RP ECS Sites

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MINDANAO

- 1:50,000 Mapsheet coverage

ZERO ORDER

# GOOD GOVERNANCE

# Contents

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Editors' note: Due to space constraints, we could not publish the complete references consulted for the articles for this issue. Interested individuals may avail themselves of the lists from the authors or the editors of this publication.

## New Beginnings



The *Infomapper* is usually about various topics relating to the technologies NAMRIA uses for its mandated activities, or on its participation in pressing national issues or concerns. For this issue, the publication focuses on good governance amid renewed calls for moral transformation for Philippine society. It is auspicious that the new administration hopes to bring about change needed for national development and security through good governance.

For the practice of good governance in the conduct of its basic operations, NAMRIA has managed to make the most of the resources available, especially the talents and skills of its staff and the inspiration and guidance of its leaders, in order to faithfully deliver the essential services. The agency has managed to continually support its mother unit, the Department of Environment and Natural Resources (DENR), by effectively working on the projects pursuant to its mandate and on national initiatives.

There have been significant gains for the nation to date. The agency's modest contributions include the Philippine Extended Continental Shelf entitlement documents it has prepared so far, pursuant to the United Nations Convention on the Law of the Sea. The ECS is potentially rich in mineral resources such as oil,

## Features

# Defining Philippine Good Governance

*by Maria Romina dR. Pe Benito*

A staple feature in every election is surely a candidate with a campaign platform that seeks to address a current pressing concern of the electorate. The agenda can be about the burning issue of the times or a matter deemed most important by the majority of the electorate. In the Philippines, it can be about restoring democracy or fighting poverty. For elections 2010, *good governance* was the predominant campaign theme among the candidates.

*Good governance* is labelled in Wikipedia as "an indeterminate term" and various discussions on good governance also reveal no singular definition for it. This is probably because "definitions may vary according to context, and categories inevitably overlap" (Macdonald, 2000) and "each country is unique with its own history and culture and has to develop its own governance systems" (Sasman, 2009). The term *governance* itself, also according to Wikipedia, "can apply to corporate, international, national, local governance or to the interactions between other sectors of society."

### RP *good governance*

"Governance" means "government" (Merriam-Webster, 2005) and the closest meaning of both "government" (Merriam-Webster, 2003) and "governance" (Merriam Webster, 1986) in the context of good governance can be "the act or process of governing." "Good governance" is *mabuti* or *matinong pamamahala* in Filipino, the national language. The average Filipino can easily associate good governance with *good leadership* especially by his foremost leader—his nation's President. All those running for public office want the electorate to believe that they are capable of good governance so that, if elected, they can fully promote the welfare and interests of their countrymen.

Candidates are one in promising a better life for the people they wish to serve. The 2010 presidentiables were saying in their campaigns that they intended to address the nation's difficulties and challenges through practicing and upholding good governance in their official decisions and policies. Such difficulties and challenges mostly have to do with the provision of basic services to the people and the matter of graft and corruption in the Philippines. Most of the candidates cited the following in their strategies for good governance: accountability, participation, rule of law, and transparency. Incidentally, these four items are commonly cited in discussions on good governance as its elements, pillars, and even standards or criteria to test governments for good governance.

### Bad Governance

Bad governance is a big hindrance to national development. The impact of bad governance on a nation is felt mostly by the poor. Money stolen from government coffers and ending up in the pockets and bank accounts of unscrupulous individuals are



*Prayer rally (Google image)*

meant to provide especially for basic services like education, health care, housing, infrastructure, and livelihood capital for Filipinos who need them most.

Philippine history is full of stories of how a people dissatisfied with their leaders were able to express their dissatisfaction with a great measure of success: armed revolts, peaceful people power movements, and impeachment. Oligarchic rule, autocratic rule, corruption, nepotism, human rights violations, and plunder—Philippine history has actual exemplifications of bad governance in the country. When suspicions or allegations of bad governance are exposed to be true, it is difficult not to be affected by newer accusations against public officials such as money laundering, fund scams, procurement irregularities, or election fraud. Anyway, widespread media reporting can never be disregarded along with reputable opinion survey results like, for example, those from the Berlin-based Transparency International (TI). The TI Corruption Perceptions Index (CPI) *measures the perceived level of public-sector corruption in 180 countries and territories around the world. The CPI is a "survey of surveys", based on 13 different expert and business surveys.*[*] To date, the Philippines is ranked as number 139 out of 180 countries with a score of 2.4 covered by the 2009 survey. The first in rank is the *cleanest* and the last is the *most corrupt* while in terms of score points, 10 means *highly clean* and 0 means *highly corrupt. (see table on next page)*

What is it that makes a Filipino do bad things once placed in a position of influence? The roots of bad governance in the Philippines are akin to the factors causing corruption, which happens to be the most glaring manifestation of bad governance in the country. The University of the Philippines Forum Roundtable on Corruption (2009) cited the following factors: *the weak moral fiber of society, the distorted values of government functionaries, which include materialism and their desire for the*

## Defining...
*from page 3*

"good life," their lack of integrity, and their lack of love for their country. Also cited were *the low salary in government, coupled with the poor recruitment procedures as well as the red tape in government.* Other references cited *mutual help and obligation, family loyalties and political patronage, poverty* and *a breakdown in services* as having *led to a free-for-all of payoffs and pilferage.* [Delfin, 2009; Mydans, 2006] We can also add here the factors of courage and competence of public officials to address problems like graft and corruption. All these factors pinpoint to weaknesses in the character and culture of the Filipino which necessitates a serious remedy to change especially for good governance.

| Transparency International Philippine Corruption Perceptions Index** | | |
|---|---|---|
| Year | Score | Rank |
| 2009 | 2.4 | 139 |
| 2008 | 2.3 | 141 |
| 2007 | 2.5 | 131 |
| 2006 | 2.5 | 121 |
| 2005 | 2.5 | 117 |
| 2004 | 2.6 | 102 |
| 2003 | 2.5 | 92 |
| 2002 | 2.6 | 77 |
| 2001 | 2.9 | 65 |
| 2000 | 2.8 | 69 |
| 1999 | 3.6 | 54 |
| 1998 | 3.3 | 55 |
| 1997 | 3,05 | 40 |
| 1996 | 2,69 | 44 |
| 1995 | 2,77 | 36 |

*(* **Source: Transparency International website - http://www.transparency.org)*

**Initiatives for Good Governance**
### Government Initiatives

Through the years, initiatives from government for good governance have largely focused on addressing the problem of graft and corruption. Various administrations have come up with relevant measures in the form of programs, laws, and agencies.

It is in the 1987 Philippine Constitution that the following State Policy is first declared: *The State shall maintain honesty and integrity in the public service and take positive and effective measures against graft and corruption* [Section 27, Article II]. There arose from then existing conditions the urgent need for the State to adopt and implement this policy.

Following the People Power Revolution in 1986, a program on values education covering first the elementary and later secondary education was established during the administration of former President Corazon C. Aquino. In 2002, values education along with social studies and other subjects were integrated to form the basic education subject *Makabayan* ("Love for the Country") [Nagahama, 2006; Constantino Jr., 2008]. A rationale for the revision of the education curriculum and the introduction of *Makabayan* was to *develop nationalism among the Filipinos*

and increase individual responsibility as a citizen [WikiPilipinas]. During the succeeding administration, President Fidel V. Ramos issued Proclamation number 62, dated 30 September 1992 which *declared a Moral Recovery Program in response to the need to strengthen the moral resources of the Filipino people rooted in Filipino culture, values and ideals that are pro God, pro people, pro country and pro nature.* Executive Order number 319 dated 03 April 1996 institutionalized the Moral Recovery Program *in all government departments, offices, agencies and government-owned and controlled corporations.*

The 1987 Philippine Constitution, through Article XI on the "Accountability of Public Officers," in effect has provisions for the qualifications of those in public service that uphold or practice either good governance—

*Public office is a public trust. Public officers and employees must, at all times, be accountable to the people, serve them with utmost responsibility, integrity, loyalty, and efficiency; act with patriotism and justice, and lead modest lives.* [Section 1]

Or its antithesis, bad governance—

*The President, the Vice-President, the Members of the Supreme Court, the Members of the Constitutional Commissions, and the Ombudsman may be removed from office on impeachment for, and conviction of, culpable violation of the Constitution, treason, bribery, graft and corruption, other high crimes, or betrayal of public trust. All other public officers and employees may be removed from office as provided by law, but not by impeachment.* [Section 2]

Presidential Proclamation number 828 declared 2005-2015 as a "Decade of Good Governance and Good Citizenship" *to fight graft and corruption and to eradicate poverty.* Furthermore, there was the issuance in 2009 of Administrative Order number 255 directing all cabinet secretaries and heads of agencies to adopt and implement in their agencies a program on moral renewal which *refers to values formation and ethical behavior for government officers and employees, as well as the strengthening of people's values to achieve zero tolerance for corruption.*

Different government institutions responded to the administration's calls for good governance, among them, the DENR. The DENR implemented initiatives and needed reform strategies for the department's rules and policies to establish good governance in managing resources. Such efforts included cleansing the department's ranks of misfits, adopting measures to prevent graft and corruption, and eliminating red tape in its procedures. Department-wide training activities were conducted as part of a campaign on good environmental governance and in line with the department's adopted thrust of establishing a more effective and productive government service. The activities focused on the basic principles of good environmental governance: accountability, participatory decision making, responsiveness, and transparency.

The DENR was a partner in the Philippine Environmental Governance (EcoGov) Project Phase 1 which was implemented from 2001 to 2004. A Technical Assistance Grant of the United States Agency for International Development (USAID) to the Philippine government, EcoGov 1 *responded to several requests for technical assistance from LGUs* [local government units] *and communities in an effort to: Improve governance of forests, coastal*

resources, and solid wastes; and *Address corruption and conflicts for enhanced resources conservation* [EcoGov 1 Completion Report, 28 December 2004]. The DENR is again a national partner in the ongoing USAID EcoGov 2 Project which *is strengthening LGUs to respond to* the challenges of environmental threats *through localized but strategic actions that aim to: Reduce overfishing and the use of destructive fishing practices; Reduce illegal logging and conversion of natural forests; and Improve* *the management of solid wastes and wastewater* [Project website - http://ecogovproject.denr.gov.ph].

### Other-Sector Initiatives

There are various groups like those below that to date are watching over the activities in government to make sure that they

| OTHER-SECTOR GROUPS | |
|---|---|
| **Organization** | **Basic Description/Advocacy/Mission** |
| Center for Media Freedom and Responsibility | A private, nonstock, nonprofit foundation that focuses its endeavor on press freedom protection along with the establishment of a framework of responsibility for its practice; its programs represent efforts to protect the press as well as to promote professional & ethical values in journalistic practice |
| Citizen's Battle Against Corruption | A multisectoral organization dedicated towards fighting graft, corruption, & cronyism in government through long-term solutions that would make it difficult for officials to continue taking advantage of the people; also seeks to educate & inform people about corruption & provide an agency that would both hear & voice their concerns |
| Coalition Against Corruption | An alliance of the academe, business sector, civil society organizations, & the Church; its mission is to implement & support counter-corruption projects in the area of procurement reforms & delivery of essential public services; its goals are to strengthen public participation in governance & to ensure proper use of public funds |
| Good Citizenship Movement | A movement with the mission to inspire & empower all Filipino citizens of every age & station in life to live in concrete action at all times the Filipino values enshrined in the Preamble of the Constitution (faith in the Almighty; respect for life, order, & work; & concern for the family & future generations [*Maka-Diyos*] - Love, freedom, peace, truth, & justice [*Maka-Tao*] - Unity, equality, respect for law & government; patriotism & promotion of the common good [*Maka-Bayan*] - Concern for environment [*Maka-Kalikasan*]) |
| Institute for Solidarity in Asia | A nongovernment, nonprofit organization whose core advocacy is promoting governance, economic & organizational reform through public-private partnership; this advocacy is carried out through the installation of a transparent, performance-based governance system |
| *Kaya Natin!* | A movement composed of concerned Filipinos from different sectors of society that aim to espouse genuine change & ethical leadership in the Philippines; seeks to promote genuine & lasting change in the government by promoting transparency, social accountability, people empowerment & electoral reforms |
| Philippine Center for Investigative Journalism | An independent, nonprofit media agency that specializes in investigative reporting; promotes investigative reporting on current issues in Philippine society & on matters of large public interest; seeks to encourage the development of investigative journalism & to create a culture for it within the Philippine press |
| Procurement Watch Inc. | A nonprofit & nonpartisan civil society organization created by a group of concerned & seasoned individuals from government, academe, the legal profession, & the private sector, brought together by the challenge of reducing, if not eliminating, graft & corruption in government through procurement reform; aims to enhance transparency, accountability, & efficiency in public procurement through a multisectoral, constructive, & procedure-focused approach |
| Transparency International (TI) | Global civil society organisation leading the fight against corruption, brings people together in a powerful worldwide coalition to end the devastating impact of corruption on men, women, & children around the world; its mission is to create change towards a world free of corruption; Publishes yearly the Corruption Index of most countries including the Philippines; TI-Philippine Chapter is one of the over 120 TI national chapters |

# Mindanao Topographic Mapping:
# On the Road to Peace and Development*

The Government of Japan and the Government of the Republic of the Philippines are jointly undertaking a two-year grant aid project entitled "Topographic Mapping for Peace and Development in Mindanao." The project aims to prepare digital topographic maps covering the entire Mindanao at the scale of 1:50,000 and to implement the necessary support to the wide and effective use of the digital topographic maps and geographic information system (GIS). The project covers a review of existing conditions (i.e., organization setup, mapping system, facilities management, and control points); acquisition of satellite imagery; production of maps through digital mapping technology; and dissemination of topographic data.

