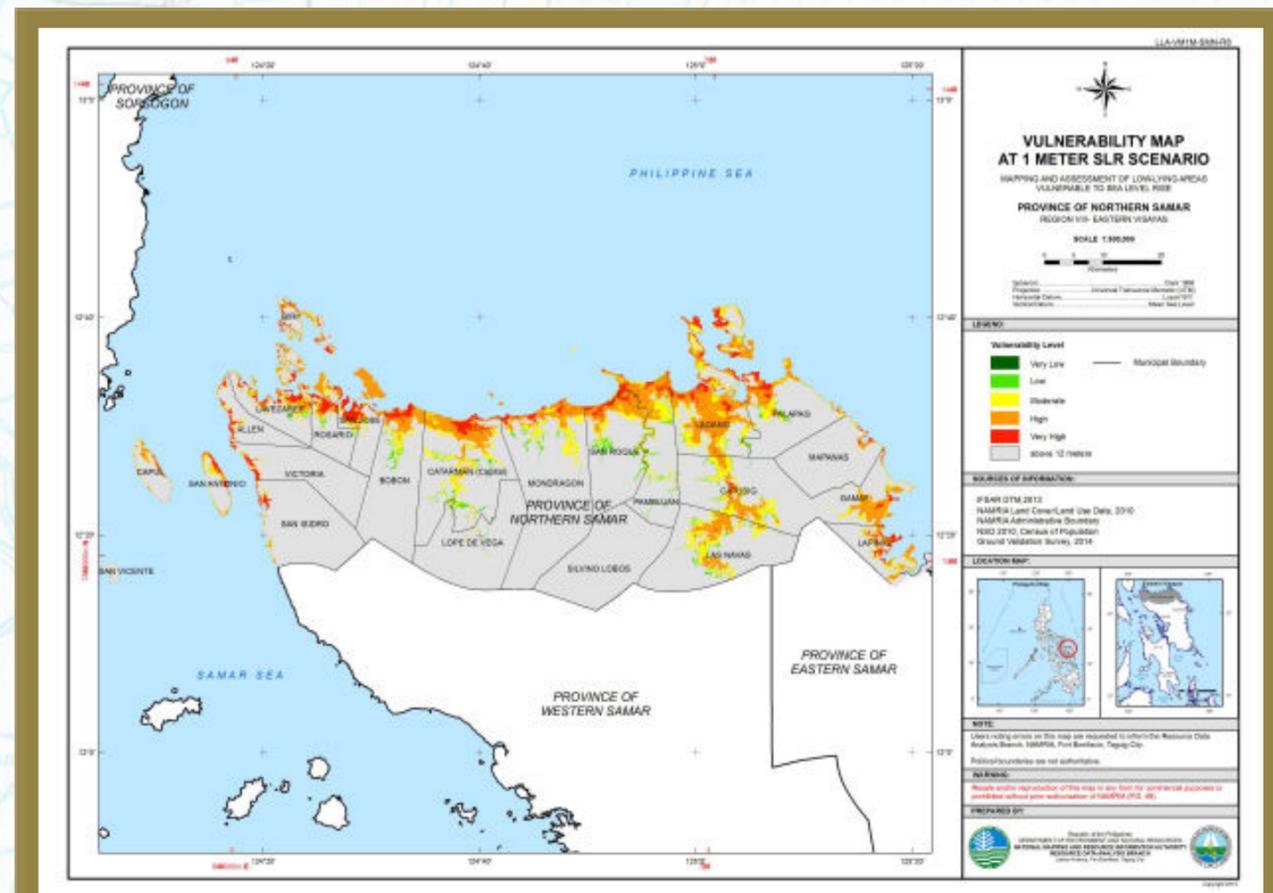


Land cover map of Leyte province

Mapping and Assessment of Low-lying Areas Vulnerable to Sea-Level Rise

Using high-resolution satellite images and application of remote sensing and geographic information system (GIS) techniques, the project will generate maps of low-lying areas and assess coastal areas vulnerable to different sea-level rise scenarios. The generated information in the vulnerability assessment will be used in planning mitigation measures, policy decision making, and formulation of adaptive strategies.

- Completed the mapping and generation of statistics on the assessment and integration of ENR datasets of low-lying areas within the 10 coastal provinces: Albay, Aurora, Batangas, Bohol, Leyte, Masbate, Northern Samar, Palawan, Romblon, and Zambales



