Global Geospatial Information Management (UN-GGIM)

UN-GGIM Academic Network
Annual Report

(September 2020 - August 2021)

July 9, 2021

Message from Chair

Despite the COVID pandemic, the activity of the Network has been very relevant in the last year. The second part of 2020 was mainly devoted to administrative procedures, specifically the elections of the new Executive Committee and Advisory Board. The beginning of 2021 was marked by the handover and the identification of the new representatives of the Network in all the bodies of the UN-GGIM. The response of the members to the request for cooperation was enthusiastic, especially in some working groups, such as that on Geospatial Information and Services for Disasters.

The Executive Committee, with the support of the Advisory Board, has worked on revising the Network's Terms of Reference (ToR), based on the previous one but taking into account the experience gained over the last few years. The new ToR is attached to this report. One of the most relevant points was the inclusion of a new category of membership, which was called associate member. The associate member is an recognized, non-academic/research entities (e.g., academic publishers and education divisions/centers of companies), who wishes to participate in and/or contribute to the Network and whose business or operation is relevant to the aspects of education and research in the areas of interest of the UN-GGIM, with an established track record. The main purpose of this new category of members is to be inclusive with respect to external contributions and increase the collaboration of the Network outside the Academia.

While revising the new ToR, the Executive Committee worked on updating the website and developing some procedures that are more efficient, such as the voting procedure for new members. A shared repository and a shared email address among the members of the Executive Committee have also been defined for easier documentation management. When there are new elections and therefore a new Executive Committee, it will be easier to be able to pass all the documentation to the next governance.

The pandemic accustomed the members of the Network to meet remotely and therefore there was no difficulty in setting up a monthly meeting among the members of the Executive Committee, the Advisory Board, and the Representatives of the Regional Committees. In the future, it is expected to have extended meetings also to all interested members of the Network.

Despite the more complex situation due to the pandemic, all the commitments planned for the current year have been continued. In particular, two books have been published and three initiatives, which have seen the involvement of various members of the Network, have been developed to support the activities of the United Nations.

All these actions were possible thanks to the commitment and continuous activities of the members of the Network, the Advisory Board members and the Regional Representatives. I would like to express my gratitude to them for their valuable contributions.

Maria Antonia Brovelli
Chair, UN-GGIM Academic Network, July 2021

Meetings and Administration

Election of the new UN-GGIM Academic Network governance bodies has occurred in November 2020, and, as a result, the new officers and board members for January 2021 - December 2022 are as follows:

EXECUTIVE COMMITTEE:

CHAIR: Maria Antonia Brovelli, Politecnico di Milano, Italy
DEPUTY CHAIR: Songnian Li, Ryerson University, Canada
SECRETARY: Ivana Ivánová, Curtin University, Australia

ADVISORY BOARD:

Cheryl Desha, Griffith University, Australia
Georg Gartner, Vienna University of Technology, Austria
Menno-Jan Kraak, University of Twente/ITC, Netherlands
Jonathan Li, University of Waterloo, Canada
Abbas Rajabifard, University of Melbourne, Australia (Immediate Past President)
Michael Starek, Texas A&M University - Corpus Christi, USA
Huayi Wu, Wuhan University, China

REGIONAL REPRESENTATIVES:

AFRICA: Serena Coetzee, University of Pretoria, South Africa
AMERICAS: Rosario Casanova, Universidad de la República, Uruguay
ASIA-PACIFIC: Huayi Wu, Wuhan University, China
EUROPE: Joep Crompvoets, Katholieke Universiteit Leuven, Belgium

GOVERNANCE OPERATION (January - June 2021):

The newly elected Executive Committee commenced its activities in January 2021 with transition of the governance from the previous team, including creating a sustainable workspace for the Network and updating and restructuring the Network's website.

The Executive Committee has revised Network's Terms of Reference. Updated Terms of Reference were endorsed by the members of the Network's Advisory Board, and the document was reviewed by the UN-GGIM Secretariat. One important change made to the ToRs in this revision is the introduction of the new membership category, i.e., Associate Member. The new category will allow non-academic entities such as R&D divisions of companies, non-for-profit organizations, NGOs, etc. to participate in the Academic Network.

UN-GGIM Academic Network's Executive Team, Advisory Board and Regional Representatives virtually meet monthly.

Membership

Currently, the Network has 55 members from 34 different countries (see a map of member distribution in Figure 1). The details of the members are available on the Network [website](). Since August 2020, the network has admitted four new members: Lund University, University of Winnipeg, Polytechnic University of Valencia, and approval of two applications are currently pending.

Figure 1. Geographical distribution of the current Network members

In March 2021, the Executive Committee invited members to volunteer as the Network's representatives in other UN-GGIM bodies and working groups. The response from members was overwhelmingly positive – see in Appendix the list of current Network's representatives in each UN-GGIM body or working group.

