Geospatial Disaggregation and aggregation in Supporting of SDGs

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2 UN IEAG-SDGs: WGGI

Nov. 20, 2018, Deqing, China
United Nation GA adopted the Global Indicator Framework (GIF) for the 2030 SDGs in its resolution A/RES/71/313 On 6th July 2017,

[from the preambular of the GIF]

**Sustainable Development Goal indicators should be disaggregated, where relevant, by income, sex, age, race, ethnicity, migratory status, disability and geographic location, or other characteristics, in accordance with the Fundamental Principles of Official Statistics**

[from the foreword of the SDGs Report 2017 by UN Secretary General]

**the need for reliable, timely accessible and disaggregated data to measure progress, inform decision-making and ensure that everyone is counted**
My Experience in Deqing

Populations data needs to be disaggregated into geographical space with the help of ancillary geospatial data for in-depth SDG indicator measurement.

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30-m Population density with topographic information

Enabling integrated geospatial and statistical analysis.
Populations data needs to be disaggregated into geographical space with the help of ancillary geospatial data for in-depth SDG indicator measurement.

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Coverage Analysis of Essential Health Services (3.8.1)
Geospatial Aggregation

Downscale high-resolution datasets into desirable scales—often called generalization in cartographic community.

Global water ratio and distribution along latitude and longitude in 2010

Downscale high-resolution datasets into desirable scales—often called generalization in cartographic community.

www.globeland30.org
Previous works

- Previous disaggregation and aggregation works by statistical communities were focused mainly on people-centric variables (such as gender, age, income, education, race, ethnicity, and disability).

- A geographic location perspective needs to be taken into consideration. Sophisticated methods and efficient tools need to be developed.

- It is becoming one of the major challenges for measuring SDGs indicators and monitoring SDG progress.
In April 2018, the Inter-Agency Expert Group on SDGs: Working Group for Geospatial Information (IAEG-SDGs: WGGI) established a Task Stream:

- **Mandate:** provide expertise and advice to IAEG-SDGs and the larger statistical/geospatial community as to how geographical disaggregation and aggregation can reliably and consistently contribute to SDG indicators measuring, analysis and monitoring.

- **Working period:** 2018-2019

- **Co-leads** of Task Streams: Macarena Perez Garcia (chili) and Jun Chen (China)
Content

Background

Scope of Task

Expected deliverables

Plans

Summary
This task stream seeks to identify existing exemplars, develop good practices for key challenging issues, and document methodologies on geospatial disaggregation and aggregation for supporting SDGs.

- Identify exemplars
- Develop good practices
- Document methodology
Identify exemplars

- to identify existing exemplars from member’s countries or organizations about their activities or experiences on geospatial disaggregation and aggregation for supporting SDGs.
  - desirable to have a diverse set of examples from different regions and circumstances so that it has the greatest breadth of impact to various Member States.
  - good examples can also be provided by the invited experts.

- to summarize the methodology and application of these exemplars for facilitating the knowledge sharing
Develop good practices

- to identify methodological gaps in disaggregation by geographic location and aggregation (such as the spatialization of population density, rural and urban disaggregation from land cover data sets)
- to encourage / mobilize members and experts to provide solution and to develop good practices;
Document Methodology

- to develop a generic conceptual framework on geospatial disaggregation and aggregation for supporting SDGs, as an expansion of the existing Global Statistical Geospatial Framework (which gives guidance how to aggregate with geographic location)

- To document the available methodology and tools which can be used in geospatial disaggregation and aggregation
Content

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Summary
Expected Deliverables

This task stream is expecting to deliver two major outputs:

- A booklet on “Supporting SDGs with geospatial disaggregation and aggregation – examples and good practices”:

- A technical guideline on ‘geospatial disaggregation and aggregation for supporting SDGs”:
The booklet may be organized like this:

select about 10-12 good practices or exemplars from different regions from the world by the task stream members
The booklet may be organized like this:

demonstrate how SDG indicators can be disaggregated from a geographic location perspective.
A call for best practices will be sent or circulated to member nations, UN organizations and other invited experts.

- The targeted readers include the IAEG-SDG, decision makers, statistical professionals and even citizens.
Geospatial disaggregation and aggregation for supporting SDGs

- It will present the concepts and methodologies for implementing disaggregation by geographic location and aggregation of geocoded unit level data for SDGs indicators measuring, analysis and monitoring.

