

Global Geospatial Information Management (UN-GGIM)

Annual Report June 2019 - June 2020

June 2020



MESSAGE FROM CHAIR

As the Chair of the UN-GGIM Academic Network, I would like to present this annual report on the activities of the Network during June 2019 to June 2020.

Major highlights are:

- The development of an Online Training Platform (OTP) presented its final report (December 2019) and recommendations for implementing the Platform in 2020.
- In response to COVID-19, the Academic Network released in May 2020, a call for contributions to an Open Access book called **COVID** -19: Geospatial Information and Community Resilience. This book aims to provide UN-GGIM member states, leading professionals and academic practitioners the opportunity to combine their observations, research, and best practices in their jurisdictions and organizations that are relevant to professional lines of work or supporting training and teaching modules focusing on COVID-19 applications. We have received very positive support for this project, and the book will be ready by November 2020.
- The co-organization of UN GGIM Virtual Geospatial Summit 2020 GIS response to Covid-19 (April 2020)
- The Academic Network held 4 online extended advisory board meetings, and an emergency meeting to address members' concerns and provide support during the current COVID-19 Pandemic (April 2020).
- Academic Network has met with UN-GGIM UN Network members to discuss collaboration and joint development programs and projects.
- Launch of the Book "Sustainable Development Goals Connectivity Dilemma" during the UNGGIM expert meeting in New York (August 2019).
- Refreshed the look of our website as part of the implementation of the communication strategy (September 2019).
- Participation in the discussions of the UNGGIM Asia Pacific regional meeting in Canberra (Australia) in November 2019.
- Participation in the discussions of the UNGGIM Europe regional meeting in Brussels (Belgium) in June 2019.
- Conducted a nomination process (September 2019) for Academic Network delegates to all UNGGIM bodies and electronic introductions were provided to all chairs of these bodies with the names and contact details of the delegates (December 2019).
- During this last year, the Academic Network increased its membership in more than 20%. Today we have 47 active members, and now we have participation of universities and research centres from all continents and regions in the globe.
- Throughout the year, the Academic Network had participation in most of the geospatial conferences and event around the globe.

We are on track to achieve goals proposed for the 2019-2021 Academic Network plan. The COVID-19 pandemic has re-enforced the need of better resilience in all areas identified by the Sustainable Development Goals (SDGs). As a supportive entity of UNGGIM, we are committed more than ever to support better collection, management and communication of geospatial information so it promotes a more sustainable world while addressing the social, economic and environmental challenges the pandemic is bringing to the world.

Based on our recent meeting and in addition to those activities in our work plan, the UNGGIM Academic Network will focus in the following areas during the next year (June 2020 - July 20201):

- Foster publications and knowledge around COVID-19 pandemic, particularly related to strategies to improve community resilience using geospatial information
- Continue developing parallel forums during UNGGIM events, including during virtual events
- Conduct a technical workshop around geospatial technologies for pandemics and health during the 2020 FIG Commission 7 online annual meeting (September 2020)
- Take the administrative steps to implement the OTP and explore funding opportunities for it



- Continue expanding the membership, particularly in developing countries and in the Middle East region
- Participate actively in Technical Working Groups, Regional Groups and sub-committees on UN-GGIM and receive reports from the delegates of activities and developments relevant to the Academic Network.

All these actions were possible thanks to the dedicated effort of the volunteers. In this, I want to express my gratitude to the volunteers of the OTP taskforce for their valuable contribution.

Prof. Abbas Rajabifard Chair, UN-GGIM Academic Network June 2020



MEETINGS AND FORMAL ADMINISTRATION PROCESSES DURING THE LAST YEAR

During the 2019-2020 year, the Academic Network Executive Committee and Advisory Board held several meetings and communicated via email for different activities related to the Network. These meetings allow us to address critical technical matters, such as our future working plan, as well as administrative tasks, including membership applications. All meetings were conducted online, and a recording of the meeting is available for review.

The following table shows the details of the main meetings conducted:

Main Matters Discussed
Chair Report Response strategies Report from multiple regions Ideas for a publication Other businesses
President report Work Plan 2019-2021 Training hub UN Open GIS Training Other business (everyone)
Opportunities for cooperation Work plan Common initiatives
Taskforce objective Vision Strategies and structures

Additionally, the Executive Committee had multiple meetings to address key administrative issues as well as the implementation of the communication strategy, mainly the website, and attendance of a representative at different UNGGIM meetings. The Chair, Deputy Chair and the Secretary regularly meet to plan activities and complete administrative tasks.