Activities

PARTICIPATION IN UN-GGIM EVENTS

UN-GGIM Events were communicated to all members of the Network and a large participation was seen in the events. The Advisory Board member is currently working in organizing the Side Event of the Eleventh Session. It will be focused on Education and Capacity Building with a panel involving both members of the Academic Network and Experts on Global Geospatial Information Management (Regional Committees, Working Groups, and Thematic Networks).

CADASTRAL TEMPLATE 2.0 AND SUSTAINABLE DEVELOPMENT

The "Cadastral Template 2.0" is a platform developed by the University of Melbourne Centre for SDIs and Land administration (CSDILA), a member of the UN-GGIM Academic Network, in collaboration with FIG-Commission 7 (a member of UN-GGIM Geospatial Societies) and was initially established under UN mandate by Resolution 4 of the UN-GGIM AP (previously UNRCC-AP) in Okinawa, Japan in 2003. In 2018 with an offer from the Academic Network, UN-GGIM has acknowledged and adopted this platform as a valuable global resource to assist UN-GGIM activities. The cadastral template platform placed the country land and cadastre information that offers comparative analysis tools to measure and indicate country performance in cadastre and land information in comparison with other countries, to assist country growth. Currently the platform provides the data collected over 50 countries.

As a result of the adoption action of the cadastral template platform by the UN-GGIM, the Academic Network as part of its work plan 2019-2022, has defined a research project to investigate and discuss global trends in land tenure registration and advancement in cadastre and land information modernization, to propose effective national and global solutions with an emphasis on implementation of the UN-SDGs. The project is a spatial data foundation for sustainable development and the significant role of land information to facilitate the SDGs. Because of the COVID pandemic situation, the project has started in late 2020 and is currently at its design methodology and formulation of indicators that are in line with UN-SDGs goals to conduct a global survey during 2021-2022.

UN-GGIM INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK (IGIF)

Several members of the Network contributed to the creation and consultation of UN-GGIM Integrated Geospatial Information Framework (IGIF), and organized and/or actively participated in outreach activities related to IGIF between 2020 and 2021.

GEOSPATIAL RESEARCH AND INNOVATION IN IMPLEMENTING SDGS

As part of work plan 2019-2022, the Academic Network has defined a research project to Leveraging spatial data infrastructure and integrated analytical platform to support implementation, benchmarking, measuring and monitoring the SDG indicators. This research project is investigating the challenges in effective and sustained access to digital technology, the Internet of Things (IoT), to the provision and exploitation of new data needs, information systems, analytics and associated enabling tools, and technologies to support the timely and reliable implementation and monitoring of the progress in SDGs. The activities and benefits of the project include:
- Enhancing the methodologies and implementation frameworks to support evidence-based policy making towards achieving the SDGs
- Formalizing reusable geospatial tools for producing the SDG indicators, enabling benchmarking and comparison
- Designing a dynamic platform rather than available static dashboards
- Supporting national and local jurisdiction to improve their current static monitoring dashboards
- Assisting governments to predict the future trends of SDG indicators.

UN OPEN GIS INITIATIVE

The UN Open GIS Initiative is a Partnership Initiative led by the United Nations Geospatial Operations. The Initiative, established in March 2016, is supported by several UN Member States, UN Field Missions, UN Agencies, and technology-contributing partners (international organizations, academia, NGOs, and the private sector), and takes full advantage of their expertise. The aim is the creation of an extended spatial data infrastructure that meets the requirements of the UN Secretariat (including UN field missions and regional commissions), and then expands to UN agencies, UN operating partners and developing countries. Contribution of the Academic Network members are summarized as follows:

● Several members active in the OSGeo's UN Initiative, which organizes online training for the UN, staff on open source technologies, specifically on PostGIS and QGIS.
● Development of a training course on advanced QGIS functionalities https://qgis3-10-geoanalysis-un.readthedocs.io/en/latest/.
● Organization of challenges to produce new education material (supported by OSGeo) https://www.osgeo.org/foundation-news/2021-osgeo-un-committee-educational-challenge/.
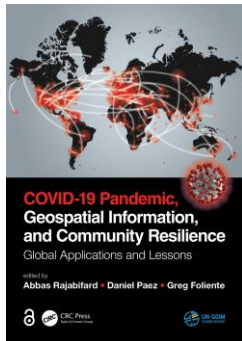

● Organization with the UN Global Pulse, Food and Agriculture Organization (FAO) of an open consultation to share current UN activities and aspirations in the field of Geo-AI; share non-UN research and operations in the use of Geo-AI; gather feedback from the various stakeholders present on priorities, partnerships and collaborations in the Geo-AI space; and determine potential collaborations between communities of practice to promote and further support UN-system operational response.

