

WORKSHOP
**“GEOSPATIAL AND OTHER DATA STANDARDS TO ENSURE THE QUALITY AND COMPATIBILITY
AMONG COMMON AND FUNDAMENTAL OPERATIONAL DATASETS (CODs/FODs) IN SUPPORT OF
THE DISASTER RISK REDUCTION AND EMERGENCY MANAGEMENT IN THE PHILIPPINES”**

July 10, 2015
GT-Toyota Asian Center, University of the Philippines, Quezon City, Manila

EXECUTIVE SUMMARY

I. Background and Objectives of the Workshop

In a disaster setting, data and information are as essential as food and water. It is the basis of all Preparedness and Response plans, as well as the ground that facilitate appropriate and timely response.

This is very critical when lives are at stake and time is of the essence. However, an unreliable, incomplete, outdated, and inaccessible set of data and/or information does not and cannot be of any value.

Building on the lessons from Typhoons Yolanda, Glenda, Ruby and Chedeng, it is but necessary to build maintain and give access to complete, up-to-date, and of quality Common and Fundamental Operational datasets (COD, FOD) to all stakeholders involved not only in response to crisis, but also for disaster risk reduction.

With this objective in mind, the Office of the Civil Defense (OCD) decided to merge under a same project the efforts initiated by the Department of Social Welfare and Development (DSWD) in collaboration with the Strengthening Information Infrastructure for Emergency Management project (SIEM) and those aiming at collecting and harmonizing data initiated in collaboration with the Department of Interior and Local Government (DILG) and the Emergency Response Integration Center (ERIC).

Entitled "Improving the availability, quality and accessibility of common and fundamental operational datasets (CODs/FODs) for disaster risk reduction management in the Philippines (CAFOD-DRRM-PH)"¹, this project as for objective to improve decision making at all phase of the emergency cycle.

The following activities, defined during the June 2014 forum, have been placed under the umbrella of this project

1. Define the list of CODs and FODs and clarify which institution has the mandate over which COD/FOD. Asses the availability, quality and accessibility of the current registries and geospatial data for the identified CODs;
2. Gather Operations Officers of each agency and cluster member of the different pillars of NDRRMC in a workshop aiming at defining and agreeing upon geospatial data specifications and standards to improve data compatibility among governmental and non-governmental agencies;
3. Discuss how to improve the PSGC to make it more information-management friendly;
4. Address the question of availability of data that should be maintained by the LGUs (DILG) potentially through crowd sourcing or other solutions;
5. Discuss data accessibility including: conflict in data use between intellectual property act and the open data Philippines policy; data accessible with fees; confidentiality.
6. Finalize the policy to be signed by the NDRRMC on CODs and FODs standardization, maintenance, and sharing, as well as develop the guidelines that will support the operationalization of the policy.

¹ www.gaia-geosystems.org/PROJECTS/SIEM/PHL/CAFOD_CONCEPT_NOTE.pdf

The present inter-agency workshop has been organized on July 17, 2015 with the objective to cover the second activity mentioned here above.

II. Agenda of the Meeting:

The meeting agenda (Annex 1) has been organized different sessions aiming at:

- Presenting and discussing already existing geospatial and other data specifications and standards;
- Agreeing on a first list of common specifications and standards to be used among stakeholders to ensure data compatibility among sources during an emergency.

III. Participants Profile:

Fifty eight [58] participants representing 30 different Agencies from the Government, the United Nations and other NGOs, International Organization as well as from the academic and the private sector attended the workshop (Annex 2). Six (6) people from ERIC acted as secretariat during the activity.

IV. Workshop Summary

The prayer and national anthem were led by Mr. Christopher P Grajo from ERIC.

Dir. Felino O. Castro, DSWD-ICTMS then delivered the welcoming address on Behalf of Asst. Secretary Vilma B. Cabrera. Thanking the participants for attending this workshop, he underlined the importance of this event and the need to come up with common geospatial and other data specifications and standards in the context of emergency response before orienting the group about the context, objectives and agenda for the meeting.