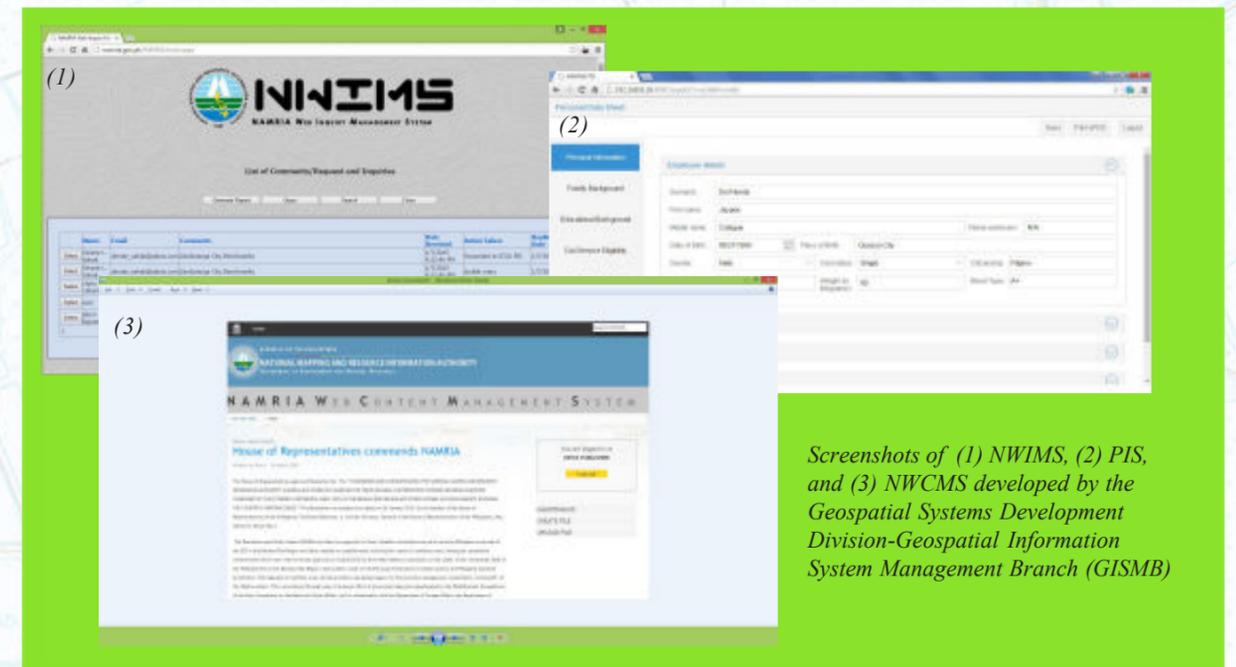
Vulnerability map at 1-meter sea-level rise scenario of Northern Samar

The following were accomplished during the year:

Information Systems Development and Maintenance

❖ On Information System Development and Maintenance:

- Maintained and monitored 10 information systems: Acknowledgement Receipt of Equipment Monitoring System (AREMS); Clearance Certificate System (CCS) for Administrative Order Number 16; Daily Journal Information System (DJIS); Document and Record Information Management System (DRIMS); Geodetic Network Information System (GNIS); Geomatics Training Center Information System (GTCIS); NAMRIA Products and Services Information System (NPASIS); web-based Personnel Information System (PIS); Source Code Management and Issue Tracking System (SCMITS); and Supply Management System (SMS)
- Developed/enhanced 5 information systems: GNIS, web-based PIS, PGS, NWCMS, and NWIMS
- Implemented 4 information systems: NWIMS, NWCMS, web-based PIS, and PGS
- Updated the NAMRIA website and provided technical, administrative, and logistics support in the preparation of the NAMRIA Organization and Operations Manual
- Submitted to the Department of Budget and Management the NAMRIA Information and Communications Technology (ICT) Plan and budget preparation for CY 2015 under the government-wide Medium-Term Information and Communication Technology Harmonization Initiative (MITHI) (MITHI is an e-Government and ICT support initiative which aims to harmonize and ensure interoperability among ICT-related resources, programs, and projects across the government.)
- Designed and analyzed 6 information systems: NAMRIA Web Content Management System (NWCMS), NAMRIA Web Inquiry Monitoring System (NWIMS), web-based PIS, Philippine Geoportal System (PGS), PageNET Management System (PMS), and Re-Entry Action Plan (REAP)



Screenshots of (1) NWIMS, (2) PIS, and (3) NWCMS developed by the Geospatial Systems Development Division-Geospatial Information System Management Branch (GISMB)