The Japan International Cooperation Agency (JICA) is implementing the project with NAMRIA and the Mindanao Development Authority (MinDA) as counterparts and coordinating bodies. Under the implementation agreement signed on 11 January 2010, JICA will dispatch a project team and transfer technology to the Philippines while NAMRIA and MinDa will facilitate the project involvement of other governmental and nongovernmental organizations.

The expected project outputs include reports, satellite images, orthoimage maps, ground control point coordinates, 1:50,000-scale digital topographic maps for printing, and 1:50,000-scale digital topographic data for GIS applications.

**Operational Committees**

Two committees will serve as project overseer and working group. On the one hand, the Steering Committee or SC will (1) provide overall guidance and strategic direction for the implementation of the Philippine-based activities involving field identification and validation, LGU coordination, and technology transfer; (2) approve the project team's work plan; (3) provide regular oversight of the project operations; (4) approve the utilization of additional contributions to the project and its activities; and (5) ensure community awareness of the project activities and results. This SC will be composed of MinDA as chair; NAMRIA as co-chair; and the National Security Council-Central Office, the Autonomous Region in Muslim Mindanao (ARMM) Regional Government, and JICA as members.

On the other hand, the Technical Coordinating Committee or TCC will be a multistakeholder committee that will provide technical assistance to and/or coordinate the project team's activity implementation. Among other tasks, the TCC will (1) review and endorse to the SC findings relating to field identification and validation activities; (2) ensure the consistency of project implementation with the policy directions of the SC regarding aerial image acquisition, map development, conversion, and validation; (3) review and monitor performance/program
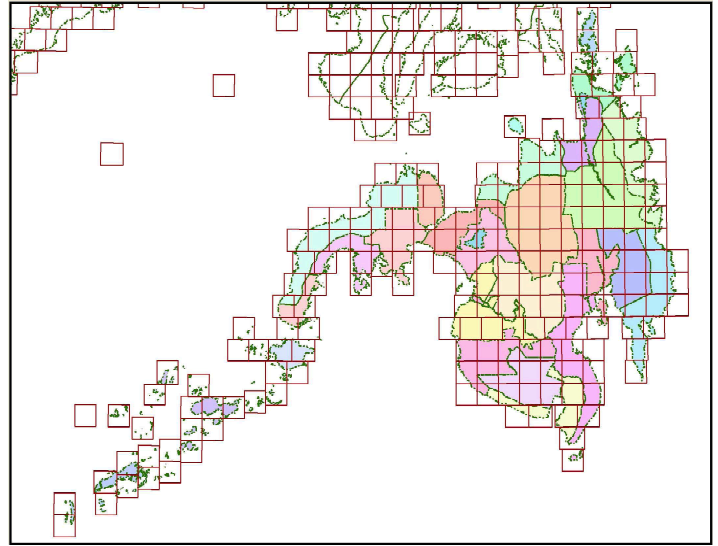


*Map index for the topographic mapping project covering Mindanao*

implementation and recommend to the SC the approval of additional activities outside the approved work plan; (4) facilitate coordination with relevant agencies for the project team to conduct needs and capability assessment and land validation or ground truthing; and (5) recommend to the SC on the appropriate mechanism for the transfer of knowledge and resources to the stakeholders after the project's completion.

The TCC will be divided into three area sectors: the South Central Mindanao sector covering Region 11, Region 12, and Mainland ARMM; the Northeastern Mindanao sector covering Region 10 and CARAGA Region; and the Western Mindanao sector covering Region 9 and ARMM Island Provinces. Aside from the provincial and city planning and development offices and the private sector, the TCC will be composed of the regional offices of the following: the departments of environment and natural resources, interior and local government, agrarian reform, agriculture, public works and highways, and tourism; the National Economic Development Authority; the Armed Forces of the Philippines; the Regional Disaster Coordinating Councils; the National Commission on Indigenous Peoples; the National Irrigation Administration; the Land Management Sector; the Forest Management Sector; the Mines and Geosciences Bureau (MGB); the Environmental Management Bureau (EMB); the National Statistics Office; the Office of Civil Defense (OCD); and the Housing and Land Use Regulatory Board. The TCC will also meet for consultation with academic institutions, business organizations, and private individuals or institutions with GIS and mapping methodology expertise.

*Project Methodology*
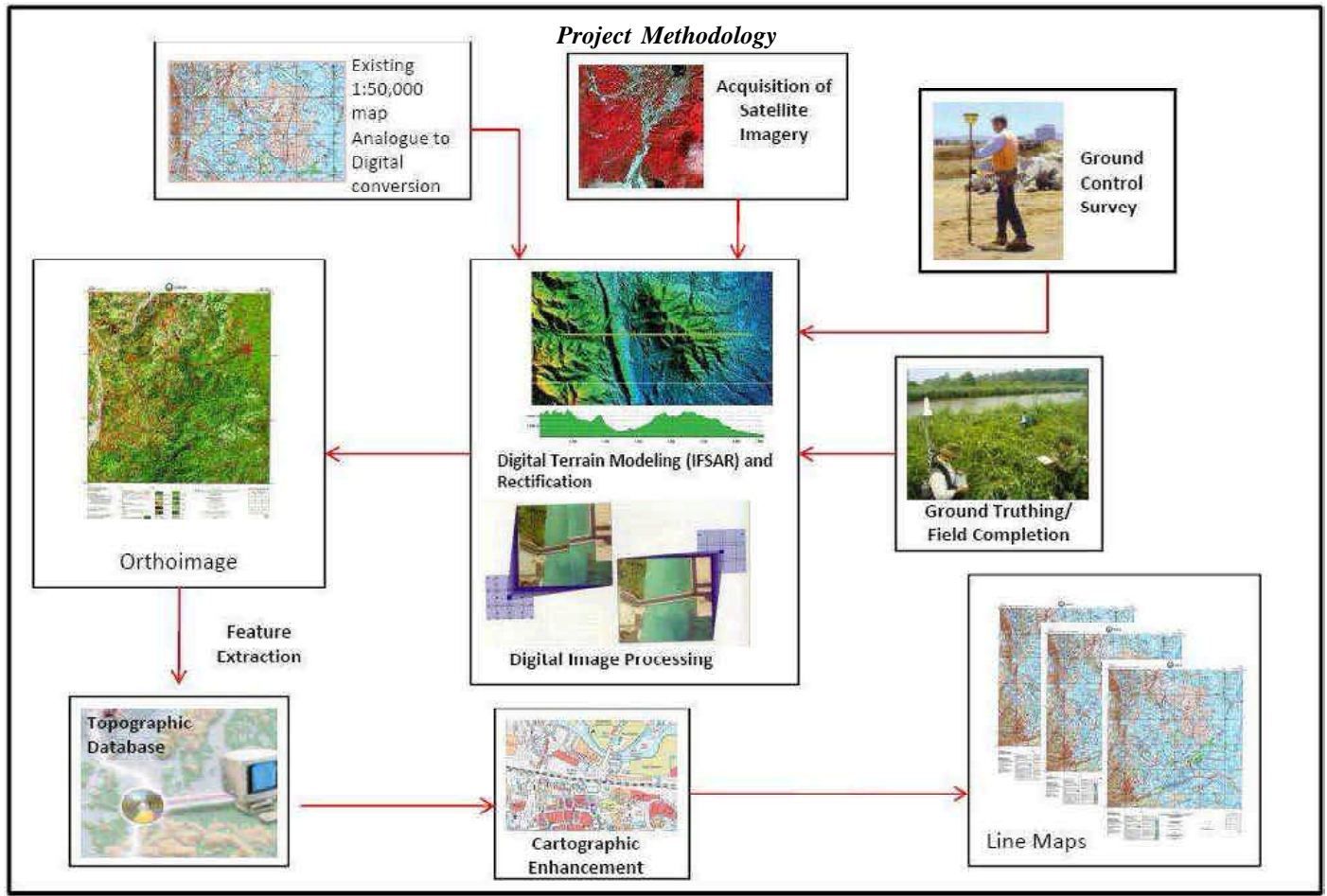
## Project Methodology

The project will employ the following methodology for mapping: analogue to digital conversion, acquisition of satellite imagery, ground control survey, ground truthing/field compilation, digital terrain modeling using Interferometric Synthetic Aperture Radar (IFSAR) and other map products, digital image processing and rectification, feature extraction, topographic database, cartographic enhancement, and line map/topographic production.

### Analogue to Digital Conversion

The existing topographic maps in hard copy will be converted digitally to produce raster and vector formats. The old analogue topographic maps will be scanned and georeferenced to produce the raster dataset which is actually the image of the paper maps in their actual geographic extents. The vector data will be digitized from the raster images, which essentially contain the extracted features for GIS manipulation and analysis.

### Acquisition of Satellite Imagery and Ground Control Survey

The acquisition of spaceborne high-resolution optical satellite imageries and airborne IFSAR over Mindanao will be done within the standard quality and suitability requirements appropriate for 1:50,000-scale topographic mapping and spatial interpretation. Ground control survey will be conducted to be able to locate and transform the features on the imageries to their ground coordinates using the Philippine Reference System of 1992 (PRS92).

### Ground Truthing/Field Compilation

Technical staff will be deployed to conduct ground truthing using Global Positioning System (GPS) equipment, old maps, and imageries. The data gathered will be used to update and verify features (e.g., buildings, natural parks, land covers, marine ponds, and other identifiable landmarks) in the 1:50,000-scale maps. Other data that cannot be found on the imageries such as administrative boundaries and road classifications will be gathered in the field.

### Digital Terrain Modeling using IFSAR and Other Map Products

Airborne IFSAR is the latest mapping technology that has recently attracted wide use due to its flexibility of system deployment, day and night imaging capability, virtually non-existent weather restrictions, cloud-penetrating capability, rapid turnaround time and higher spatial resolution. IFSAR can create map products at greater accuracy. The two main products are digital elevation models (DEMs) and digital orthorectified radar images (ORRIs). Topographic line maps are derived products generated solely or in part from DEM and ORRI components through a well-controlled map production chain. The generated DEMs from IFSAR will be the new topographic data that will be used in the updating of topographic maps.

# nSDI: Towards Better Geoinformation Service for Good Governance

*by Xenia R. Andres*

Geographic information, spatial data, geospatial information, geospatial data: no matter how they are called, most human activities are centered on them. Geographic information locates physical assets, inventories the natural environment, supports navigation, and characterizes an area and the people in it. Location makes information geographic, but it is of little significance without an attribute.

