From Cartography to Geospatial Information Management: Implications to the Philippines' Geodetic Engineering Education and Professional Practice

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Presentation Structure

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The PRBGE

- PRBGE stands for **Professional Regulatory Board of Geodetic Engineering**;
- It is held under the **Professional Regulation Commission (PRC)** which is attached to the **Department of Labor and Employment (DOLE)**;
- Among its powers and functions that are relevant to the subject matter include the following:
  - **Upgrading, development and growth of geodetic engineering education;**
  - **Supervision over the examination, registration, licensure and practice of professional geodetic engineering; and**
  - **Looking into the conditions affecting the practice of geodetic engineering profession and, whenever necessary, adopt such measures as may be deemed proper.**

Geodetic Engineering: Defined

- **Refers to the *"branch of engineering which deals with the collection and measurement of spatial data above, on or below the surface of the earth using appropriate technologies and the scientific and methodical processing and management of these data for the production of spatial information systems, maps, plans, charts, and other documents* (Section 1, CMO No. 12, Series of 2012)".**

Cartography: Defined

- Pertains to the **discipline dealing with the conception, production, dissemination and study of maps**.
- Also, refers to the **art, science and technology of making and using maps**.

International Cartography Association (ICA)

Place of Cartography in Geodetic Engineering

1. **A major subject in BSGE** having one (1) unit of lecture and six (6) units of laboratory;
2. **One of the five (5) subjects given in the geodetic engineering licensure examinations** comprising 20% weight out of 100% total weight;
3. **Part of the Sub-module 2-D (Mapping**) that is required for an applicant in upgrading to Geodetic Engineer level pursuant to Republic Act No. 9200; and
4. **Considered as one of the major fields in geodetic engineering professional practice** based on the provisions of Republic Act No. 10912 (The Continuing Professional Development Act of 2016); and
5. **Among the fields of competency** in line with the implementation of the Philippine Qualifications Framework (PQF) pursuant to Executive Order No. 83, series of 2012.

What is UN-GGIM?

- A **global initiative** which means **United Nations Global Geospatial Information Management or UN-GGIM**;
- An **inter-governmental mechanism** spearheaded by the UN which seeks to guide the making of joint decisions and set directions on the **production and use of geospatial information within national and global policy frameworks**;
- Its importance lies on its workings with governments to:
  - **improve policy, institutional arrangements, and legal frameworks;**
  - **address global issues and contributing collective knowledge as a community with shared interests and concerns; and**
  - **develop effective strategies to build geospatial capacity in the developing countries.**

Pre-cursor Resolution

- UN EcoSoc Council Resolution No. 2011/24 adopted on 27 July 2011 concerning the ***"Establishment of the Committee of Experts on Global Geospatial Information Management".***
- The objectives and functions of the Committee of Experts (CoE) on GGIM are as follows:
  - **Provide a forum for coordination and dialogues on spatial data infrastructures**, on enhanced cooperation in the field of global geospatial information;
  - **Propose work plans and guidelines** for the interoperability and interchangeability of geospatial data and services;
  - **Provide a platform for the effective strategies** on how to build and strengthen national capacity concerning geospatial information;
  - **Compile and disseminate best practices and experiences** of national, regional and international bodies on geospatial information related, inter alia, to legal instruments, management models and technical standards; and
  - **Build upon and make use of the existing work of other forums and mechanisms** in related fields.