GEOSPATIAL INFORMATION MANAGEMENT

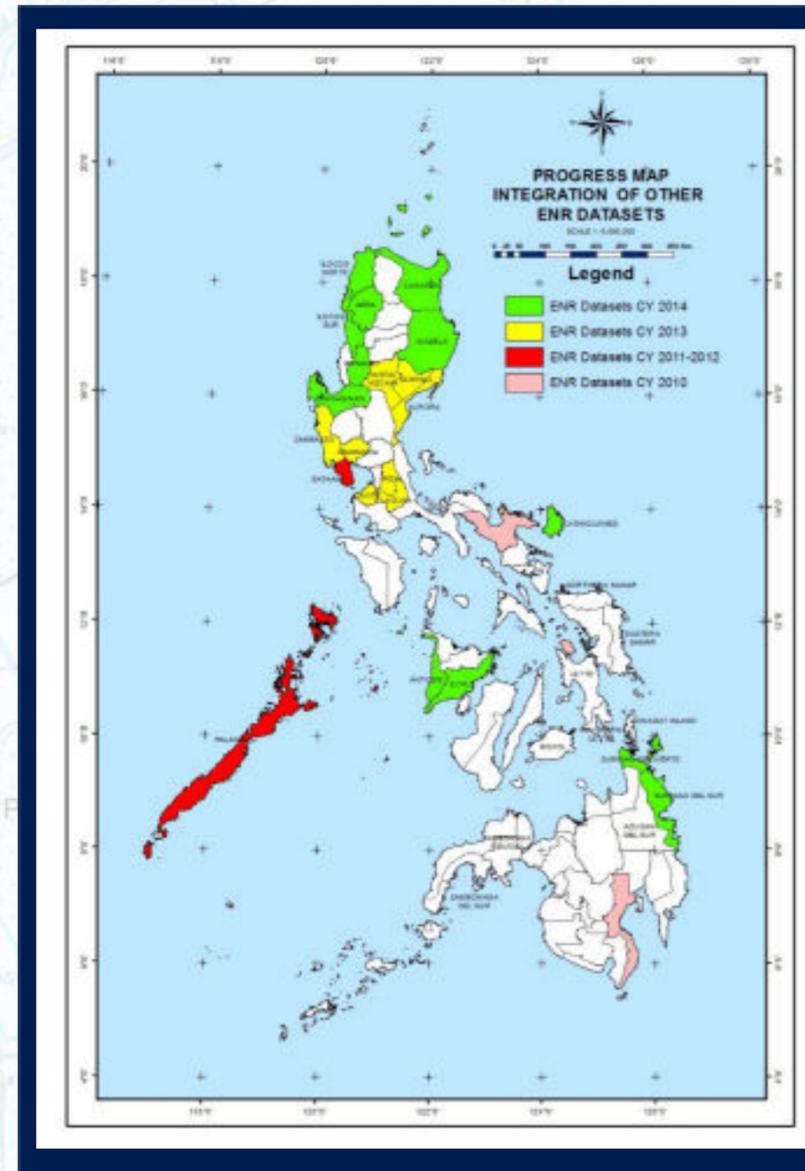
NAMRIA's geospatial information management functions include the development of GIS applications and databases; the management of web-based systems; the packaging of products and services; and the dissemination of geographic information to national government agencies, LGUs, the academe, the business sector, technical and scientific organizations, and the general public. The agency is also at the forefront of developing the Philippine Geoportal. The Philippine Geoportal envisions a common, web-based facility for sharing of geospatial information including the online service for standard multiscale basemaps that can be used by various stakeholders for their thematic data integration.



Integration and Assessment of ENR Datasets

The project plans to assess provincial ENR datasets and integrate various hazard data/maps of the target areas. The ENR datasets will serve as useful inputs in determining applicable policies to prescribe appropriate land use practices within a given tenured area. In this way, the DENR regional offices will successfully implement their regulatory and sustainable development thrusts considering the risks associated with upland development vis-à-vis geohazards.

- Completed the assessment and integration of ENR datasets in 12 provinces: Abra, Antique, Benguet, Cagayan, Catanduanes, Iloilo, Ilocos Norte, Ilocos Sur, Isabela, Pangasinan, Surigao del Norte, and Surigao del Sur; Also undertook geospatial data archiving of 11 projects of the Resource Data Analysis Branch