The economic significance of geographic information lies in the general referencing framework that it provides for integrating large numbers of different datasets from many application fields in both the public and private sectors (Masser, 1998). Thus, a spatial data infrastructure (SDI) is vital to coordinate the acquisition, production, storage, and distribution of consistent, accurate, and updated geographic information that can be analyzed and utilized to meet the user's requirements or a wide variety of needs. This infrastructure comprises the technology, policies, standards, human resources, and related activities which are necessary to use and to share spatial data in an efficient and flexible way.

## Towards Better Geoinformation Service

NAMRIA acts as the central mapping and resource information agency of the Philippine government. Its mission is to generate and disseminate reliable and up-to-date geographic information and provide related services by employing state-of-the-art technology in support of national development. However, the agency is currently facing issues on data/information management, software management, spatial data and mapping, business culture, and rationalization. In general, these issues involve (1) the absence of an enterprise architecture linking NAMRIA's business objectives to its information and communication technology (ICT); (2) the view on geospatial data as a departmental rather than an organizational asset; (3) an inability to share data in an organized or systematic way; (4) the disaggregation between geospatial implementations and mainstream business planning and investment; (5) the isolation of geospatial capabilities within special projects or business areas; (6) the presence of risk in key datasets due to undocumented management of processes and inadequate ICT infrastructure support; (8) the presence of bottlenecks in the validation and testing procedures; and (9) the absence of a NAMRIA-wide approach to investment, maintenance, and development of geospatial systems.

Governments, both central and local, are not only the biggest suppliers of geographic information but they are also the biggest users; so they stand to be the biggest beneficiaries of an enlightened approach to data management (Gilfoyle and Thorpe, 2004). Under
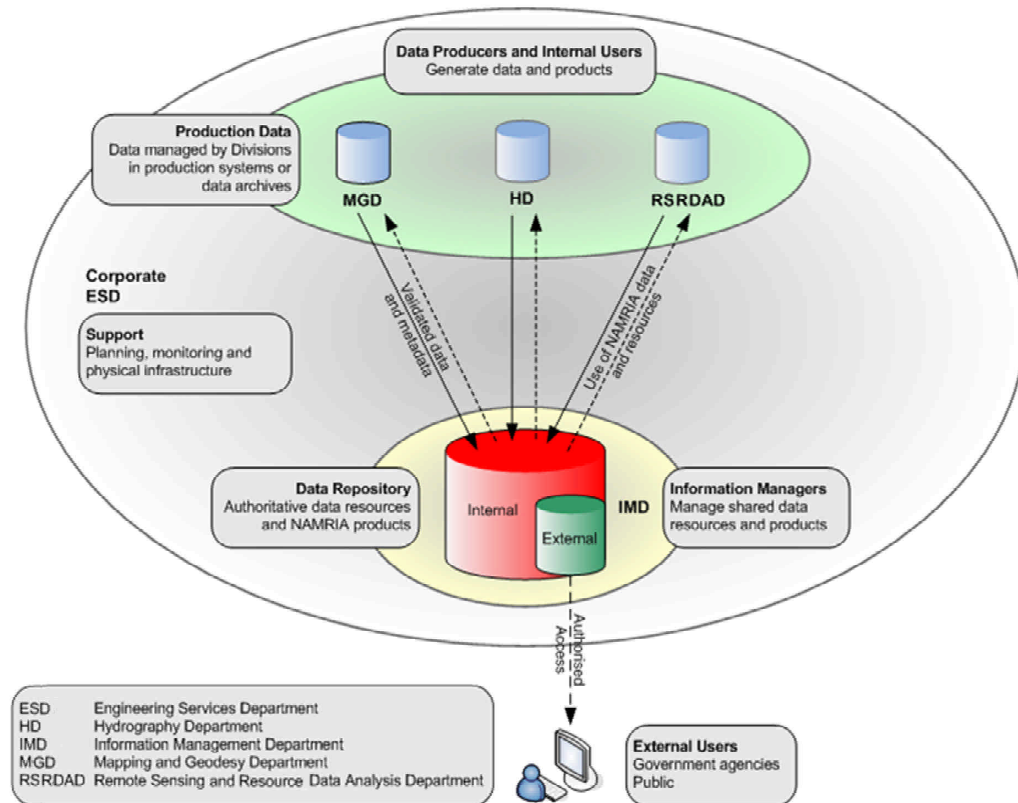


*Figure 1. Conceptual overview of the proposed nSDI*

the auspices of the Australian Agency for International Development (AusAID), Geoscience Australia (GA) conducted a scoping mission in NAMRIA in May 2009 to identify engagement areas for spatial data management.  The mission is part of the Australian Government's commitment to an enhanced natural hazard identification and risk modelling capacity in the Philippine Government. The mission is also undertaken in other Philippines Collective Strengthening of Community Awareness to Natural Disasters agencies.

In August 2009, NAMRIA and GA inked a memorandum of understanding (MOU) to strengthen spatial data development and delivery in the Philippines.  The MOU stipulated the provision of technical assistance in the development of an internal SDI or NAMRIA SDI (nSDI) strategic and implementation plan; the improvement of data validation systems; and the piloting of a small, 1:50,000-scale topographic data spatial database and a simple Intranet web-map interface for it. Activities for this one-year project were initiated in July 2009.



*Figure 2. nSDI conceptual design*

### The nSDI

The general objective of the nSDI is to build effective and efficient spatial data management processes within NAMRIA by facilitating the gathering, storage, and distribution of spatial data across the agency.  Specifically, it is aiming for an increased access to up-to-date authoritative data across NAMRIA; efficient processes in spatial data management; a skilled spatial/GIS staff; and improved customer satisfaction. A central data repository would make all authoritative datasets available to every NAMRIA department in an easily utilised form. A metadata catalogue with a simple searching interface would complement the data sharing across the computer network. Access to data could be through central database login and a web mapping interface, or as a web mapping service.

The architecture of the proposed nSDI is based on the Service Architecture Principles of the Australian Government Information Management Office (AGIMO), Department of Finance and Deregulation. The AGIMO works towards making Australia a leader in the productive application of information and communication technologies to government administration information and services. The Service Architecture Principles are: (a) Driven by business need; (b) Data is an asset/aid to decision making; (c) Information is protected; (d) Channel independence; (e) Defined quality of service; (f) Return a business benefit; (g) Adaptable to change and growth; (h) Responsive change management; (i) Manageable and traceable.  Among the key spatial datasets would be topographic maps, land cover and land classification maps, DEM, slope classification, coastline, administrative and political boundaries, nautical charts, land classification, geodetic control data, tidal data, satellite images, and aerial photographs.

As an information system, the nSDI would include (1) an intranet *portal* to provide a single access point to nSDI services and other related information; (2) an online, web-based *catalogue* to en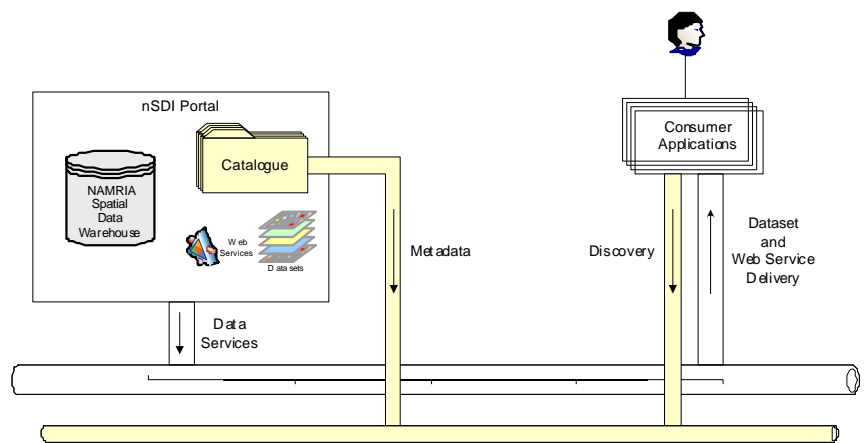able searching, location, and connection to nSDI datasets, data services, and resources available through the nSDI to access the metadata records for all nSDI services and individual data layers, and to enable data custodians to administer metadata associated with their spatial data; (3) an online, intranet *map viewer* to enable visualization and representation of spatial data originating from the nSDI data repository; (4) Open Geospatial Consortium *data services* to provide access to spatial data resources even if the user is unaware of the actual physical source of the data nor its storage format; (5) spatial *data download* services to provide nSDI users with the availability to download a snapshot of specific spatial data; and (6) a *data store* or data container to store, manage, and access data. The nSDI would be a secured and scalable system with 99.9% uptime during supported hours of operation and average transaction response times of up to 3 seconds for text, 8 seconds for graphics, and 10 seconds for downloading a sample 100-megabyte data file.

With nSDI, NAMRIA would benefit from an increased availability of and easier access to corporate data; a consistent GIS framework whose skills base will be stronger, broader, and less affected by staff losses; improved government and public perceptions on NAMRIA as a capable organization in national SDI development; and being a unified agency.  The nSDI would also enable other agencies dependent on NAMRIA data to better deliver their programs and commitments.

### Improvement of Data Validation System

The GA scoping mission report cited that the delivery of base topographic data is significantly slower than necessary.  This is due partly to a validation process which is intolerant of data errors (i.e., no data errors compared with GA's up to 10% tolerance for errors) and which uses full population tests rather than statistical sampling.  The following were recommended in the nSDI strategic plan to expedite and improve the validation system: (1) correct the positional accuracy compliance testing, (2) validate once only, (3) relax the quality levels, (4) reduce the certainty and sample the manual tests, (5) increase the number of validation staff, (6) validate the GIS data, and (6) validate an expanded range of characteristics.

# Improving Lives through Land Administration and Management Reforms

*by Benjamin P. Balais[*] and the IEC Section of LAMP*

For years, the Philippines has been saddled with numerous issues on land administration and management (LAM) such as redundant and conflicting land-related laws; overlapping tenurial instruments in public lands; disjointed policies, rules and regulations; cumbersome procedures and dysfunctional structures; inappropriate land classification for planning and development; and bureaucratic land administration systems and procedures. Furthermore, land taxation and land valuation are plagued with multiple systems in property valuation, multiple taxes on land ownership and transfers, multiple tax collection agencies, political intervention, and the absence of updated cadastral maps suitable for assessment.

In terms of land titling and registration, the country is faced with inefficient land records management systems, the proliferation of duplicate and spurious titles, and the erosion of investor and public confidence in the system. The government's response to this complex land administration and management problem is the creation of the Land Administration and Management Program Task Force with the issuance of Executive Order (EO) number 82, series of 2002.

The Second Phase of the Land Administration and Management Project or LAMP2 was realized through this executive order. LAMP2 aims to improve land administration in the country by initiating policy and institutional reforms that will synchronize and update all land-related laws and streamline the different land administration agencies to make them more responsive to the demands of the times and maximize their productive potential.

LAMP2 is an interagency project led by DENR. It has the participation of the Land Registration Authority (LRA) and the Department of Finance, funding assistance from the World Bank, and technical assistance from AusAID. LAMP2 also aims to reduce poverty and promote economic growth through security of land tenure and equitable property valuation.

As a preparatory step towards eventual integration, titling and registration, EO 690, series of 2007 attaching the LRA to the DENR, was signed by former President Gloria Macapagal-Arroyo. The measure was for harmonizing the land titling and registration system as well as the land record administration and management system to improve service delivery of all land-related transactions and eliminate double issuances of titles or fake titles. Likewise, to effect the needed changes, LAMP2 tackles strategic directions to address the LAM-related problems through legislative advocacies in conjunction with the former President's poverty-reduction program and economic growth.

To continuously pursue the government's central mission to eradicate poverty, LAMP2 has facilitated the distribution of free patents nationwide. This has provided security of tenure to beneficiaries and at the same time promotes social equity among the Filipino people. To date, through the LAMP alone, around 50,000 hectares of alienable and disposable lands have been awarded in three selected provinces, namely, Leyte, Bohol and Bukidnon.