Main Resolution

- UN EcoSoc Council adopted on 27 July 2016 Resolution No. 2016/27 regarding the ***"Strengthening Institutional Arrangements on Geospatial Information Management".*** The dispositive portions are as follows:
  - **Streamlining the work of the four (4) current subsidiary bodies of EcoSoc Council in the field of GIM**, namely: (a) Committee of Experts on GGIM; (b) UN Regional Cartographic Conferences (UN-RCC) for Asia and the Pacific, and for the Americas (APA); (c) UN Conference on the Standardization of Geographic Names; and (d) UN Group of Experts on Geographic Names;
  - **The CoE on GGIM has operated effectively in line with the mandate given by the EcoSoc Council** over the past five years (2011-2016), producing tangible outputs;
  - **CoE is well placed to continue to contribute to the work of the UN**, especially in the context of efforts to assist the Member States in implementing the following: (a) 2030 Agenda for Sustainable Development; (b) Sendai Framework for Disaster Risk Reduction 2015-2030; (c) Paris Agreement on Climate Change; and (d) SIDS Accelerated Modalities of Action (SAMOA) Pathway.

Main Resolution (Continuation)

- (Continuation of the dispositive portions of the UN Resolution)
  - **Cessation of the mandates of the UN-RCC for APA**;
  - **The formal UN-RCCs are no longer a necessary requirement** and, in order to streamline and avoid duplication, **the meetings of the UN-RCC shall cease forthwith**;
  - **The substantive mandates and obligations of the UN-RCC for APA shall be assumed by the CoE at the global level**;
  - **The technical and substantive activities at the regional and national levels assumed by the respective Regional Committees of UN-GGIM for APA**; and
  - **The EcoSoc Council decided to change the title of the item on its agenda from "Cartography" to "Geospatial Information"**, and invites thereunder the UN Group of Experts on Geographic Names and the UN Conference on the Standardization of Geographic Names to continue to report on geographic names, and the CoE on GGIM to report on matters relating to geography, geospatial information and related topics.