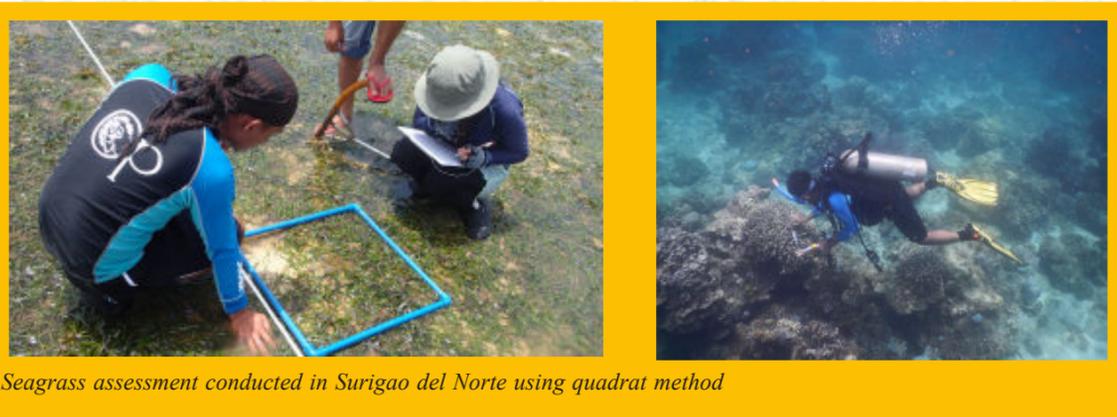
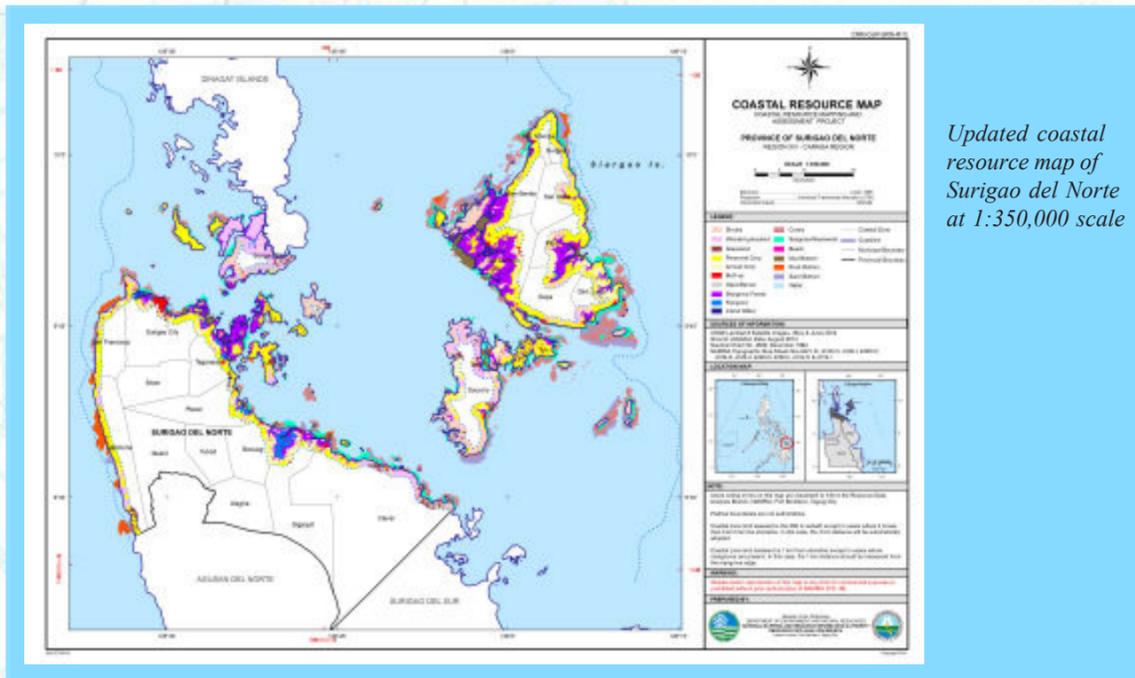


Progress map showing the integration of other ENR datasets in 27 provinces in Calendar Year (CY) 2010 - 2014

Coastal Resources Mapping and Assessment

The project will produce updated maps and coastal database and information on coastal resources through application of remote sensing techniques and GIS technologies. Using the most recent satellite imageries, the project aims to determine and evaluate the extent and status of coastal and marine resources. The outputs will serve as vital inputs in the formulation of policies on the conservation and development of coastal resources, which will result in increase in fish catch and generate more income and employment for fisherfolk and more revenues for the LGUs.

- Completed the mapping and assessment of 15 coastal provinces: Agusan del Norte, Albay, Aurora, Camarines Norte, Camarines Sur, Camiguin, Catanduanes, Davao del Sur, Davao Oriental, Ilocos Norte, Isabela, Misamis Occidental, Sorsogon, Surigao del Norte, and Surigao del Sur



Physical Oceanographic Surveys

- Undertook data compilation and update of:
 - 8 Harbor ENC cells: Port of Balanacan at 1:4,000 scale; Casiguran Harbor at 1:12,000; Port of Dalahican at 1:4,000 scale; Port of Liloan at 1:4,000 scale; Masbate Harbor at 1:4,000 scale; Ports Masinloc and Matalvi and Palauig Bay at 1:22,000 scale; Tabaco Bay and Coal Harbor at 1:22,000 scale; and Ulugan Bay at 1:12,000 scale
 - 2 Approach ENC cells: Laguna de Bay at 1:45,000 scale and Lake Lanao at 1:45,000 scale
- Undertook manual correction of navigational information updates in 2,000 printed nautical charts
- Published 12 editions of *Philippine Notices-to-Mariners (NTMs)* at 1 edition per month and the 2015 edition of the *Philippine List of Lights*
- Prepared and edited the manuscripts for Volumes I and II of the Philippine Coast Pilot Book
- Prepared a nautical chart of West Palawan Region showing the delineated maritime zones
- Assisted 96 local government units in the delineation of their municipal waters