Together with the acquisition of capital through borrowing, the grant of free patent to beneficiaries has increased investment and entrepreneurial activities, contributed to better urban planning and development, and increased tax base for improved tax collection. The signing on 09 March 2010 of Republic Act number 10023 or the "Act Authorizing the Issuance of Free Patents on Residential Lands" allows residential land owners to access these same benefits. Equally, the enactment of the Real Estate Service Act by the 14th Congress (2007) regulates real estate transactions and establishes best practice valuation standards.

Through LAMP2, the establishment of one-stop-shops in Bohol, Leyte, and Bukidnon has provided streamlined land-related services. The processing of papers which used to take months can now be finished in only two hours. The one-stop-shops are located in branch offices of the DENR, the Department of Agrarian Reform (DAR), the Registry of Deeds (RoD), and the Bureau of Internal Revenue in the aforementioned provinces.

There is still a long way to go to achieve the much needed reforms in land administration and management in the country. However, the initiatives and innovations introduced by LAMP2, with the support of the government, will hopefully develop into an efficient land administration and management system for the betterment of the nation.

### LAMP, PRS92, and LARES: A Codicil

In an effort to provide the public with an efficient system for managing and processing land-based information, various systems have been developed for LAMP and its study areas. One of these systems is the Land Administration Management System or *LAMS*. This system primarily aims to provide the public with all the information they need regarding real property-related land-based information. The backbone of the system is the Digital Cadastral Database that contains an updated list of parcel-based data from the DENR, LRA (through the RoDs), the Department of Agriculture, Assessor's Office of the LGUs, and DAR.

On the other hand, one of the major components of the PRS92 Project is the integration of the cadastral dataset coming from the nationwide DENR Regional Offices-Land Management Sector. While the PRS92 Project is national in scope, initial activities cover pilot areas of the regions with the vision that the Regional DENR Offices will sustain the effort as part of their regular activities. A system was developed by NAMRIA to facilitate the conversion process. The system is called the *LSDMS* or the Land Survey Data Management System. The two projects agreed to mutually identify pilot areas so that duplication of data will be avoided.

Both the LAMS and the LSDMS generate GIS-based datasets using a common GIS system as the backend. Both systems basically use the same information as inputs but since they were developed

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# NAMRIA and FMB in FIS Project (Phase 2)

*by Elinor C. Delos Reyes*

The importance of forestry data/statistics cannot be overemphasized. Forestry statistics serve as useful tools in policy formulation, decision making as well as in promoting and enhancing forestry sustainable management. A reliable databank of forestry statistics is the bedrock of effective forest development planning and management. The collection, processing/analyzing, and dissemination of information such as forestry data have improved through computerized information systems. NAMRIA and the Forest Management Bureau (FMB) jointly undertook the Forestry Information System (FIS) project utilizing GIS technology. Computerized information systems were adopted as a way to improve government performance in serving and protecting the public interest, thereby increasing government efficiency and accountability.

## FSIS Project (Phase 1)

FMB, as a staff bureau of DENR, is mandated to provide support for the effective protection, development, occupancy management, and conservation of forestlands and watersheds. In view of this mandate, FMB realizes the need for expertise and technical services in using GIS technology in its requirements for forestry-related mapping projects.

NAMRIA, as the country's central mapping agency and resource information agency of the Philippine government, has the expertise in GIS technology and the capability to service the GIS requirements of FMB. In 2003, NAMRIA and FMB undertook the development and implementation of the Forestry Statistics Information System (FSIS) project. The pilot areas for Phase 1 are Regions II and III and covered the following eight application systems: Industrial Forest Management Agreement (IFMA), Community-based Forest Management Agreement, Forest Land Grazing Management Agreement, Forest Stocks Monitoring System, Timber Licensing Agreement Monitoring, Special Land Use, Private Land Forest Management, and Management of Protected Areas. NAMRIA conducted intensive trainings on GIS, Global Positioning System, and Database Management using Access GIS software for technical personnel of the Forest Management Services (FMS), Regions II and III and the Forest Economics Division (FED) of FMB. The FSIS is envisioned to be a facility for the efficient management of forestry-related statistical data. The developed FSIS was initially installed in the project's pilot areas and in the FED for data integration. The system was later set up in all community environment and natural resources offices (CENROs) for proper implementation.

## Enhanced FIS Project (Phase 2)

Towards the goal of a more effective management of the country's forests, FMB intends to generate reliable forestry statistical data for better decision-making purposes. An extensive knowledge in GIS technology is needed to link all developed application systems in Phase 1 to geographical data. In this case, the enhancement of the existing FIS is definitely required. Other tenurial instruments and ancillary subsystems will likewise be included in the existing FIS in order to facilitate a more panoramic assessment of the statistical data available to the forestry sector.

FMB again requested NAMRIA's expertise in servicing its additional GIS requirements. The FIS Phase 2 Project was then conceived. FIS Phase 2 aimed to provide DENR regional forestry sectors with technical assistance in the use of advanced GIS and the modification as well as coverage expansion of the existing FIS to aid the government in better implementation of forestry policies and programs.

Recognizing NAMRIA's expertise in GIS technology, spatial database buildup, and system design and development, NAMRIA and FMB entered into a Memorandum of Agreement (MOA) to extend their full cooperation in the implementation of FIS Phase 2. The MOA was signed on 29 October 2008 and project activities officially began in January 2009. The six-month project was undertaken by the NAMRIA Information Management Department and the FED.
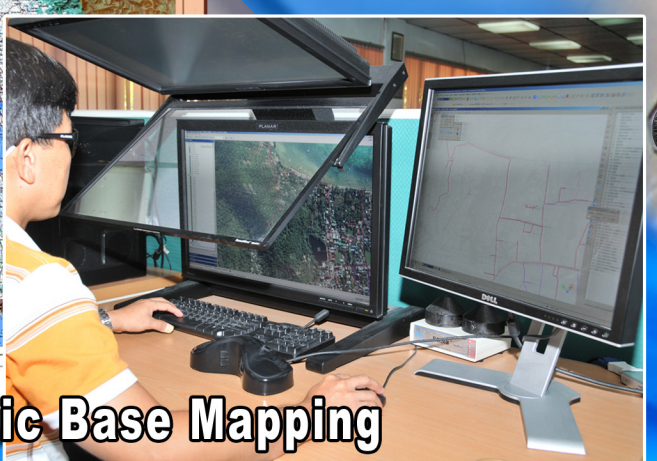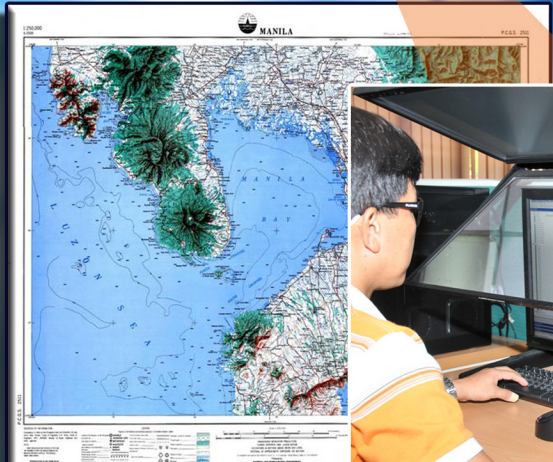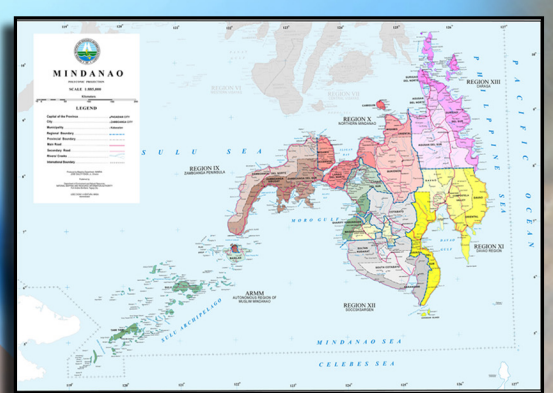
## Phase 2 Scope and Objectives

The Phase 2 scope and objectives are as follows: (1) enhance existing FIS to include additional requirements based on the FIS Mid-Year Project Assessment; (2) design and conduct a training program for DENR regional forestry sector technical staff on the extensive application of GIS using the Manifold software tailored to their requirements; and (3) provide technical support in the analysis and design of the new subsystems on Socialized Industrial Forest Management Agreement, Nursery Inventory, Rattan Cutting Contract (RCC), Tree Farm, Agro-Forestry, Wood Processing Plant (WPP), Statistical Reporting, and Forest Products Revised Price Monitoring.



*NAMRIA conducts training on the extensive application of GIS using Manifold software for the DENR regional forestry sector technical staff.*

Development of the National Geodetic Network

Geographic Information Management

Hydrographic Surveys and Nautical Charting
Delineation of Maritime Boundaries

Integrated Forest
Management Agreement
Version 2.0

ITTO-FMB          Final Version

MARITIME ZONES
UNDER UNCLOS

The Philippine National Spatial Data Infrastructure
- a seamless interconnectivity of geographic information
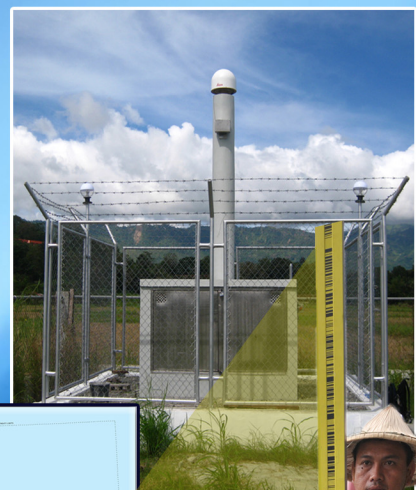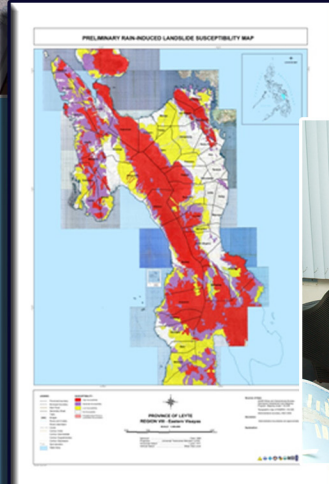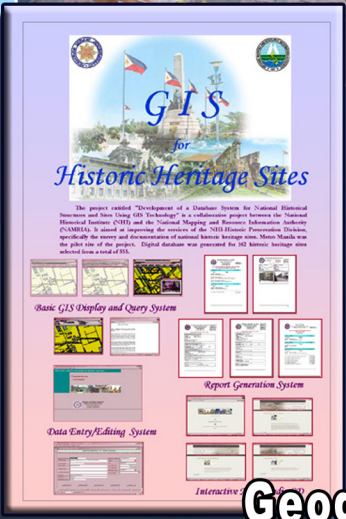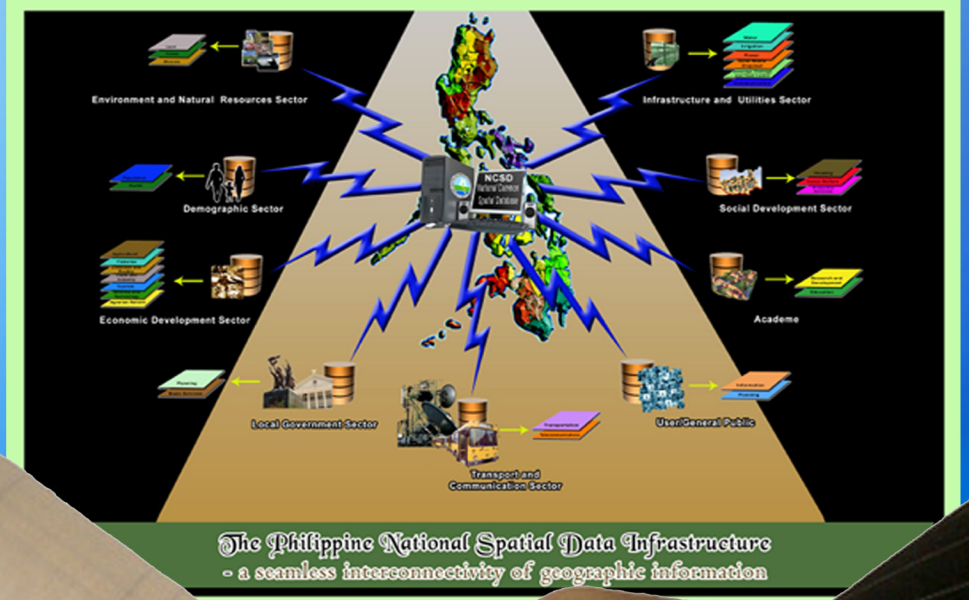
NAMRIA: contributing to good governance for a truly progressive nation