He narrated briefly the development of the trail-blazing efforts of the DSWD and the SIEM project in the aftermath of Typhoon Yolanda (Haiyan) to discuss with all the stakeholders the importance of addressing the issues of data availability, quality and accessibility for emergency management. He then talked about the establishment of the Information Management Technical Working Group (IM-TWG) for the NDRRMC and the integration of the 6 activities defined in June 2014 under the CAFOD-NDRRM-PH project before clarifying that the present workshop was meant to address data quality issues, giving a description of what this entails. His presentation can be downloaded from here: www.gaia-geosystems.org/PROJECTS/SIEM/PHL/WORKSHOP_071015/Context_Objectives_Agenda_100715.pdf. He ended his speech by mentioning about the recent release of a guideline on open data implementation (JMC No. 2015-01, <http://data.gov.ph/news/guidelines-open-data-implementation-jmc-no-2015-01>) and his hope to see this guideline contributing to Departments being more open in sharing their data.

After a round of introduction, Dir Benjamin P. Balais from NAMRIA presented on the geospatial and other data standards related to Common Operational Datasets (CODs) as implemented by the Philippine Geoportal System (PGS). After emphasizing the importance of interoperability and clarifying the concept of data standards he described the content, processes and standards behind the PGS and this covering the questions of metadata, projection/reference system, format, coding system, symbology and terminology as well as spatial accuracy and timeliness/completeness of data. He also mentioned about the Open Government initiative and the importance of section 24 in the Republic Act No. 10651, otherwise known as the 2015 General Appropriations Act (GGA), section which encourages Governmental agencies to adopt a policy of openness for all datasets created, collected, process, disseminated, or disposal through the use of public funds. His presentation can be downloaded from here: http://www.gaia-geosystems.org/PROJECTS/SIEM/PHL/WORKSHOP_071015/NAMRIA_Geospatial_and_Other_Standards_100715.pdf.

Ms Regina Reyes, Acting Director III- PSGC Standards Service at the Philippine Statistics Authority (PSA), presented about the Philippine Standard Geographic Code (PSGC). After giving some background information, she emphasized the importance of the PSGC to promote comparability of statistics, facilitate exchange of interrelated data and information among agencies, support the development of databases and geographic information systems (GIS) as well as provide a comprehensive area frame in the conduct of censuses, sample surveys and market studies and the basis for the establishment of precincts/voting centers. After giving example of PSGC users she presented the structure, features and updating procedures of the PSGC coding system. Her presentation can be downloaded from here: http://www.gaia-geosystems.org/PROJECTS/SIEM/PHL/WORKSHOP_071015/PSA_PSGC_100715.pdf.

Mr Amador A. Trazo, Information Technology Officer I at PSA then presented about census mapping. After explaining what census mapping is and how the PSGC is used in this context, he described the objective of such exercise as well as the importance and use of census maps. He continued by detailing the operations conducted in the context of the 2010 census of population and housing, the 2012 census of agriculture and fisheries as well as the 2015 mid-decade census of population during which the PSA conducted Enumeration Areas delineation operation and the updating of digitized maps. He then indicated that the PSA is sharing its holdings of map shapefiles and geography-based statistics with other government agencies, NGOs and researchers to encourage the use of statistics in planning and research before ending his presentation by PSA's future directions and challenges in this area. His presentation can be downloaded from here: http://www.gaia-geosystems.org/PROJECTS/SIEM/PHL/WORKSHOP_071015/PSA_Census_Mapping_100715.pdf.

Assistant Secretary Vilma Cabrera, arrived and in a short speech expressed her appreciation for the cooperation of each participant and his/her agency represented. She emphasized the value of quality and accessible data to the work of Disaster Response Pillar. She thanked everybody in behalf of the Secretary of DSWD and the NDRRMC.