- Completed the analysis and processing of 470 monthly tidal datasets of water-level measurements collected from tide staff and tide gauge readings to prepare the manuscript of the 2015 Tide and Current Tables consisting of 407 pages and printed 2,000 copies
- Conducted releiving of tidal benchmarks and inspection of 44 tide stations located in various coastal regions of the country for the continuous monitoring and recording of tides
- Updated tidal information in 97 printed nautical charts

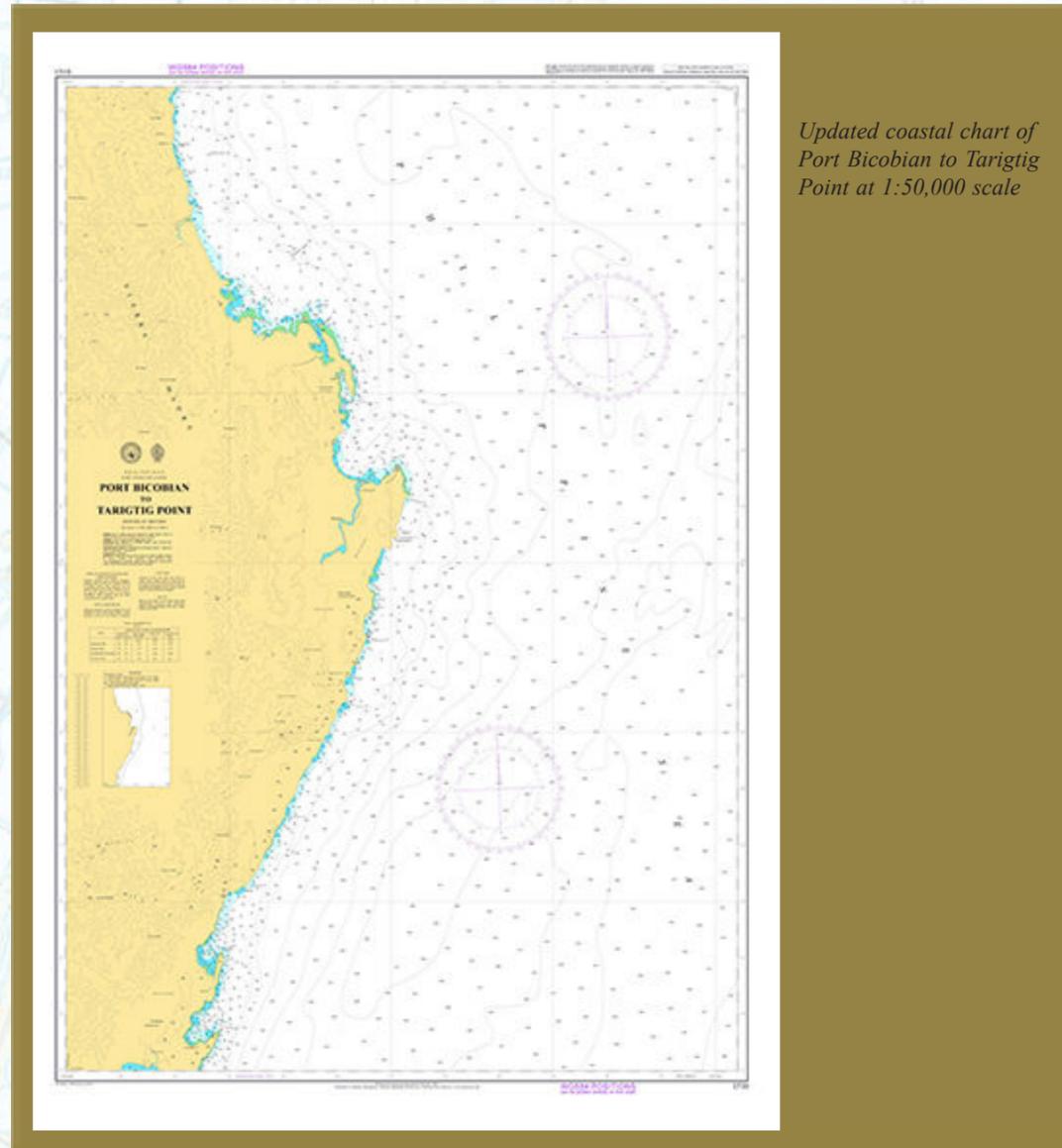


➤ Undertook cartographic enhancement of:

- 9 coastal charts each at 1:150,000 scale: Chart No. 1501-Manila Bay and Approaches; Chart No. 1502-Subic Bay to Dasol Bay; Chart No. 1515-Approaches to San Bernardino Strait including Albay Gulf and Lagonoy Gulf; Chart No. 1541-Sibuyan Sea to Ticao Pass; Chart No. 1543-Romblon Passage to Tayabas Bay including Tablas Strait; Chart No. 1544-Ambulong Island to Sibuyan Island including Semirara Islands; Chart No. 1545-Cuyo East Pass; Chart No. 1552 Mindoro Strait; and Chart No. 1564-Verde Island Passage