Topographic Base Mapping
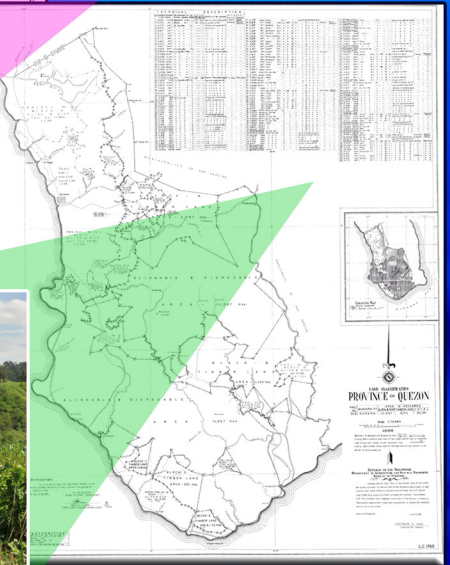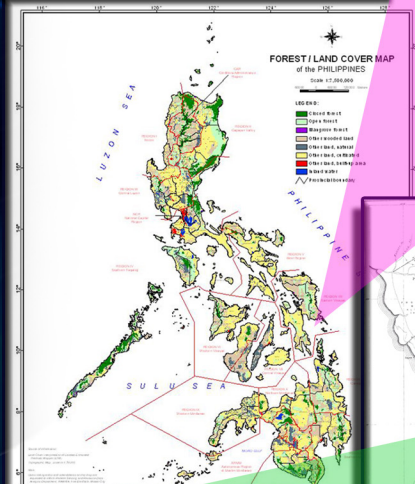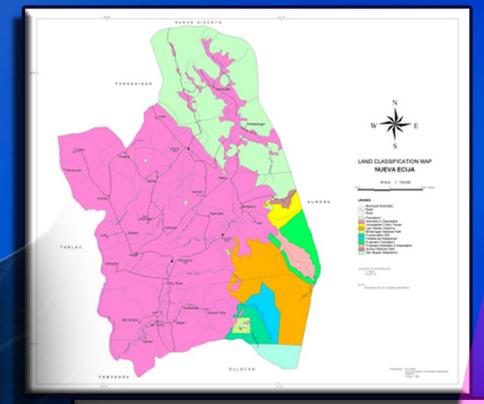
Land Classification

# Mapping for Humanitarian Efforts

*by The Media Production Division*

The Philippines is known to be a climate "hot spot" because of its high significance of weather-related disasters. Last year alone, three successive weather disturbances entered the country in September and October. The effects from the first of the three disasters, Tropical Storm (TS) "Ondoy" (KETSANA), were too much for the country's mechanisms and available resources that the Philippine government requested international humanitarian assistance. The government's capacity was put to the test in this emergency situation.

During emergency events the National Disaster Coordinating Council (NDCC) serves *as the President's adviser on disaster preparedness programs, disaster operations, and rehabilitation efforts undertaken by the government and the private sector.* The NDCC likewise *acts as the top coordinator of all disaster management and the highest allocator of resources in the country to support the efforts of the lower DCC level.* As such, the NDCC works with the international humanitarian community such as the United Nations (UN) community. The UN Office for the Coordination of Humanitarian Affairs (UN OCHA) was part of Emergency Response, Coordination and Operations, Impact Monitoring and Assessment Planning, and Disaster Information Management for the three disaster events *[Source: Workshop Design document for Rising Above & Beyond OPS (Ondoy, Pepeng, & Santi) Lessons-Learned Workshop].* The UN OCHA is *the arm of the UN Secretariat that is responsible for bringing together humanitarian actors to ensure coherent response to emergencies* and *also ensures there is a framework within which each actor can contribute to the overall response effort.* [About OCHA, http://ochaonline.un.org]

In the aftermath of typhoon "Ondoy", NAMRIA joined the overall relief and rehabilitation efforts of DENR for the areas affected by the disaster. The operations were coordinated with NDCC. NAMRIA immediately deployed eight survey teams to map the extent and heights of flood in the eastern portion of the National Capital Region covering San Mateo, SSS Village, Diliman, Marikina, Pasig, Taguig, and some areas in Cainta and Taytay, Rizal. NAMRIA was likewise part of Disaster Information Management. With assistance from UN OCHA, NAMRIA helped provide for the mapping requirements of the NDCC to support relief efforts for the disaster events. The agency detailed six GIS technical staff for temporary assignment on 24/7 duty at the NDCC Operations Center. The employees were one in expressing their feeling of satisfaction in being part of the emergency response team stationed in the mapping unit of the NDCC Operations Center. The experience afforded them the chance to fully appreciate the work of producing maps, especially the significance of producing updated maps fresh from the actual scenario of what was happening in the damaged areas.

Among the maps prepared by NAMRIA with assistance from UN OCHA for NDCC were the following: *Philippines – Administrative Boundaries*; *Administrative Boundaries – Region IV-A*; *Typhoon "Santi" Affected Areas (08 November 2009) Situation Report [SitRep] number 16*; *Typhoons "Ondoy" and*
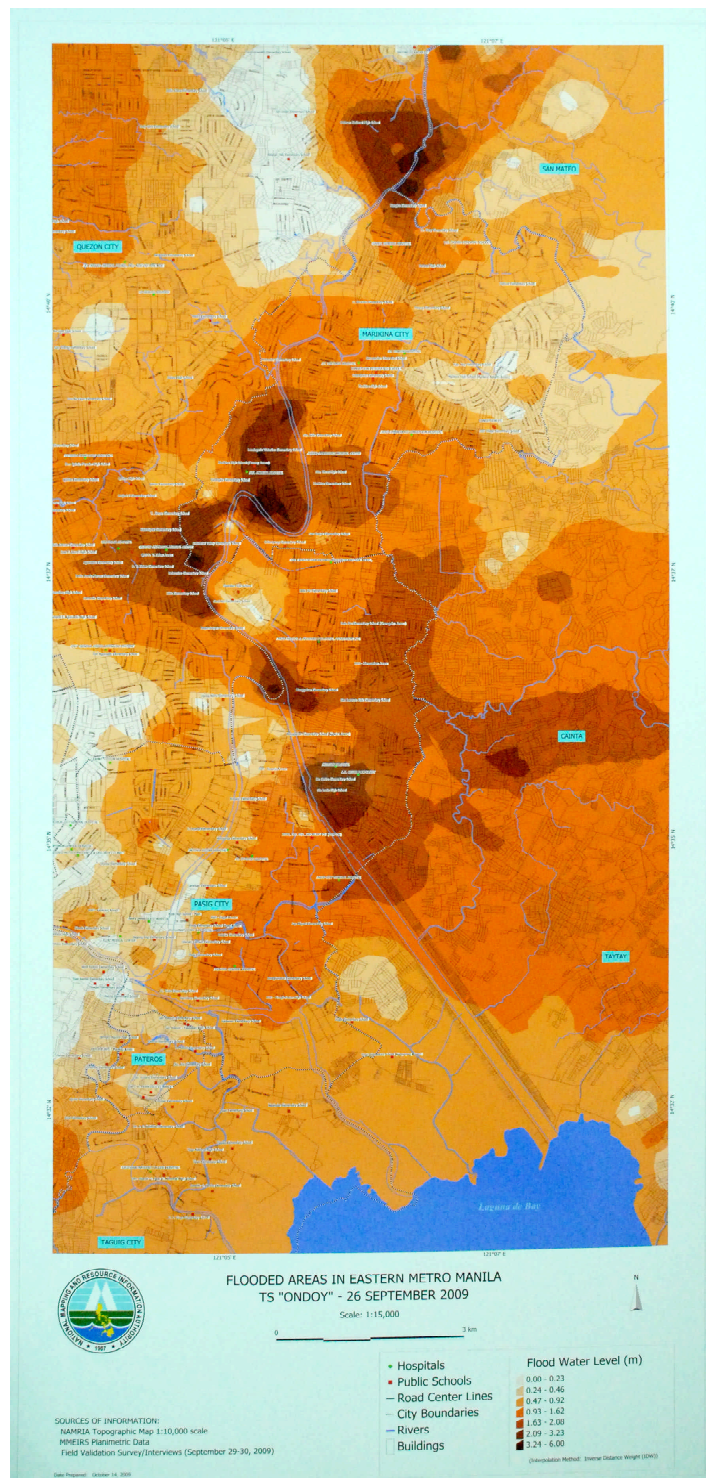


*"Pepeng" (as of 0600H, 30 October 2009, NDCC SitRep 45)*; *TS "Ondoy", Typhoons "Pepeng" and "Santi" – Affected Regions (as of 11 November 2009, SitRep 47, and 08 November 2009, NDCC SitRep 16)*; *Major Typhoon Tracks from 26 September 2009 to 31 October 2009*; *1:360,000-scale Flood-affected Towns in Central and Northern Luzon*; *1:300,000-scale Map Showing the Locations of Dams in Luzon*; *1:300,000-scale Areas that are Likely to be Affected by Continuous Rainfall and Release of Water from Dams*; and *1:15,000-scale Flooded Areas in Eastern Metro Manila – TS "Ondoy", 26 September 2009.*•

# News

# UNDP, AusAID assistance to RP after disasters

*by Aubrey George T. Corpuz*

The United Nations Development Programme and AusAID once again brought help to disaster-stricken countries by allotting a total amount of A$22 million to the Philippine government for the urban recovery and reconstruction program of flood-affected areas in Metro Manila and its neighboring provinces. During the last quarter of 2009, Tropical Storm *Ondoy* (international name *Ketsana*) and Typhoon *Pepeng* (international name *Parma*) brought devastating effects to the country. Typhoon *Santi* (international name *Mirinae*) came shortly after, further exacerbating damages which affected about eight million people with an estimated loss of $1 billion to basic infrastructures.

The five interrelated components of the Australian government's rehabilitation efforts include: (1) urban reconstruction and livelihood program (approximately A$16 million); (2) building capacities for community-based disaster risk reduction and management (A$1.25 million); (3) master urban plan (A$500,000); (4) hazard and vulnerability assessment and mapping (A$3 million); and (5) classroom rehabilitation (A$500,000). The fourth component will be spearheaded by Geoscience Australia together with NAMRIA and other technical agencies which include the Department of National Defense's OCD; MGB; the Philippine Atmospheric, Geophysical and Astronomical Services Administration; and the Philippine Institute of Volcanology and Seismology (PHIVOLCS). The aforesaid Philippine government offices are also members of the technical working group on the Collective Strengthening of Community Awareness on Natural Disasters, a group under the National Disaster Coordinating Council which is working on the Hazard Mapping and Community-based Disaster Management (READY) Project.

Started in 2006, the READY Project already has several significant outputs which include the development of a document that quantifies the data, skills, and tools available in the country for risk analysis; progress on the development of earthquake impact analysis; increased understanding of how exposure information can be developed; and enhanced understanding of the vulnerability of buildings to natural hazards. Although several target provinces have not yet been completed for hazard mapping, an additional amount of P125 million was requested from the UNDP and AusAID for a four-year extension period.