After a short break, participants were engaged in an exercise aiming at identifying the geospatial and other data specifications/standards currently being used by the Agencies/Organizations attending the workshop. A presentation was given by Mr Christopher P. Grajo as an introduction to the exercise and a way to clarify the concepts and measures that were to be covered (available from here: http://www.gaia-geosystems.org/PROJECTS/SIEM/PHL/WORKSHOP_071015/Specifications_Standards_Other_Agencies_100715.pdf) and participants were then asked to fill a small form in which they listed the following specifications/standards they are using:

- Geospatial data:
 - Projection/reference system
 - Scale of work
 - Horizontal accuracy
 - Spatial resolution
 - Ground reference
 - Format
 - Metadata profile
- Tabular data (statistics):
 - Registry and unique code
 - format

Participants were also invited to indicate the guidelines and protocols they have been developing and using in relation to these issues.

While doing this exercise, Dir John S. F. Fabic from NAMRIA mentioned that the information reported in the form was matching those they are collecting in the PGS data sharing agreement and that further information regarding the specifications and standards being used by other Departments could therefore also be obtained through this source.

After lunch, Dr Steeve Ebener, manager of the SIEM project, presented the results of the morning exercise (Annex 3) highlighting the following in particular:

- The use of different specifications/standards by the different Agencies/Organizations present
- A convergence nevertheless on some of them, in particular when it comes to the use of Google map or Bing as ground reference or the format used for geospatial and tabular data;
- Misunderstanding of some of the concepts being used, spatial resolution in particular;
- The existence of guidelines and protocols being used by certain Agencies

Emphasizing once more the necessity to have common specifications and standards in the emergency context as key to ensure a timely and rapid response, Dr Ebener then engaged the participants in a discussion aiming at agreeing on these specifications and standards. This discussion resulted in the list presented in Annex 4.

While some work remains to be done in order to come up with a common metadata profile, symbology and terminology, establishing such a list represents a major achievement and which will lead to a significant improvement in terms of data quality and compatibility once implemented.

In this regards, common guidelines and protocols will also be needed in order to allow for the different Agencies/Organizations to implement these specifications and standards. This issue was the topic of the next session validated by LA Dimailig from DSWD.

This session allowed providing more details regarding the already existing guidelines and protocols used by different agencies (DOH, DOST/PHIVOLCS, DSWD, MGB, NAMRIA, PSA) and the need to actually cover different aspects of the overall data management chain, namely: acquisition, collection, processing and sharing. Guidelines regarding the production of geospatial information based products and their sharing would also be useful.

The importance to merge the existing documents together was recognized by the participants and the Agencies/Organizations already having such documents agreed to share them for this purpose.

The last session of the day, facilitated by Mr Joseph Adawe from UN OCHA, looked into other potential support needed to implement the agreed upon data Specifications and standards. While most of the Agencies/Organizations present do have some technical capacity this capacity is not necessarily sufficient to ensure a proper collection, management and sharing of the data they are in charge. Participants therefore expressed the need to strengthen the existing technical capacity through the conduct of data management oriented trainings for example.

Several participants also reiterated the need to rapidly find a solution to obtain a complete, up-to-date and accurate Barangay boundary layer for the country. A discussion involving, NAMRIA, PSA, DILG and the Land Management Bureau (LMB) should be organized in this regards, hopefully during the next CAFOD workshop.

V. Conclusion, recommendations and next steps

The workshop reached its objective by coming up with a list of geospatial and tabular data specifications and standards (Annex 4).

Further work will nevertheless remain to be done in order to complement this list as well as ensure their implementation by all the stakeholders involved in disaster risk reduction and/or emergency management in the country, starting with the NDRRMC members.