MEMBERSHIP

Increasing our membership is a crucial element of success for the Academic Network. According to the ToR, the members of the Network are comprised of relevant universities, academic institutions or research centres where geospatial information research and education are accomplished, and these interested members want to collaborate with UN-GGIM and contribute to the Academic Network voluntarily.

Currently, the Academic Network has over 47 members. In the past year, 8 new institutions join the network, representing an increase during this period members from all continents (this includes members of the Executive and the Advisory Board). This coverage allows the Academic Network to



serve the needs of UN-GGIM global issues properly, as well as provide advice and support to regional and technical matters.

The members of the Academic Network (as per June 2020) are:

Antigua & Barbuda	Institute of Technology	Mr Michael Charles
5	0	Prof. Dr. Daniel Del Cogliano & Dra.
Argentina	Universidad Nacional de La Plata	Alejandra Mabel Geraldi
8		
	Commonwealth Scientific and	
A stuff.	Industrial Research Organisation	
Australia	(CSIRO)	Mr. Paul Box
Australia	Griffith University	Prof. Cherly Desha
Australia	University of Melbourne	Prof. Abbas Rajabifard
Austria	University of Salzburg	Prof. Josef Strobl
	Vienna University of Technology (TU	
Austria	<u>Wien)</u>	Prof. Georg Gartner
	Katholieke Universiteit Leuven (KU	
Belgium	Leuven)	Prof. Joep Crompvoets
Brazil	University of Brasilia	José Leandro de Araújo Conceição
	Ecole Superieure Polytechnique de la	
Burkina Faso	Jeunesse	Prof. TRAORE Sekou
Canada	Ryerson University	Dr. Songnian Li
Canada	University of New Brunswick	Prof. David Coleman
Canada	University of Waterloo	Prof. Jonathan Li
Chile	University of Santiago	Prof. Ricardo Crespo
China	Southwest Jiaotong University	Prof. Saied Pirasteh
China	Wuhan University	Prof. Huayi Wu
Colombia	University of Los Andes	Prof. Daniel Paez
Denmark	Aalborg University Copenhagen	Prof. Jamal Jokar Arsanjani
Germany	University of Münster	Prof. Christoph Brox



	National Technical University of	Prof. Chryssy Potsiou & Prof.
Greece	Athens	Charalabos Ioannidis
Italy	<u>CNR IREA</u>	Prof. Paola Carrara
Italy	Roma Tre University	Dr Roberto Bianchini
Italy	Politecnico di Milano	Prof. Maria Antonia Brovelli
Kazakhstan	The Institute of Geography	Prof. Dinara Abiyeva
	Kyrgyz State University of	
	Construction, Transport and	
Kyrgyzstan	Architecture	Dr Akylbek Chymyrov
Malaysia	Geomatika University College	Prof. Mohd Firdaus
Malaysia	Universiti Putra Malaysia (UPM)	Prof. Helmi Zulhaidi Mohd Shafri
	Geography Institute – The National	
Mexico	Autonomous Univ	Prof. Jorge Prado Molina
Netherlands	University of Twente	Prof. Menno-Jan Kraak
Nigeria	Obafemi Awolowo University	Prof. Jide Kufoniyi
Nigeria	University of Lagos	Prof. Muyiwa Agunbiade
INIGEIIa		1101. Wuyiwa Agunolade
	NOVA Information Management	
Portugal	School	Prof. Marco Painho
Serbia	University of Novi Sad	Prof. Miro Govedarica
South Africa	University of Pretoria	Prof. Serena Coetzee
Trinidad and Tobago	The University of the West Indies	Prof. Bheshem Ramlal
UAE	Khalifa University	Dr. Marouane Temimi
UK	Taylor and Francis Group	Mrs.Irma Britton
USA	Texas A&M University-Corpus Christi	Prof. Gary Jeffress
USA	Harvard University	Prof. Wendy Guan
USA	University of Alabama	Dr Johanna Engström
USA	University of California, Berkeley	Dr Charlotte Smith