The consultation report is available as an open document at: https://www.unglobalpulse.org/wp-content/uploads/2020/11/UNOpenGIS_WG5_report_final.pdf

● Organization with ITU and within the AI For Good Global Summit of a workshop on "Satellite data analysis and Machine Learning classification with QGIS". The workshop, divided in two parts, was made available later on YouTube. Some statistics of the workshop are available in the table below.

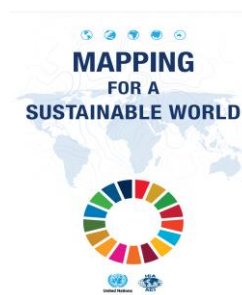| Part	Unique Attendee	Unique views (20 June 2021)	YouTube Video link	Users' satisfaction
1	1347	2053	https://www.youtube.com/watch?v=DLeG0Z3al9I	72 %
2	896	491	https://www.youtube.com/watch?v=8b5fPxN6qQ4	73 %

BOOKS

The book "Rajabifard, A., Foliente, G., & Paez, D. (2021). COVID-19 Pandemic, Geospatial Information, and Community Resilience: Global Applications and Lessons (1st Ed.). CRC Press**"** was published on 10 June 202.

It collects many contributions of members of the network in response to the pandemic challenge. It provides multi-sectorial expertise on the use of geospatial information and location intelligence to support community resilience and authorities to manage such situations.

It is available as Open Book (Creative Commons, CC BY-NC-ND) at https://www.taylorfrancis.com/books/oa-edit/10.1201/9781003181590/covid-19-pandemic-geospatial-information-community-resilience-abbas-rajabifard-greg-foliente-daniel-paez

The book "Kraak MJ, RE Roth, B Ricker, A Kagawa, and G Le Sourd. 2020. Mapping for a Sustainable World. The United Nations: New York, NY (USA)**"**, a co-publication by the United Nations and the International Cartographic Association, was presented on the International Day of Education (24 January 2021). The book has an editorial team comprising writers from the International Cartographic Association (ICA) and the Geospatial Information Section of the United Nations (UN). It is published as an open access document (CC-BY-NC license). The pdf-version of the book can be downloaded from the page accessible via the following link https://www.un.org/geospatial/programmes.

Communications and Promotion

The UN-GGIM Academic Network communicates with members from a newly set-up email account: unggim.academicnetwork@gmail.com.

Information about member news and interesting events are posted on Network's website: http://unggim.academicnetwork.org/newsevents/

Members are regularly promoting the UN-GGIM Academic Network and its activities via their networks - for example, there was a presentation about Network's activities at UN-GGIM Asia Pacific Extended Bureau meeting in May 2021, Economic Commission for Africa at the 6th meeting of UN-GGIM Africa in December 2020, and at the 52nd ISO/TC211 Plenary Meeting in June 2021.

Future Plan

One of the main missions of the UN-GGIM Academic Network is education and capacity building. The pandemic has obliged us to consider new ways of teaching and we can think of reusing what

we learned in the last months also for reaching a wider floor, pushing ahead the knowledge in the geo-spatial domain. The network started already discussing both educational platforms/repositories/courses and the necessity of considering also new topics which are overwhelmingly emerging also in the geospatial world. One possible contribution is therefore to issue a white paper on innovation in the global geospatial education, considering both the means and the content.

The following is a list of activities the Network has planned for the year 2021-2022, besides continuing the long-term initiatives already active in the previous year:

- Workshop on the Development of High-education in Geospatial Information: the workshop will be open to all members and associate members of the Network but also open to other participants. The plan is to organize it in-person, if the pandemic situation allows. The expected time is later 2021 or early 2022.

- Biennial General Meeting (BGM): this meeting aims at gathering the Network members to discuss important issues concerned by the entire network membership. BGM will be held right before the next UN-GGIM Session (June/July 2022).

The Network will further strengthen the relationships and cooperation of the Network's members with the other bodies of UN-GGIM, for instance collaborating in pilot projects with the Private Sector Network.

Appendix: Table of UN-GGIM Academic Network's delegates to other UN-GGIM functions or working groups.

UN-GGIM Africa		
Maria Antonia Brovelli	Politecnico di Milano	maria.brovelli@polimi.it
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Paul Box	CSIRO	paul.j.box@csiro.au
UN-GGIM Inter-Agency and Expert Group on Sustainable Development Goals Indicators (IAEG-SDGs)		
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UN-GGIM Private Sector Network		
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UN-GGIM Working Group on Geospatial Information and Services for Disasters		
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UN-GGIM Subcommittee on Geodesy (formerly WG on Global Geodetic Reference Frame)		
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