It this regards, it is recommended for the member of the IM-TWG, with the support of the international community and the SIEM project to:

- Address the question of terminology, symbology and documentation (metadata);
- Work at merging the already existing documents to come up with a common set of guidelines



and protocols for the acquisition, collection, processing and sharing of geospatial and tabular data;


- Integrate these guidelines, protocols, specifications and standards in the policy to be signed by the NDRRMC on CODs and FODs standardization, maintenance, and sharing and this to ensure their implementation across all stakeholders;

In terms of next steps, the participants have been invited to actively participate in the next workshop to take place on June 16th (Institute of Social order (ISO) Complex, Ateneo de Manila University Campus, Loyola Hts) with the objective to finalize the list of CODs and FODs and clarify the institutional mandate on each of them as well as initiate the process aiming assessing the availability, quality and accessibility of the current registries and geospatial data for the identified CODs.

The workshop was concluded by a Closing Remarks delivered by Deputy Director Sonny Patron of OCD Operations Division, in behalf of Director Edgar Allan Tabell (CODIX-DILG) who was still managing the Emergency Operations Center relative to Typhoon Falcon. He congratulated and thanked the participants for the milestone achieved that day, and expressed his appreciation for the work of all these “data” agencies in which the NDRRMC and OCD would always rely on. He said that their work and diligence in data management will go a long way in saving lives and developing our country.

The meeting was adjourned at 3:30 pm.

Prepared by:


CHRISTOPHER P. GRAJO
ERIC

Reviewed by:


STEEVE N. EBENER
SIEM project Manager

Approved by:


FELINO O. CASTRO, V
Director, ICTMS



Annex 1 - Agenda of the meeting

8:00am	Registration	
8:30am	Prayer and National Anthem	
	Welcome Remarks and Round of Introduction	A/Sec. Vilma B. Cabrera* - DSWD
9:00am	Context, Objective and Agenda of the Meeting	Dir. Felino O. Castro - DSWD
9:30am	Already existing Geospatial and other Data Standards related to CODs and FODs	Dir Benjamin P. Balais - NAMRIA; Ms. Regina S. Reyes & Mr Amador A. Trazo -PSA
10:15am	Coffee Break	
10:30am	Geospatial and other Data Standards used by other Departments (5 min per Department/Agency)	All the participants (facilitator: <i>Bong Grajo - ERIC</i>)
12:00pm	Lunch	
1:00pm	Common Data Specifications/Standards to Ensure the Quality and Compatibility among CODs/FODs	All the participants (facilitators: Steeve Ebener -SIEM, Joseph Adawe - UN OCHA, LA Dimailig - DSWD)
1:30pm	Content of common Guideline and/or Protocols that would help Departments to implement the agreed upon Common Data Specifications/Standards	
2:00pm	Other Potential Support needed by the Departments to implement the agreed upon Data Specifications/Data Standards	
2:30pm	Conclusion and next steps	Dir. Edgar Allan Tabell - DILG



Annex 2 - List of participants to the meeting

Full Name	Agency/Organization	Function	Email address	Phone number
Aecy Grene Campo	Philippine Red Cross (PRC)	Information Management Officer (reporting)	aecy.campo@redcross.org.ph; aecygrene.campo@yahoo.com.ph	9178754377
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Full Name	Agency/Organization	Function	Email address	Phone number
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Annex 3 - Geospatial and tabular data specifications/standards used by the Agencies/Organizations attending the workshop