- The target readers include the IAEG-SDG and statistical professionals.
A draft content

1 Introduction
   1.1 Needs of Data Disaggregation and Aggregation for SDG
   1.2 Multiplicity and Diversity of Data for SDG

2 Data preprocessing
   2.1 Unification of Space-Time Reference Framework
   2.2 Geocoding of Statistical data
   2.3 Normalization of Statistical data

3 Disaggregation for SDG
   3.1 Interpolation with Area/Distance Weighting
   3.2 Dasymetric Disaggregation
   3.3 Stochastic Allocation

4. Aggregation for SDG
   4.1 Classification/Clustering
   4.2 Interpolation/Resampling
   4.3 Simplification/Typification
   4.4 Smoothing/Filtering
A draft content

5 tools/resources
   5.1 Software tools
   5.2 Available resources

6. Examples and Recommendations
   6.1 Selected examples
   6.2 Recommendations

References
Content

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Summary
**Invite Experts**

This task stream will be participated by members from IAEG-SDGs: WGGI and invited international experts. A close collaboration will be established with the UN-GGIM Expert Group on Integration of Statistical and Geospatial Information

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<th>Names</th>
<th>Society</th>
<th>Affiliation and Correspondence</th>
<th>Expected contribution</th>
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<tbody>
<tr>
<td>1</td>
<td>Zhilin Li</td>
<td>ISPRS</td>
<td>Professor, Hong Kong Polytechnic University</td>
<td>the state-of-the-art of geospatial disaggregation and aggregation; new approaches;</td>
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<tr>
<td>2</td>
<td>Sisi Zlatanova</td>
<td>ISPRS</td>
<td>Professor, Melbourne University</td>
<td>Aggregation and disaggregation of urban and mobile data</td>
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<tr>
<td>3</td>
<td>Songnian Li</td>
<td>ISPRS</td>
<td>Professor, Rayson University</td>
<td>Geospatial knowledge portal and technical guideline</td>
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<tr>
<td>4</td>
<td>Monica Sester</td>
<td>ICA</td>
<td>Professor, Hannover University, Germany</td>
<td>Aggregation and disaggregation of maps and land cover data</td>
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<tr>
<td>5</td>
<td>Robert Weibel</td>
<td>ICA</td>
<td>Professor, Department of Geography, University of Zurich</td>
<td>Aggregation of map and other geographical data</td>
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<td>6</td>
<td>Liqiu Meng</td>
<td>ICA</td>
<td>Prof. Munich Tech. Uni., Germany</td>
<td>disaggregation for Population data</td>
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<td>7</td>
<td>Andrew J Tatem</td>
<td>IGU</td>
<td>Professor, Uni. of Southampton, UK</td>
<td>disaggregation for Population data</td>
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<td>8</td>
<td>Giles Foody</td>
<td>IGU</td>
<td>Professor, University of Nottingham</td>
<td>Super-resolution of image data</td>
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<td>9</td>
<td>Martin Brady</td>
<td></td>
<td>Australian Bureau of Statistics, Canberra, Australia</td>
<td>Integrating with Global Statistical Geospatial Framework</td>
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<td>10</td>
<td>Xuesheng Zhao</td>
<td></td>
<td>Prof. China University of Mining &amp; Technology, Beijing</td>
<td>Global discrete grids and rural/ urban disaggregation</td>
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<tr>
<td>11</td>
<td>Yungang Hu</td>
<td></td>
<td>Associate professor, Beijing University of Civil Engineering and Architecture</td>
<td>Disaggregation for roads and transportation networks</td>
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Preliminary Plan

- 2018 Dec: Send out call for good practices/ exemplars, start preparations for a booklet
- 2019 April: Organize a Tele-mtg to discuss the conceptual framework, select the good practices, and prepare the draft technical guideline
- 2019 Aug: Organize a workshop in Chile or China, discuss the Booklet and the technical guideline
- 2019 Nov: Summaries and prepare a report to IAEG-SDGs
Content

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Summary
Geospatial disaggregation and aggregation plays an important role in supporting SDG indicators measuring, analysis and monitoring.

The new task stream of IAEG-SDGs:WGGI plans to develop and deliver two outputs, i.e., one booklet and one technical guideline.

You are welcome to join us in providing your expertise and good practices, and editing the booklet and guideline!
Thanks you and welcome to the session

16:00- 17:30, Today

Moganshan Hall

Measuring Deqing’s Progress towards 2030 SDGs

using Geospatial and Statistical information