- 1 Exclusive Economic Zone Chart: Chart No. 4901B-Celebes Sea and Approaches at 1:1,250,000 scale (*This is a special chart which was compiled for use as reference to prepare the Philippines-Indonesia Exclusive Economic Zone (EEZ) Boundary Map.*)

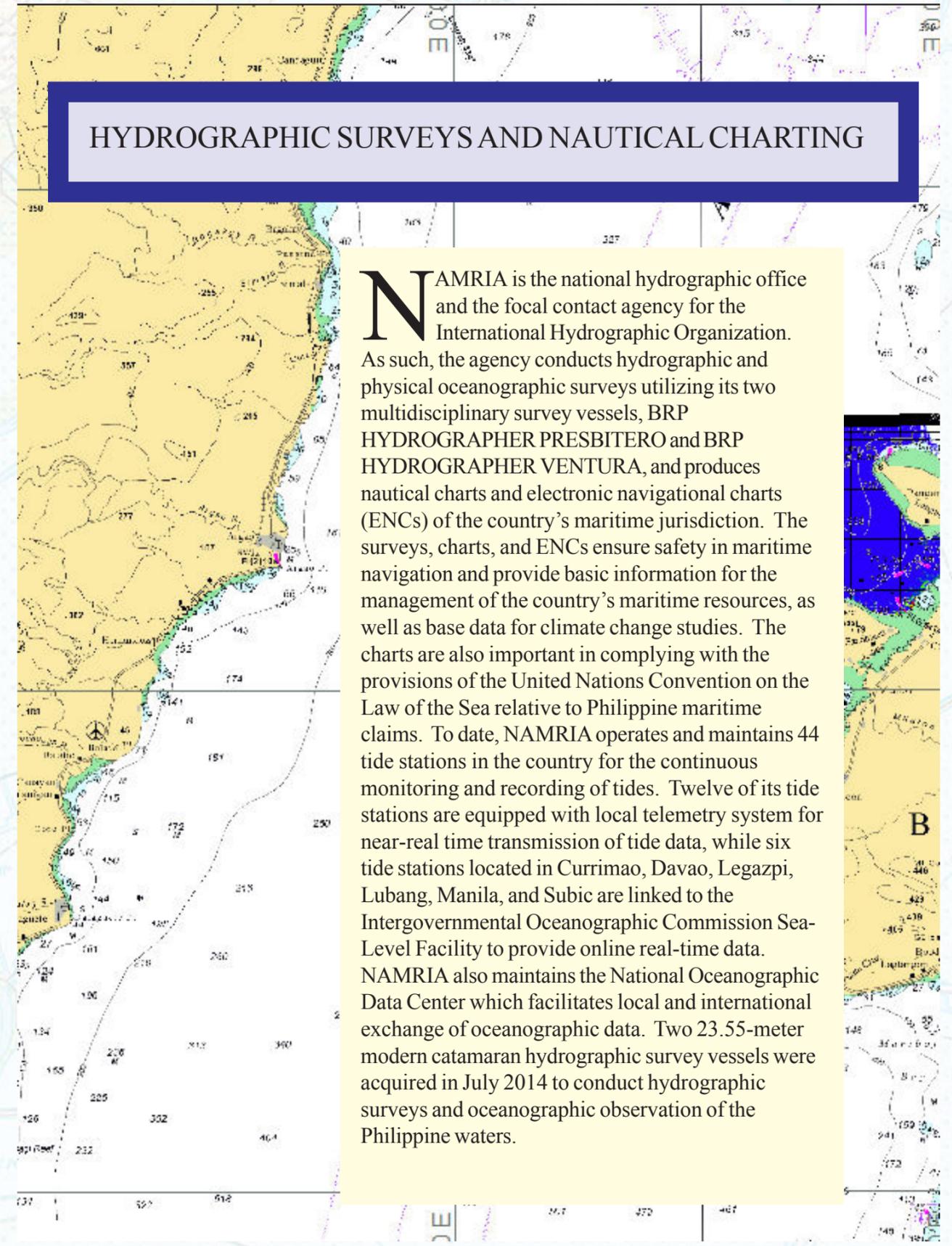
- 2 General Charts: Chart No. 5015-Cabra Island to Cape Bojeador at 1:500,000 scale and Chart No. 4723-Kalayaan Island Group at 1:2,000,000 scale