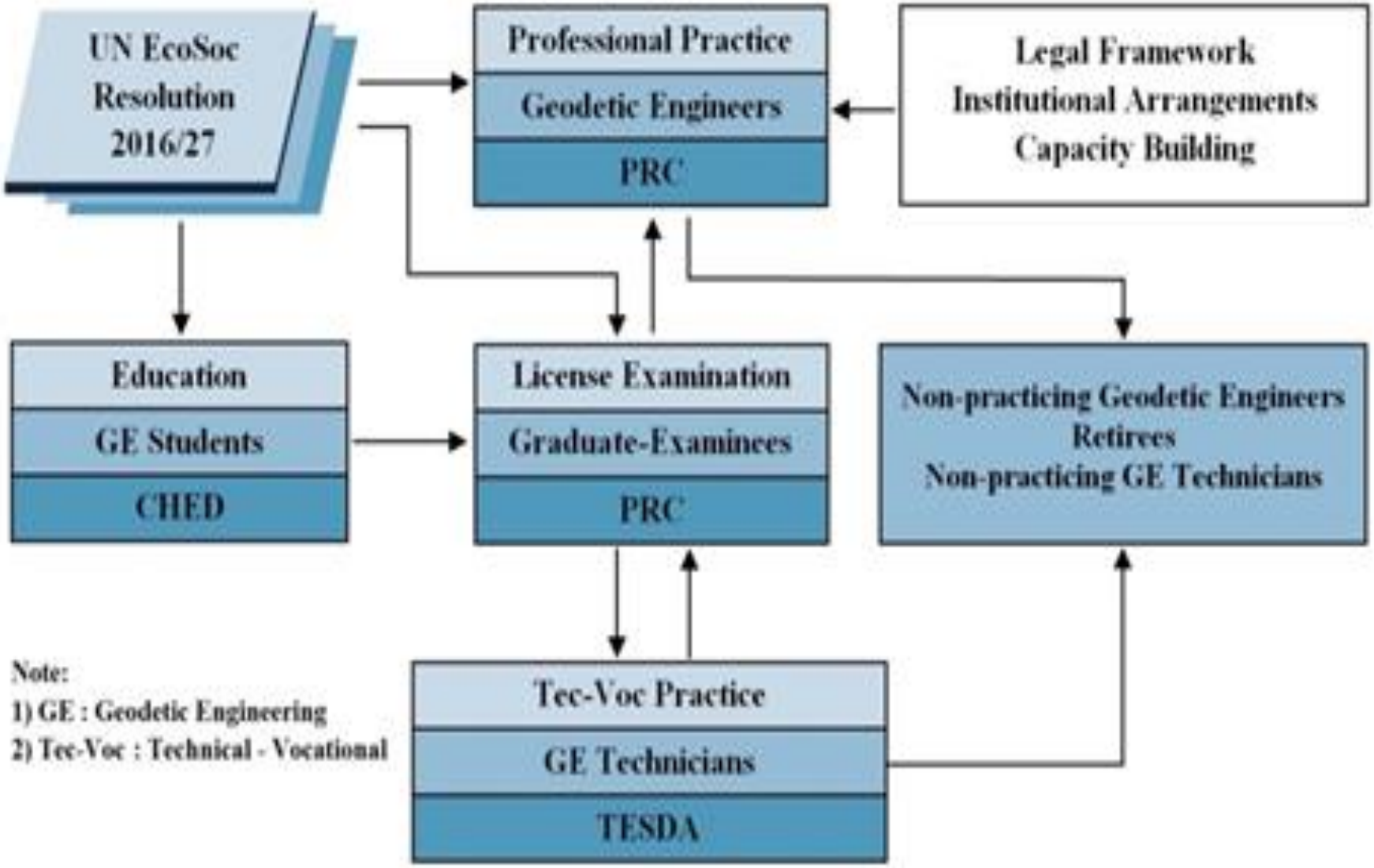
Key Intuitions

1. The streamlining of work of the four (4) current subsidiary bodies of EcoSoc Council in the field of GIM is **a management option to employ effective and efficient operations**;
2. The **need to transfer and/or delegate new responsibilities** from the subsidiary bodies to the CoE and **an assumption of new functions related to some new agenda/frameworks/agreements**;
3. **Presence of a compelling reason to adopt to some emerging GIM technologies** including the definition of procedures and setting of standards for collection, processing, analysis, integration, distribution, updating and archival;
4. **Need to establish and maintain appropriate legal and institutional arrangements between and amongst governments**; and
5. **Need to develop and implement the most appropriate and effective Human Resource Development Program** that shall enable professionals/workers to keep abreast with the new trends in GIM.

The Rapid Assessment Survey

- Organized a whole day consultation meeting cum orientation held at the University of the Philippines on 30 March 2017;
- Forwarded invitation letters to **20 key stakeholders** with the **background paper, UN Resolution No. 2016/27, and guide questions sheets** as part of data collection tool;
- The duly accomplished guide questions were collected after the event from **10 selected respondents** composed of **five (5) government representatives, three (3) from business group, and two (2) from academic institutions**. Of these, **seven (7) respondents are Geodetic Engineers** while the rest are from different disciplines.

The Analytical Framework



Statement of the Problem

1. Are there implications of the UN Resolution on geodetic engineering education and professional practice?
2. What type of repercussions does the UN Resolution will have?
3. What sort of intervention should be taken to address these implications?
4. Are the intuitions valid?

PRB's Major Concern

- **How can the PRBGE (or Government of the Philippines as a whole) safeguard the interest and welfare of Geodetic Engineers from such international development that adversely affect the profession?**

Objectives

Considered as the feedforward control or anticipatory action of the PRBGE, the Rapid Assessment Survey aims to:

1. Determine the **presence or absence** of implication of the UN Resolution on geodetic engineering education and professional practice;
2. If affirmative, **describe and categorize** these repercussions;
3. **Identify appropriate interventions** that need to be carried out to address the implications; and
4. **Validate the intuitions**.