The agencies involved in READY are also spearheading the project's Hazard and Vulnerability Assessment and Mapping component. Part of the component's implementation is the generation of key datasets, tools, and information to further characterize the natural hazards. These include high-resolution topographic information; information on characteristics, frequency, and the potential magnitude of floods and earthquakes



*Flash flood in Metro Manila caused by Tropical Storm Ondoy on 26 September 2009*

and how these are affected by climate change; risk-exposure information (data on people, residential structures, critical facilities, and other infrastructure exposed to natural hazards); and vulnerability information (physical, social, environmental or economic). Based on these datasets and information, the vulnerability assessment of the Greater Metro Manila Area and its neighboring provinces will be undertaken next to understand the potential impacts from natural hazards. The city of Taguig was chosen as the project's pilot area. The maps to be generated will support the identification of resettlement sites and the preparation of the resettlement master plan under the socialized housing component. They will also serve as inputs to update the comprehensive land use plan.

NAMRIA is expected to generate different multihazard maps of Bulacan, Cavite, Laguna, Metro Manila, and Rizal within the project's three years of implementation. The initial activities of the project which began in February 2010 include the preparation of base maps at 1:10,000 scale, generation of DEM, and collection of *barangay* data in the abovementioned areas.

The project will benefit millions of Filipinos residing in Metro Manila and its neighboring provinces. The objective of the Australian government is to improve the country's economic growth, reduce poverty, and promote national stability. This objective conforms with the new Australia-Philippines Development Assistance Strategy of 2007-2011.•

# Tsunami Watch stander training

*by The Media Production Division*

In the aftermath of the 2004 Indian Ocean Tsunami, efforts to establish an early warning system were initiated. As the devastating impact of this event revealed the absence of a tsunami-warning system in the region, a number of Asian and African countries, among them the Philippines, expressed interest in sustaining a regional early warning organization. Hence, the Regional Integrated Multihazard Early Warning System, also known as RIMES, evolved. The Asian Disaster Preparedness Center's readiness now serves as focal point in a multinodal arrangement in the region and facilitated RIMES in the onset of the system development. RIMES is closely monitoring earthquakes that occur within the Indian Ocean and the South China Sea regions. The Philippines is one of the participating member countries, with NAMRIA maintaining and operating sea-level stations.

In 2009, the Philippines was one of the countries invited to send a participant to an on-the-job training facilitated by the RIMES of Africa and Asia. NAMRIA oceanographer Norelius G. Baloran of the Oceanography Division, Hydrography Department attended the training which was held on 24 August 2009-26 February 2010 at the Asian Institute of Technology Campus, Pathumthani, Thailand. The training was on the operation of monitoring systems consisting of seismic and sea-level data system, data processing system, and visualization system, as well as communication and alerting systems when a tsunami-generating earthquake occurs. Sea-level data is important to validate the existence or non-existence of a tsunami approaching a coastline.

The PRS92 project of NAMRIA established permanent tide stations for the National Geodetic Reference Framework. NAMRIA operates the national sea-level network to monitor and measure the heights and times of tides in different locations in the Philippines. The tide stations are equipped with tide gauges to measure and monitor sea level and to determine anomalies and changes in sea level during the occurrence of tsunamis and storm surges.

The early warning and detection of tsunamis are important for the fast information and warning of residents along a coastline


*The newly established Lubang Tsunami Warning/Sea Level Station located at Lubang Island, Occidental Mindoro. Established in June 2010, it is an offshore platform installation funded by the UN Economic and Social Commission for Asia and the Pacific, facilitated by ADPC/RIMES, and assisted by NAMRIA oceanographers.*


*RIMES operations center in Thailand*

affected by tsunamis. To do this, the sea-level station should be able to transmit tidal data in real time to analyze and validate rising sea levels. The upgrading of the tide gauges to transmit tidal data in near real time has been implemented in NAMRIA with three of its tide stations equipped with near real-time capabilities. Using mobile phone transmission technology, tidal data are received and monitored. Collaboration with warning agencies like PHIVOLCS is important to exchange sea-level data to raise or cancel a tsunami warning.

Being end-to-end, RIMES covers the whole spectrum of early warning from hazard detection to community preparedness. Within a multihazard framework, it incorporates tsunami early warning into existing national warning systems to cover other natural hazards like earthquakes, floods, and heavy rainfall. In the context of a regional cooperation, it is a participatory system where countries exchange seismic data and information, research results, best practices, technical experiences, and expertise towards the development of tsunami-resilient communities. The interrelated components of RIMES involve tsunami and earthquake observation, prediction, and advisory dissemination to member countries through a distributed network of monitoring stations and data communication systems in the region, including hydrometeorological risk information generation and application; capacity building of local authorities and communities in disaster preparedness and mitigation; and research in all aspects and elements of an end-to-end early warning system.

The potential tsunami sources identified in Southeast Asia are situated in the Philippines. The primary tectonic plate boundaries that surround the archipelago include the Pacific Plate, Philippine Sea Plate, Australian Plate and Eurasian Plate. The Manila Trench is one of the primary sources of earthquakes that can generate tsunamis that may propagate in the region. This trench extends from Mindoro Island to Taiwan with major bends as it moves towards the Batanes Group of Islands and Mindoro Island. It also consists of seamounts that are subducting dynamically in between. The primary sources of sea-level information for RIMES include existing stations in Subic, Currimao and the newly established tsunami-warning and sea-level station at Lubang Island, Mindoro Occidental in the Philippines.•

# Digital data harmonization

*by Veneracion R. Reynoso*[*]

Through the initiative of FMB OIC-Director Marlo D. Mendoza, a meeting of GIS map producers was held at the FMB Conference Room on 15 February 2010. Resulting from the meeting was the agreement to harmonize the maps used in analyzing geographic information, starting with those used by the DENR agencies. The meeting was attended by Ecosystem Research Development Bureau (ERDB) Director Marcial C. Amaro Jr.; MGB Director Edwin G. Domingo; NAMRIA Deputy Administrator Linda SD. Papa; NAMRIA Acting Director Jose C. Cabanayan Jr.; FMB Assistant Director Neria A. Andin; division chiefs and technical personnel of DENR (Office of the Secretary), FMB, ERDB, EMB, MGB, the Protected Areas and Wildlife Bureau, the Lands Management Bureau (LMB), NAMRIA, other agencies such as the National GRID Corporation of the Philippines; and Disaster Risk Management Project Consultant, Olaf Neussner of German Technical Cooperation.

A follow-up meeting presided over by NAMRIA Deputy Administrator Papa was held on 13 March 2010 in NAMRIA. This meeting was attended by FMB OIC-Director Mendoza and the technical personnel from EMB, ERDB, FMB, LMB, MGB, NAMRIA, and PAWB. During the meeting, the status of the transformation of geographic data into digital format in the different DENR agencies was presented. NAMRIA likewise presented the DENR Geospatial Dataholdings System design for the inventory of all digitized maps. This system will be installed in FMB in July for pilot testing.•

# Updating of countrywide land cover ongoing

*by Rijaldia N. Santos*[**]  *and Alma SM. Arquero*[***]

The land cover updating of the country aims to provide DENR and other sectors with the opportunity to assess the current extent and state of the natural forests. Land cover serves as a vital input to physical and development planning at the local, provincial, regional, and national levels. It is a potential data source to estimate biomass degradation and deforestation in various geographic locations and to develop strategies to reduce carbon emissions. Updated land cover data is a valuable information theme required in various climate change mitigation and adaptation initiatives.

NAMRIA undertook land cover mapping on a national scale in 2003. The quick-assessment approach was applied using remote sensing and geographic information system techniques. Forty scenes of Landsat images were utilized to cover the whole country. The intent was to quantify the national forestry data at the shortest possible time based on a classification scheme. The scheme takes into account global forest assessment definitions that comply with international standards on forest resource reporting. The results became the official DENR 2003 Land Cover Statistics which was published in the 2004 Forestry Statistics Report of the Forest Management Bureau.

NAMRIA is currently implementing a land cover mapping project that will update the 2003 land cover statistics of the country following the quick-assessment approach. Advanced Land Observation Satellite (ALOS) Advanced Visible and Near Infrared Radiometer type 2 (AVNIR-2) and Phased Array type L-band Synthetic Aperture Radar (PALSAR) images from the Remote Sensing Technology Center of Japan will be used in this undertaking. AVNIR-2 is a sensor for observing land and coastal zones while PALSAR is an active microwave sensor utilizing L-band frequency to achieve cloud-free and day-and-night land observation. Both images have a ground resolution of 10 meters.

A total of 245 ALOS scenes are necessary for a nationwide coverage. As of 30 June 2010, data acquisition for ALOS-PALSAR images was complete while



94 scenes or 38 percent of AVNIR-2 were delivered and accepted based on cloud-cover requirement. To hasten the image acquisition for countrywide mapping, the data search has been extended to other satellite sensors like SPOT5. ALOS AVNIR-2 and SPOT5 XS have similar ground resolutions. The Remote Sensing and Resource Analysis Department is processing and analyzing the ALOS images. A new Philippine land cover map is expected to be produced by mid 2011.•
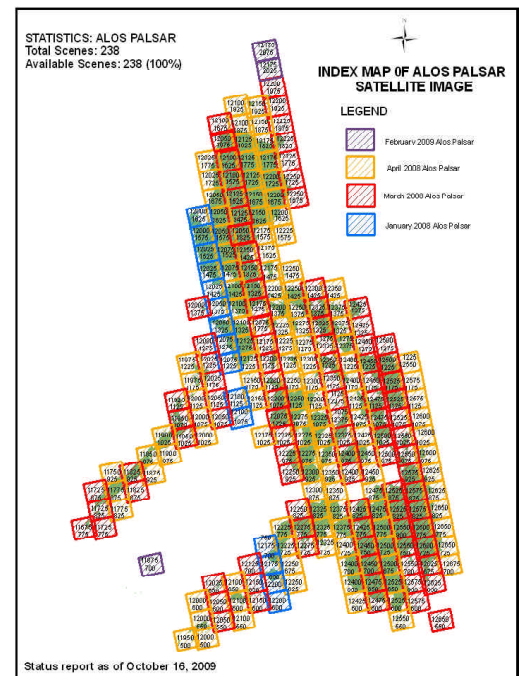
*Information Technology Officer II, Database Management Division, Information Management Department; Bachelor of Statistics
**Acting Assistant Director, Remote Sensing and Resource Data Analysis Department (RSRDAD); Ph.D. in Peace and Security Administration
***Chief, GIS Applications and Development Division, RSRDAD; MSc. in Forest Surveys

# PRS92 sets its pace this year

*by Concepcion A. Bringas*

NAMRIA, the DENR Regional Lands Management Service (LMS), and LMB are fast-tracking this year the completion of their respective targets including the issuance of policies for the implementation of the PRS92 Project. NAMRIA as PRS92 Project Secretariat is monitoring the regional PRS92 activities and is expecting a higher level of compliance and accomplishment at the end of the year.

NAMRIA, the LMS, and LMB agreed on a number of action plans in two separate Program Review and Analysis (PRA) meetings hosted by NAMRIA for the regional offices. The first PRA meeting was held for the Luzon Group on 07-08 April 2010 while the other one was held for the Visayas and Mindanao Group on 22-23 April 2010. Both were held at the NAMRIA Lecture Hall, Fort Bonifacio, Taguig City. In attendance were NAMRIA officials and the PRS92 component leaders and members; the Regional Technical Director for Lands (RTD-Lands), the Chief of the Survey Division, and the Chief of the Field Network Survey Party of each LMS; and the Director, Assistant Director, and the Chief of the Survey Division of LMB.

Among the priorities in the action plans were the submission of PRS92 regional accomplishments and liquidation reports for 2007 and 2008, so that funds for 2010 could be released immediately, and catch-up plans for slippages and arrangements to complete, among others, the conversion and transformation of cadastral data and other ENR data sets; and the preparation of provincial and municipal PRS92 control maps. The use of cadastral lot corners has been agreed on for the determination of transformation parameters, provided that the integrity of the position of those corners has been ascertained by the LMS. DENR Memorandum Circular 2010-06 was reviewed and some amendments were recommended. This will facilitate issuance of certifications of ground control points to and for the convenience of interested parties. A DENR order or circular authorizing the LMS, with the RTD-Lands as signatory, to issue a certification of ground control points was also agreed upon. There was another arrangement for NAMRIA to certify the contribution of an LMS which has demonstrated competency in processing and adjusting GPS data. NAMRIA will assist the LMS in realizing this goal by giving trainings.