Updated coastal chart of Port Bicobian to Tarigtig Point at 1:50,000 scale

HYDROGRAPHIC SURVEYS AND NAUTICAL CHARTING

NAMRIA is the national hydrographic office and the focal contact agency for the International Hydrographic Organization. As such, the agency conducts hydrographic and physical oceanographic surveys utilizing its two multidisciplinary survey vessels, BRP HYDROGRAPHER PRESBITERO and BRP HYDROGRAPHER VENTURA, and produces nautical charts and electronic navigational charts (ENCs) of the country's maritime jurisdiction. The surveys, charts, and ENCs ensure safety in maritime navigation and provide basic information for the management of the country's maritime resources, as well as base data for climate change studies. The charts are also important in complying with the provisions of the United Nations Convention on the Law of the Sea relative to Philippine maritime claims. To date, NAMRIA operates and maintains 44 tide stations in the country for the continuous monitoring and recording of tides. Twelve of its tide stations are equipped with local telemetry system for near-real time transmission of tide data, while six tide stations located in Currimao, Davao, Legazpi, Lubang, Manila, and Subic are linked to the Intergovernmental Oceanographic Commission Sea-Level Facility to provide online real-time data. NAMRIA also maintains the National Oceanographic Data Center which facilitates local and international exchange of oceanographic data. Two 23.55-meter modern catamaran hydrographic survey vessels were acquired in July 2014 to conduct hydrographic surveys and oceanographic observation of the Philippine waters.



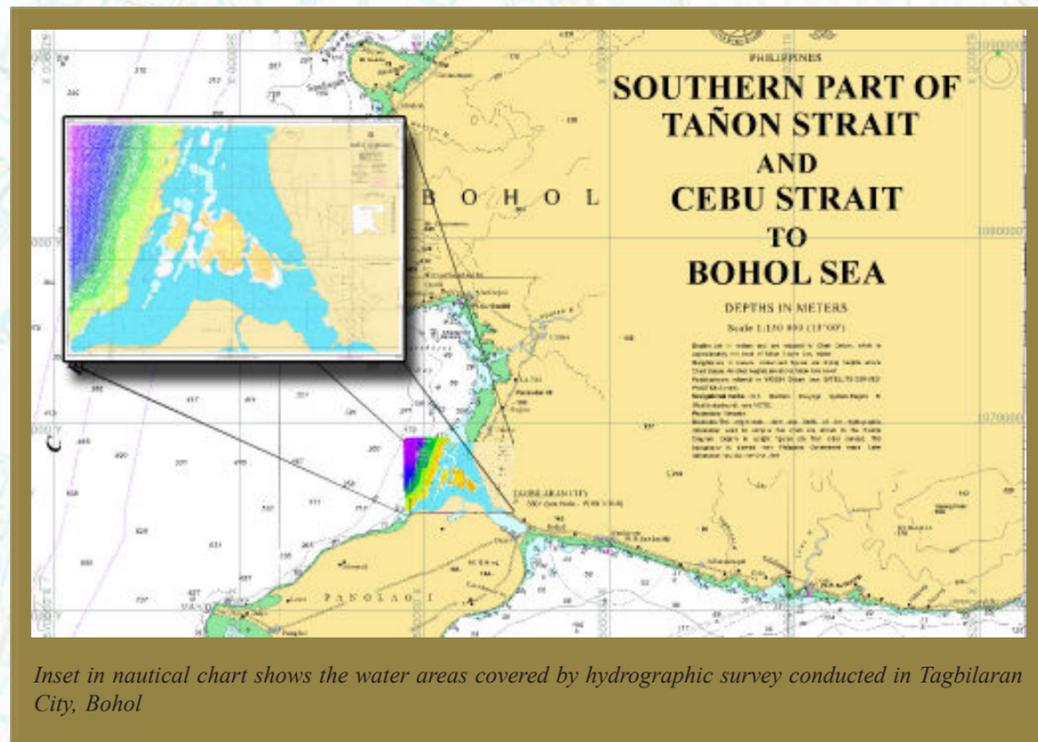
The following were accomplished during the year:

Hydrographic Surveys

- Conducted the hydrographic survey of the following ports and harbors covering a total of 173.25 square kilometers: Caticlan, Aklan (60 square kilometers); Catagbacan Port in Loon, Bohol (60.30 square kilometers); Dumangas Port, Iloilo (40.60 square kilometers); and Tagbilaran, Bohol (12.35 square kilometers)
- Continued the maintenance and operation of the agency's 2 multidisciplinary survey vessels and 2 catamaran-type hydrographic survey vessels including their survey motor launches and skiffs. The survey vessels served as platforms for various hydrographic and oceanographic surveys.
- Continued the operation and maintenance of the Muntinlupa Magnetic Observatory through continuous recording of the earth's magnetic elements at the observatory and conduct of re-observation at 15 magnetic repeat stations located in different areas of the country



The two newly acquired modern catamaran-type hydrographic survey vessels of NAMRIA.