Agency	Geospatial data								Tabular data			Protocols/guidelines
	Projection/reference system	Scale of work	Horizontal accuracy	Spatial resolution	Ground reference	Format	Metadata profile	Symbology	Registry	Unique code	Format	
ADMU	WGS 84		Google accuracy	Google resolution	Google map	Shapefile						System based validation
BFP	GIS/worldview				Google Earth/Bing	Shape file			List of fire stations	PSGC	txt, exportable to excel, csv	
DBM	Open Data standards	Data sharing				Open format (shape file, kml, json)						JMC 01.ODPTF AA 2015 sec 24
DENR	DTM	<1:25,000 / 1:50,000				SHP File	Reg, Prov, Mun/City		Disposal, Mineral, Forest Cover, Hazard		csv	
DOE	PRS 92 & UTM/WGS 84				DENR's Ref. Stations	Shape File					Excel file format	YES, but limited to COAL survey only. NO, for other resources
DEPED	WGS 1984	100k		Not applicable, used goog map	Google map	shape file, KML			Registry of schools	School ID	csv, excel	Manual on finding coordinates (in decimal degrees) of schools in google map and bing map
DOH	WGS 84	50k	up to 10 m	Google earth	Google map, bing, osm	shape file	DOH metadata profile		National Health facility registry (NCD, NHFR, HIV-AIDS)	NHFR health facility code	csv, excel, kml	DOH_GIS-GPS_Guidelines_Standards, Protocols for the collection of geographic coordinates
DOST/PAGASA	WGS 84	25k				shape file	Yes				excel, csv	International standards format and protocols recommended by the World Meteorological organization (WMO)
DOST-PROJ NOAH	WGS84/PRS92/WEBMERCATOR	1:10,000 AT LOWEST	VARIES {L:DAR-0.3M; HSAR-5M; <1:10,000 }	HIGH RES-10M	GOOGLE, BING, OSM, LIDR, LANDSAT, MODIS	SHP, KML, PNG, TIFF, GEOJSON	.TXT	.LYR	PSGC, FACILITY ID	PSGC, FACILITY ID	.XLSX, .CSV, .TXT, .GEOJSON, .SAV	
DOTC	DOTC-CENTRAL OFC HAS NO EXISTING GEOSPATIAL DATA STANDARDS. HOWEVER, DOTC ATTACHED AGENCIES, CAAP (CIVIL AVIATION AUTHORITY OF THE PHIL) AND PPA (PHIL PORTS AUTHORITY) MAY PROVIDE THE NEEDED INFORMATION. WE ALREADY REQUESTED THAT THEY BE INVITED TO THE NEXT WORKSHOP.					POSITION OF AIRPORT FACILITIES CAN BE FOUND ON CAAP WEBSITE: GOOGLE EARTH/BASE D ON SATELLITE			COMPLETE	REGISTRY OF AIRPORTS AND PORTS MAY BE PROVIDED BY CAAP AND PPA	mo unique ID	
DPWH	WGS 1984	<1:25000	plus/ minus Meters for Roads and Bridges and Kilometer posts	n/a		.shs/ .gdb			Database/ Roads and Bridges	Road IDs, Section IDs	.csv/ .xlsx	NONE