The PRS92 Project is targeting nationwide coverage with the inclusion of the ARMM this year. On 06 April 2010, the signing of a memorandum of agreement was held in NAMRIA between NAMRIA Administrator Peter N. Tiangco and DENR-ARMM Regional Secretary Sultan Usman T. Sarangani to formalize the implementation of the project in the region. NAMRIA released to ARMM an initial project fund for the establishment of the DENR-



*Administrator Tiangco and DENR-ARMM Regional Secretary Sarangani sign a MOA for the implementation of PRS92 in ARMM.*

ARMM PRS92 Operations Center, an inventory, and the encoding of cadastral and other ENR data sets. DENR-ARMM also received two GPS receivers and four computers, aside from the training on GPS and data processing given to 12 of its technical personnel. NAMRIA has scheduled trainings for the regional office on GIS, Land Survey Data Management System, and other systems used in data encoding into PRS92.

This year NAMRIA is continuing the establishment of Active Geodetic Stations in Abra, Cagayan, Cebu, Davao, Zambales and Zamboanga del Norte. Additional 10 tide stations will also be established while the observations on 80 gravity stations will be conducted. The agency has started the inter-island connection of benchmarks in Baybay, Leyte; Bulan, Sorsogon; Cebu City; Guiuan, Eastern Samar; Hinigaran, Negros Occidental; and Masbate City. The purpose of this connection is to determine a common datum for elevations throughout the country.

An interagency task group composed of NAMRIA and DENR Region 4B is pursuing the preservation of geodetic station BALANACAN, the datum origin of the Luzon Datum. The group has successfully obtained the support of the National Historical Commission of the Philippines (NHCP) which issued on 28 May 2010 a certification recognizing the national significance of Station BALANACAN in the history of land surveying in the Philippines. NHCP granted a National Historical Marker which will be installed in 2011 at the station site in Mogpog, Marinduque. Relative to this important activity, the survey of approximately 24 hectares of land for the historical landmark and public consultation with the stakeholders will be conducted as required and to hasten the issuance of a presidential proclamation for the site. The Office of the President has forwarded to the DENR the request it received from the Marinduque *Sangguniang Panlalawigan* and the Mogpog *Sangguniang Bayan*, through Joint Resolution number 630, series of 2009. The Joint Resolution requests the issuance of a

## New...
*from page 2*

natural gas, and hard mineral resources. The agency also continues to conduct hydrographic and oceanographic surveys for enhanced safety of navigation, management of marine resources, and determination of the country's maritime boundaries. The hydrographic survey of ports and harbors NAMRIA conducts supports the requirements of the maritime industry.

The agency's maps and charts are among the basic tools that support the programs and projects of the national policy planners, LGUs, the academe, and nongovernment organizations—all of the government's co-partners for the nation's progress and development. This year, NAMRIA embarks on a monumental enterprise with the Japan International Cooperation Agency. The *Topographic Mapping for Peace and Development in Mindanao* special project seeks to update the 50-60 year-old maps of the island, the oldest maps of the country's major islands.

Enlightened local leaders welcome every opportunity to serve their constituents through good governance. NAMRIA has been involved in efforts to empower LGUs who are at the forefront of governance to be well-equipped to take care of the resources within their jurisdiction. For one, the agency provides technical assistance to the municipalities in the delineation and field validation of their municipal waters. Then through its collaboration with some government agencies, NAMRIA also provides these LGUs with multihazard maps to help improve their capacity to deal with disaster events and ensure the safety of lives and property within their community. NAMRIA is involved in the preparation of these maps and in the conduct of information, education, and communication campaigns.

The continuing densification and upgrading of the national geodetic network, the establishment of additional active geodetic stations, and installation and upgrading of tide stations are among the key activities that will pave the way for the full adoption of PRS92 as the basic standard reference system for all surveying and mapping activities in the country. PRS92 will eventually be used as the geographic reference system of the Philippine National Spatial Data Infrastructure (NSDI). When established, the NSDI will facilitate data sharing and distribution across the nation.

The field surveys NAMRIA conducts of the remaining unclassified public lands and the assessment and mapping of forestlands generate essential baseline data on land resources for land use and development planning. The GIS-based application systems the agency develops meanwhile facilitate distribution and management of geographical information to the public.

To the new administration, the agency offers its utmost support for the realization of our new leader's noble goals for the nation. The campaign slogan *Kung walang corrupt, walang mahirap* of President Benigno Simeon C. Aquino III brings the hope that finally there will be an end to the injustice and massive poverty in the Philippines. Moral transformation and moral leadership can put an end to graft and corruption. Cheers for the celebration of NAMRIA's 23rd foundation day this year. Cheers for our nation's new leadership.

Godspeed. *Mabuhay ang Pilipinas!*•

## Defining ...
*from page 5*

are geared towards good governance in being clean and effective. Their initiatives are about their respective advocacies or missions.

The Caravan of Good Governance of the *Kaya Natin!* movement visits and gives inspiring talks in schools, institutions, parishes, and organizations all over the country. Public officials embodying the ideals of effective and ethical leadership, good governance, and people empowerment and chosen by the movement as "Champions of Good Governance" join founding leaders in the Caravan. [Keh, 2009; Pastores, 2009; Ong, 2009]

The Center for Media Freedom and Responsibility (CMFR) and the Institute for Solidarity in Asia (ISA) are currently partners in an undertaking where the media, through the CMFR, monitors developments within LGUs that have availed of the ISA's Performance Governance System (PGS). The PGS is *an application used by the ISA that aims to channel the entire community's energies, abilities, and special knowledge towards achieving long-term strategic goals*. [Carcamo, 2009; de los Santos, 2009]

The support of academe to good governance can never be discounted and one school that has been helping mould the country's public servants since 1952 is the University of the Philippines-National College of Public Administration and Governance (NCPAG). For its mission, the NCPAG *strives to promote excellence and relevance in the study and practice of public administration, executive leadership, and policy and administrative research; serves as a social critic as well as a purveyor of policy advice and technical assistance in government and nongovernmental agencies; seeks to build and nurture ties with international as well as local bodies engaged in the improvement of governance; and continuously and critically strives to meet the challenges and problems of governance*. Aside from its Center for Public Administration and Governance Education, the College has a Center for Leadership, Citizenship and Democracy with the *thrust to develop Filipino leaders and promote good citizenship values*, Center for Policy and Executive Development for *promoting transparency and accountability*, and Center for Local and Regional Governance with the mandate *to provide capacity development interventions and assistance* to local government units. [UP-NCPAG website, http://www.up-ncpag.org]

### Hoping for *Philippine Good Governance*

There is now a new leadership for the Philippine Government. The old administration leaves with the trust that its successor would build on the gains it achieved on good governance, among others. The new administration in turn is bent on pursuing its own path towards the country's peace and development: *Kung walang corrupt, walang mahirap*. The public in between, wary of promises being made and broken, expects a great deal from the new leadership but is not merely a bystander. The sectors of academe, business, nongovernment organizations, and religious are surely expected to continue to partner with government in working for the common good. The elusive good governance may still be attained with enlightened Filipinos desiring a better life especially for those not having it. With the old door closed, hope remains in the newly opened one.•

# Mindanao ...

### Digital Image Processing and Rectification

The process of capturing satellite imagery does not include corrections on deformations caused by relief of the terrain, curvature of the Earth, movements of the platform or other errors inherent in the sensor. The original images are raw data which reflect erroneous measurement of distances and thus, need rectification to correctly represent the land surface. The processing of said datasets will be conducted by competent technical staff who have gained adequate experience in base mapping and updating works. Apposite hardware and software will be used while accepted procedures and standards will be adopted during processing and data integration. A multilevel approach to mapping will be employed to ensure that the desired results are achieved.
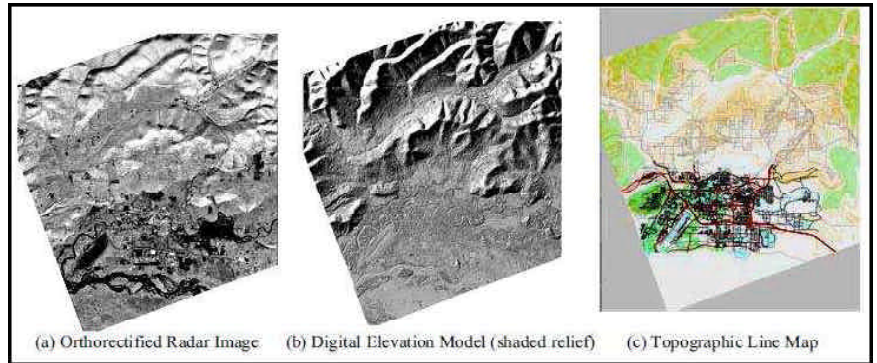
### Feature Extraction

The digital orthoimages resulting from rectification will be used for interpretation and feature extraction. Each feature will be captured, grouped, and stored on separate layers based on its common characteristics. Application software that conforms with NAMRIA specifications will be used to speed up the extraction and classification of the features.

### Topographic Database, Cartographic Enhancement, and Line Map/Topographic Map Production

The vector data extracted from the imageries and the corresponding data information (attributes) gathered from the field will form part of the topographic database. Cartographic enhancement works will be undertaken following the required standards used in the production of NAMRIA topographic maps. The updated topographic maps in digital format can be readily plotted in large-format inkjet plotters on demand.

### Benefits

Maps support decision making and development. They are also vital for building up the governing capacities of institutions, whether government, business, or individuals whose information requirements involve the location or geography of people, places, things, and events. The Philippines will definitely benefit from this project as it will update 205 map sheets or about one-third of the existing 1:50,000 scale topographic base maps. The new dataset will contain information on the topography, river systems, land cover and vegetation, transportation network, infrastructure, populated areas, approximate administrative boundaries and annotation on geographic names of mountains, rivers, bays, *barangays*, and municipalities, among others. Other identifiable features in a 1:50,000-scale map shall be made available as deemed necessary.