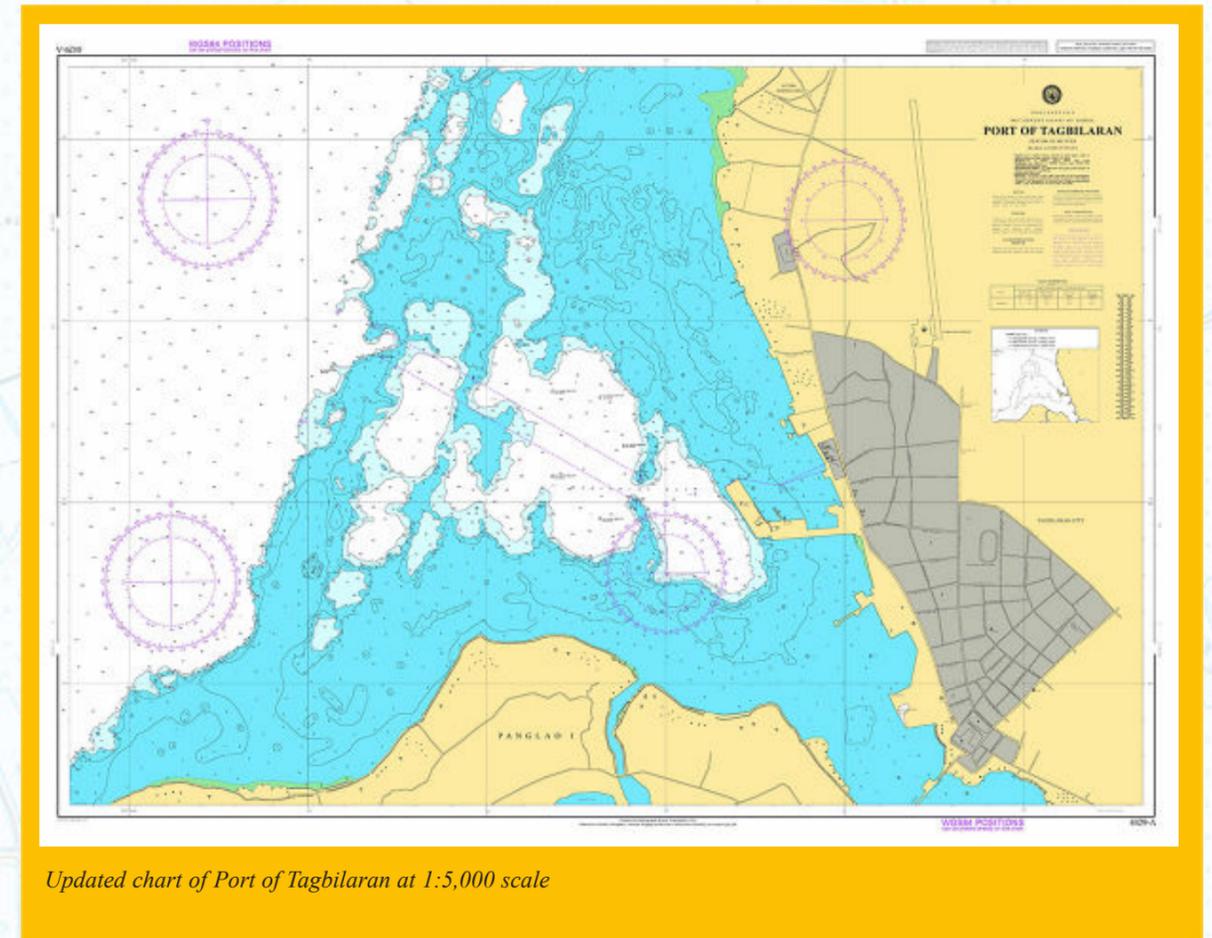


Inset in nautical chart shows the water areas covered by hydrographic survey conducted in Tagbilaran City, Bohol

Nautical Charting and Maritime Publications

Undertook data compilation and/or cartographic enhancement of:

- 8 Port and Harbor Charts: Chart No. 4257A-Port of Calapan at 1:5,000 scale; Chart No. 4261-Port Irene at 1:7,500 scale; Chart No. 4253-Port of Lamao at 1:5,000 scale; Chart No. 4240- Port of Legazpi at 1:10,000 scale; Chart No. 4254-Port of Mariveles at 1:5,000 scale; Chart No. 4241-Tabaco Harbor at 1:12,500 scale; Chart No. 4469-Port of Tacloban at 1:20,000 scale; and Chart No. 4229A-Port of Tagbilaran at 1:5,000 scale
- 2 Approach Charts: Chart No. 4448-Iloilo Strait and Harbors at 1:40,000 scale and Chart No. 4468-San Pedro Bay at 1:40,000 scale
- 4 Coastal Charts: Chart No. 1509-Cape Engaño to Lobod Point at 1:150,000 scale; Chart No. 1510-Port Bicolobian to Tarigtig Point at 1:150,000 scale; Chart No. 1514-San Miguel Bay to Catanduanes including Caramoan Peninsula at 1:150,000 scale; and Chart No. 1560-Malanut Bay to Bonbon Point at 1:150,000 scale



Updated chart of Port of Tagbilaran at 1:5,000 scale