Agency	Geospatial data								Tabular data			Protocols/guidelines
	Projection/reference system	Scale of work	Horizontal accuracy	Spatial resolution	Ground reference	Format	Metadata profile	Symbology	Registry	Unique code	Format	
DSWD	WGS 1984	5k	Google Earth	Google Earth	Google Earth/Bing	Shape file			Food Hubs/warehouses	FID	Excel, CSV	OGC standards
MGB	Luzon 1911 (UTM)	1:10,000 & 1:50,000	3-5m	Hard from source data:1:50,000 topo maps & IFSAR_IRO from NAMRIA	IFSAR_ORI & 1:50,000 topo map from NAMRIA	Shapes Files	Available (attributes)	Based from Schema standardized by our office which mostly based from ITCZ symbology	PSGC (Geocode from NAMRIA)	Geocode from NAMRIA (PSGC)	MS Excel File (.xls)	Yes we follow Protocols
NAMRIA	UTM / PRS 92	250k, 50k, 10k	+/- 10 m; IHO standards, to be verified	1.5 m or higher, IHO standards, to be verified	IHO standards, to be verified	Shape file	Yes	ICA, IHO standards		PSGC	exportable to excel, CSV exportable	
NAPC	WGS 84				Bing	.shp, .kml			Qlikview in NAPC		csv	
NEDA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Internal no written protocol for geospatial data but conforms with geoportal project (NAMRIA)
OCHA	WGS 1984	what is available	what is available	what is available	what is available	Shape files	what is available	UN OCHA symbology		PSGC	Excel	NONE
OSM	WGS 1984 - UTM	multiscale		multiscale	Bing, orthorectified imagery	shapefile, OSM format				OSM ID	dbf	Opendata licence and wiki
PHIVOLCS	LUZON.DATUVN 1:50,000 - 1:250,000 PRS92 1:5,000 FIREDAS WGS84	1:5,000, 1:10,000, 1:50,000, 1:250,000	5TH DECIMAL OR 3M ACCURACY FOR POINT DEST.	ARIAL PHOTOS, SRTM, IFSAR, LIDAR (2MM),	GOOGLE, BING, OSM	SHAPED FILE, SQLITE, SPATIALITE		FAULT SYMBOLOGY, CSCAND COLON & HAZARD LEVEL	PSGC	PSGC	EXCEL, SQLITE, TAD, SPATIALITE, ATTRIBUTE TABLE	MANUAL: FOR SYMBOLOGY & COLORS FOLLOW THE CSCAND - AGREED SYMBOLS AND FAULT SYMBOLOGY, FOLLOWS COLORS INTL STANDARDS
PSA	WGS84	>1:25,000	<= 5M	>=5M	GOOGLE MAP	SHARED FILE FORMAT	CODING CONVENTION		NSO DA	PSGC	TXT FILE	WITH DOCUMENTED METADATA FOR TABULAR DATA ONLY
UNICEF	Follow project NOAH	Follow project NOAH	Follow project NOAH	Follow project NOAH	Follow project NOAH	shape files	Follow project NOAH	Follow project NOAH				
WFP	WGS84, UTM ZONE 51 N	1:25,000 - 1:50,000	10M to 25M	30M (LANDSAT)	GOOGLE MAP, LANDSAT, BING	.SHP, GEODATABASE	ARCGIS FORMAT	HUMANITARIAN ICONS OCHA AND WFP RECOMMENDED ARCGIS SYMBOLOGY	DISTRIBUTION POINTS; EVACUATION CENTERS	PSGC	.XLS, .XLSX, CSV	EXISTS; DOCUMENTATION IS ONGOING
WHO	WGS 84	1:100,000 at least, usually 1:25,000	50m at least, usually 12m	1:100,000 at least	Google, Bing	SHP	ISO 19115	ESRI	PSGC, NHFR		.xls	YES

Annex 4 - Geospatial and tabular data specifications and standards agreed upon by the participants

Geospatial data

Projection/Geographic coordinate system:

- Geographic Coordinate System: GCS_WGS_1984
- Angular Unit: Degree (0.017453292519943295)
- Prime Meridian: Greenwich (0.000000000000000000)
- Datum: D_WGS_1984
 - Spheroid: WGS_1984
 - Semimajor Axis: 6378137.000000000000000000
 - Semiminor Axis: 6356752.314245179300000000
 - Inverse Flattening: 298.257223563000030000

Spatial resolution, scale of work and maximum horizontal error:

- Scale of work for vector layers: 1:100,000
- Spatial resolution (cell size) for raster layers: 50 m
- Maximum horizontal error (vector layers): 50 m

Ground Reference

- Google Map
- Bing Map
- NAMRIA topographic basemaps (land) and nautical charts (sea)
- IFSAR 2m accuracy (0.65 m resolution)

Format

- Vector layers: Shape file
- Raster layers: GeoTiff

Metadata profile

To be developed based on ISO 19115 standard and the profiles already used by certain Departments

Common symbology

To be developed based on those being used (NAMRIA, PSA, OCHA, IHO,...) and the inputs from each Department for the respective thematic

Terminology

To be expanded based NAMRIA's and thematic specific dictionaries

Tabular data

Official registries and coding systems

- Administrative divisions: Philippine Standard Geographic Code (PSGC) - PSA
- Health facilities: National Health Facility Registry (NHFR) - DOH
- Schools: Master list of schools - DEPED

List to be expanded after the COD/FOD workshop (July 16th, 2015)

Format

- Excel (especially if the file contains more than one worksheet)
- csv