*Examples of IFSAR map products*

(a) Orthorectified Radar Image  (b) Digital Elevation Model (shaded relief)  (c) Topographic Line Map

In the establishment of the common geographic database, data sharing and distribution will be coordinated with the stakeholders to provide efficient data delivery for public and private sector planning. The stakeholders who are also data users and producers in their own field can therefore use the fundamental datasets in the extraction, derivation and analysis of thematic layers such as commercial/industrial zones, settlements, agricultural sites, forestlands, protected areas, infrastructures, and peace and development zones. These datasets are the basic geographic data necessary in the formulation of the comprehensive land use plan of Mindanao. The available updated topographic maps and thematic maps from all sectors would serve as basic inputs in the preparation of investment plans in the areas of environmental management and protection; agriculture and fisheries development; commercial and industrial growth; tourism development; and in the delivery of vital social services such as education, power and water utilities, health facilities, and other support infrastructure. It is expected that all these efforts will uplift the socioeconomic condition in Mindanao by providing livelihood to the community, stimulating commerce and industry, and enhancing governance. In the end, this will hopefully lead to lasting peace and security in the entire region.•
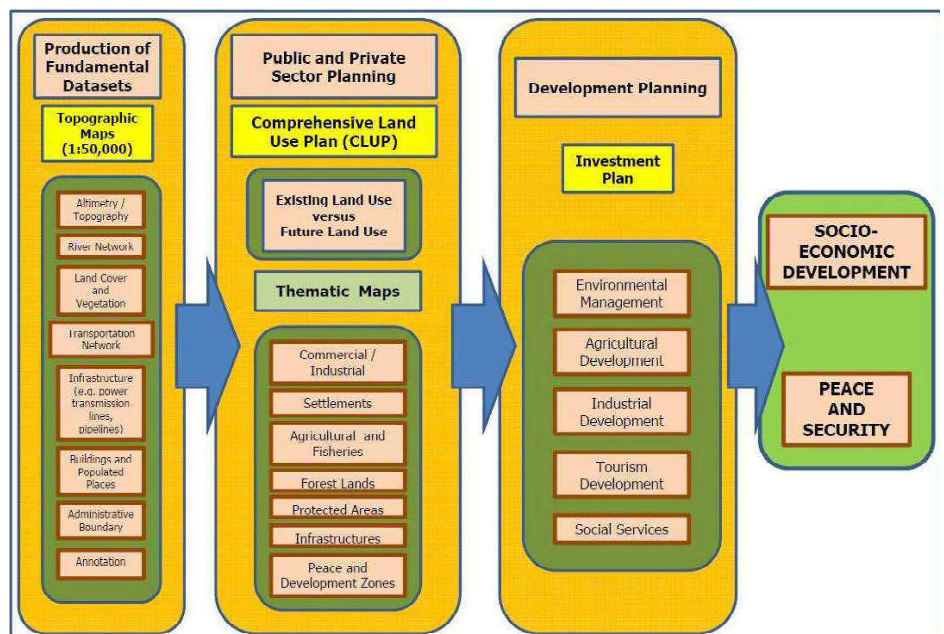


*Logical framework of the project*

## nSDI ...

*from page 9*

### The nSDI Pilot

The nSDI is envisioned to be a system that would enable data sharing within NAMRIA business areas and provide users with timely access to the most current and authoritative information. The nSDI pilot demonstrated sharing access to topography data within NAMRIA. The nSDI pilot was based on a scenario where ArcGIS server for Microsoft.NET framework was configured on a single machine. Initial data were sourced from the Data Center of the Mapping and Geodesy Department while other data would be loaded into the spatial database engine (SDE). Map services were authored using ArcMap installed on a GIS server management PC and sourcing data from the SDE geodatabase.



*Figure 3. Example of web application serving data from the nSDI pilot*

In a related development, a leadership training for NAMRIA middle-level managers which was held on January-March 2010 had the nSDI as case study. AusAID and the Philippines-Australia Human Resource Development Facility (PAHRDF) sponsored the short-term training program which had as its outputs departmental action plans for the development and implementation of the nSDI.

### nSDI and NSDI for Good Governance

Geographic information is a critical ingredient in the decision-making processes of governments, businesses, the academe, and emergency managers, among others. Surveying and mapping agencies like NAMRIA are among the main government providers of geographic information. As such, they are required to deliver services more efficiently and effectively within available resources. Efficiency and effectiveness are among the principles of good governance. Governance is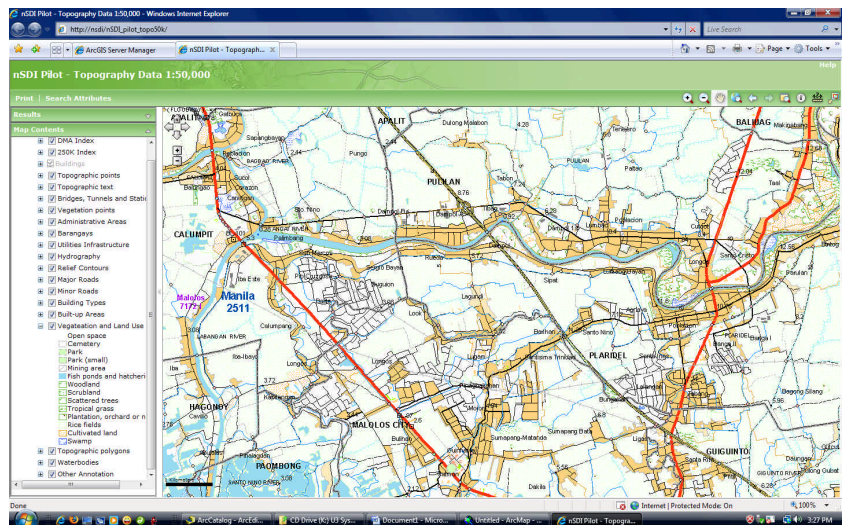 the process of decision making and the process by which decisions are implemented or are not implemented. Efficiency and effectiveness involve frugality—the government's ability to perform its essential tasks with available resources, and compartmentalization—the absence of duplication of effort and functions of government agencies.

According to the nSDI project document, NAMRIA needs to provide its stakeholders with (1) spatial information, data, and services which are easy to find and to access through a central data repository with a working metadata system and a searchable interface and populated with comprehensive, well-maintained, and defined data; (2) safe and secure national data that stakeholders are confident will continue to be available; and (3) efficient processes, specifications, and standards for the data and services in order to maintain quality and relevance. Structuring NAMRIA's spatial data systems and procedures within an SDI framework

*Leadership training participants in a photo op with NAMRIA , PAHRDF, and GA key officials*

## NAMRIA and FMB...

### Database and System Design

NAMRIA completed the system design for four new FIS subsystems, namely, RCC Information System, Revised Price Monitoring System, WPP Information System, and Statistical Reporting System (SRS). The RCC is one of the ancillary subsystems of the FIS, which captures the RCC's profile of permittees, its annual cutting/replanting plan, and its accomplishment reports to monitor and generate important statistics for the rattan sector. The WPP Information System facilitates the recording and monitoring of the wood processing plant permit data, maintenance of permits, and monitoring of the production and disposition of processed logs within the WPP. The system is capable of data integration from the CENRO level up to the FMB Central Office. The SRR, on the other hand, is a system for reporting the production and disposition of forest products and other wood-based products and non-timber products. It will provide FMB-FMS with a system for generating statistical reports of WPP and RCC data; facilitate the reporting system from the region, the provincial ENR office, and the CENRO to the FMB-FMS; and supplement the reports generated by the other FIS applications.

The Forest Products Revised Price Monitoring System is a windows-based system created for gathering, managing, and monitoring the Freight on Board Market Price and the Domestic Retail Price of forest products pursuant to Republic Act (RA) number 7161 of 1991 (Forest Charges Law), RA 7581 of 1992 (Price Act), and Executive Order number 192. The system aims to manage, monitor, and database the domestic prices of forest products in the market and provide statistical reports of forest products on a regional monthly and quarterly basis.

NAMRIA and FMB agreed that the Socialized Industrial Forest Management Agreement, Tree Farm, and Agro-Forestry will be reflected as subtypes of the existing IFMA application. In addition, the Nursery Inventory is already a module of the same application and is ready for implementation.

NAMRIA submitted to the FED the developed system design for the new FIS subsystems. This was followed by system presentations to FMB technical staff, which were conducted in April, July, and August 2009. In addition, a workshop was conducted on 06-07 August 2009 to present and obtain suggestions from the CENRO system users.



*System design documents for the four new information subsystems of FIS Phase-2 together with the Patch and Database Updater CD for the enhanced subsystems of FIS-Phase I*

### FIS Testing, Trainings, and Turnover of Project Outputs

The existing FIS subsystems (Phase 1) were enhanced in order to ensure their proper implementation and sustainability. NAMRIA trained the technical personnel of the FED on the additional and enhanced features of the subsystems. In like manner, NAMRIA conducted Advanced GIS Training involving the regional forestry sector technical staff on 23-27 February 2009. The agency turned over to FMB on 06 October 2009 the system design documents for the Phase 2 subsystems, in analog and digital format, as well as the Patch and Database Updater CD for the enhanced Phase 1 subsystems and the User's Manual on the revised FIS.

The generation and management of tremendous quantities of forestry data and their transformation into meaningful information were made possible through the NAMRIA and FMB collaborative FIS project. The project provided support to the effective supervision and monitoring of all forestry products and projects, and to the planning for their future development and management. With enhanced FIS, countrywide forestry and geographic information are produced for better statistically-based decision-making purposes, thus enhancing delivery of government services. The efficient implementation and management of the enhanced FIS developed by NAMRIA and FMB can make truly significant contributions to achieve good governance goals for the nation.•

## Improving Lives...

by different groups, differences between the two systems are inevitable. To date PRS92 has encoded more than three million records using parcel data as the smallest unit of information, while LAMP has encoded about half a million parcels covering 13 LGUs.

A third system for converting the land registry database and covering land-based data is being developed by the LRA. This system is called *LARES* and it aims to provide an efficient system of delivering title-based information, among others, to the clients. The system basically uses the data of clients which will conform with existing standards including PRS92 standards.

Realizing the common goals of the three projects, efforts to harmonize the three systems are being initiated. This may be a

daunting task since the three distinct yet related projects have considerably exerted expertise, time, and resources in developing their own systems to attain their respective objectives. The national government realizes the need to integrate all land information-related processes and management under one umbrella. Harmonizing the three major systems involves realignment of major activities among the concerned agencies. As all agencies are currently proceeding with their existing plans and programs, they must vigorously pursue the synchronization of the three systems in the hope of providing the public the best service it deserves, in line with the principles of good governance.•

## PRS92...

*from page 18*



*Interagency Task Group Balanacan meeting held on 26 May 2010 at the NAMRIA Boardroom*



*Courtesy call of the GEP on Administrator Tiangco on 25 March 2010*

presidential proclamation reserving a certain parcel of land of the public domain situated in *Barangays* Hinangayon and Argao, Mogpog, Marinduque for the Luzon Datum Origin Historical Site, ecotourism, and other purposes.

A complementary undertaking for the preservation of geodetic control points which  are being established is the campaign for the Adopt-a-*Mojon* Program nationwide which is continuing this year.  The program earlier gained wide support from local government units and the Geodetic Engineers of the Philippines, Inc.•

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## nSDI...

*from page 21*

would increase efficiencies and reduce duplication throughout the agency.

The skills built in developing the nSDI would help NAMRIA in advancing the national SDI or NSDI, a network of digital databases located throughout the Philippines which collectively will provide the fundamental data needed for socioeconomic, human resource, and environmental development objectives. The NSDI aims to (1) improve government planning and decision making; (2) maximize government's return on investments in data collection and maintenance; (3) avoid duplication of efforts in data creation and updating, and inconsistent or poor quality data; (4) generate more value-added activities, products and services from the fundamental datasets; and (5) promote private sector participation in the development of the geomatics industry.

The three-year nSDI implementation starting 2011 would be the first phase of a full nSDI.  During the second phase, which is within three to four years from the start of the nSDI implementation, NAMRIA would be fully capable to provide nSDI services to the Philippine government and other stakeholders.  The third phase would be the establishment of the NSDI which is no later than five years from the start of the nSDI.  The nSDI would then be a node of the NSDI.

As a major enabler and user of geographic information for developmental goals and administration, the government has to play the most important role for the establishment of the NSDI. Aiming at transparency in governance and conducive to the "Right to Information" tenet, the government will have to position policies and implement strategies at various levels.  Government agencies will have to take the first step by enabling the NSDI nodes to come into existence (GIS Development, 2001).  Key factors in any future steps will be strengthening political support, capacity building, improving coordination of activities and data sharing, and enhanced leadership (Cetl, et. al., 2009).

Adding to the demand for high quality and accessible data is the demand for e-government.  The e-government strategy challenges all public sector organizations to innovate and contains within its guiding principles the desire to treat the government's own information as a valuable resource (Gilfoyle and Thorpe, 2004).  Republic Act number 8792 was made into law in the year 2000 to promote the universal use of electronic transactions in the government. It is hoped that the nSDI would be a realization of the good government agenda as well as of an enlightened leadership.•

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Forestry Information System (Application Selection)

Maintenance

Version Date : 02/12/2009

**Forestry Information System**
FMB-ITTO

(Final Version)

In pursuit of its mandate to provide support for the effective protection, occupancy management and conservation of forest lands and watersheds, the Forest Management Bureau, with the technical assistance of the National Mapping and Resource Information Authority, has envisioned the creation of the Forestry Information System, a GIS and web-based information system. It is envisioned to provide a facility for the efficient management of forestry data and for effective statistical system which will provide adequate data support for _____ king and policy formulation.

Select Application _____ _____ management Agreemen