Respondents' Feedback: Education

1. There should be an **immediate updating/revision of relevant policies, standards and guidelines governing the BSGE Program** to catch up with the ongoing amendment of the Program spearheaded by the CHED;
2. In terms of curriculum development, **Cartography should be offered to geodetic engineering students after having completed the pre-requisites or required course subjects** but not as a freshmen's subject;
3. **Addition of GIM subject as a professional course subject and not as an elective**;
4. **Ensure the availability of faculty members who have the required competency** (in terms of knowledge, skills and attitude/values) to handle Cartography (Modern) and GIM;

Respondents' Feedback: Education

5. **Update the knowledge of faculty members concerned** through research and development, collaborative industry-based undertakings, and international exchange programs;
6. **Upgrade and maintain relevant university/school resources** such as library materials, laboratory equipment encompassing the updating of skills of laboratory technicians, and related ICT resources; and
7. **Higher Education Institutions (HEIs) offering the BSGE Program must prepare/update their respective Human Resources (Faculty and Staff) Development Programs** including adequate financial support for **Continuing Professional Development (CPD)** and for other purposes.

Respondents' Feedback:
Professional Practice

1. **Review the scope of services/work of Geodetic Engineers and make recommendations;**
2. If not to resolve, **mitigate the perennial problem about the "blurring of professional/discipline boundaries" and duplication of work** between and among Geodetic Engineers and other professionals;
3. **Develop appropriate qualifications framework, competency standards and accountability mechanisms** in Cartography (or Mapping) and GIM;
4. **Change of the position title of "Cartographer" into "Computer Aided Draftsman" or "Geospatial Information Specialists"**;

Respondents' Feedback:
Professional Practice

5. **Amend existing and/or propose for new Civil Service Commission (CSC) Resolution** for the amendment/revision of position titles, qualification standards, and job descriptions in government service;
6. **Adequate support to enable compliance with or alignment to the UN EcoSoc Resolution**;
7. **Formulate technical standards and specifications through pilot projects** on Cartography and GIM applications; and
8. **Design and implement CPD programs for Geodetic Engineers** and **promote the involvement of other qualified CPD Providers including foreign entities**.

Conclusion

- In view of the reactions of the respondents and the overall results of the survey, it can be concluded that:
  - there are indeed **obvious implications** of UN EcoSoc Council Resolution No. 2016/27 in the geodetic engineering education and professional practice;
  - the repercussion can be categorized into: **legal/policy, institutional, educational, and practice of profession**;
  - interventions are in varying degree (included in the **recommendations**); and
  - major intuitions are **valid**.

Recommendations (Proposed Interventions)

1. **Comprehensively update the BSGE Program** encompassing the curriculum and course descriptions, and proper placement of Cartography and GIM;
2. **Ensure availability of BSGE Program resources and faculty members** who are compliant with the provisions of Republic Act No. 10912 (The CPD Law of 2016);
3. **Need for the most appropriate legal framework and policy instruments as well as responsive institutional arrangements and appropriate capacity building measures** to sustain the fair and just practice of profession;

Recommendations
(Proposed Interventions)

4. **Develop Geodetic Engineering Professional Qualification Framework, common competency and technical standards, and accountability mechanisms** in Cartography (or Mapping) and GIM;
5. **Actively represent the profession to the CSC and other government agencies** for the amendment/revision of position titles, qualification standards, and job descriptions;
6. **Design and implementation CPD programs for Geodetic Engineers** and **promote the involvement of other qualified CPD Providers including foreign entities**; and
7. **Formulate and operationalize a National Action Agenda** as a feedforward strategy or anticipatory action regarding the expected adverse impact of the UN EcoSoc Council Resolution No. 2016/27 to the geodetic engineering profession.

Next Steps

1. **Pursue follow through initiatives** that shall cater to and/or address the herein stated recommendations/interventions;
2. **Urgent need for the formulation of a National Action Agenda** designed to mitigate the adverse effects but anticipating some future opportunities;
3. **Sustained promotion and advancement of Cartography and GIM** under the ambit of geodetic engineering; and
4. **Massive campaign on strategic positioning of Geodetic Engineers** (inclusive of Cartographers and GI Specialists/Analysts) over productive business engagement, employment areas, and other rewarding endeavors that this international development might bring to the profession.

Thank you for your kind attention!

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