USA	University of Maine	Prof. Harlan Onsrud
Ukraine	<u>KNUBA – Kyiv National University</u>	Prof. Roman Shults
Uruguay	University of the Republic	Prof. Rosario Casanova
Vietnam	<u>FIMO – Vietnam National University</u>	Prof. Bui Quang Hung

Open Access Book on COVID -19: Geospatial Information and Community Resilience



In response to COVID-19, and while global communities and businesses are trying to respond to the COVID-19 pandemic, the Academic Network is working on an Open Access book called COVID -19: Geospatial Information and Community Resilience. This book aims to provide UN-GGIM member states, leading professionals and academic practitioners the opportunity to combine their observations, research, and best practices in their jurisdictions and organizations that are relevant to professional lines of work or supporting training and teaching modules focusing on COVID-19 applications.

The location information, mapping and GIS tools are widely used by health departments, safety and emergency

management authorities and wider professionals around the world for gathering and analyzing data to support informed decisions. The use of location intelligence and GIS for understanding this outbreak and its relationship to infrastructure, population, businesses and other location-based information, requires both a clear understanding of the relevant geospatial principles and the relevant aspects of data monitoring, planning and mapping. This book aims at covering these disciplinary intersections that happen when GIS and location intelligence are used in action to respond to the crises and plans for recovery. The experiences and the information included in this book will be a learning tool for communities to being prepared, making the right decisions, and keeping informed to be able to improve community resilience and respond to future crisis. The book takes advantage on the huge commitment of several members of the Network in contributing to the Covid-19 response in their countries (with dashboards, analyses, geospatial data in support to the analyses).

Since the announcement of this initiative by the Academic Network, we have received a very positive response from multiple communities for this project, and the plan is for the publication and launch of the book in November 2020.

Virtual Geospatial Summit 2020 - GIS RESPONSE to COVID -19



Co-organization of the event held April, 8 2020 and chairing of the session 1: GIS data to support response to COVID-19 (Prof. Rosario Casanova). Presentation of the Italian Case by one member of the Network (Prof. Brovelli).



COMMUNICATIONS AND PROMOTION

Presentation of the book on geospatial roles and SDGs Roadmap



In line with UN-GGIM capacity building and awareness directions, and as a result of the outcomes of the Academic Network three International Forums as part of UN-GGIM major events over the last 2 years (2017-2018), the Academic Network is working on a book on "SDGs Connectivity Dilemma: Land and Geospatial Information for Urban and Rural Resilience". This book has been launched during the 9th Meeting of experts in NYC (August 2019), and since then, it has received significant publicity and acknowledgments by different sectors.

New website

During the last year, a refreshed of the look of the website was conducted. The website has proven to be an invaluable tool to connect members and disseminate information about the Network activities and at the same time, an essential tool to conduct key administrate tasks such as accepting new submissions.

In order to facilitate membership, engage and share material with the broader geospatial community, the Academic Network website is available in 4 languages: **English, French, Spanish and Arabic**.

Enabling Earth Observation Systems for Natural Hazards and Disasters: Accelerating SDGs2030 Implementation

A Special Issue of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing-Special Issue was proposed by members of the Network. Title: Enabling Earth Observation Systems for Natural Hazards and Disasters: Accelerating SDGs 2030 Implementation. The Special Issue was approved by the IEEE committee to be published. The editors Guest are Proff. Pirasteh, Starek, Brovelli, Coetzee, Li, Rajabifard.

http://www.grss-ieee.org/wp-content/uploads/2020/03/Call_for_Paper_SDGs2030.pdf

Participation in the UNGGIM Asia Pacific Regional meeting (Canberra - Australia)

Members of the Academic Network (including Professor Abbas Rajabifard, A/Prof Daniel Paez, Prof Gary Jeffress) attended the 9th meeting of the UNGGIM Asia-Pacific region in Canberra during November 2019.





During this meeting, we had the opportunity to present during the Working group 2 (Cadastre and Land Management) and discussed some of the development of our network including the recent publication of the SDG book, developments on a training platform and previous and future upcoming events. Attached copy of the presentation delivered during the meeting.

For our Academic Network, one of the main messages for the meeting is to support the implementation and delivered of Integrated Geospatial Information Framework (IGIF). In particular, the development of Framework for Effective Land Administration (FELA) - a subset of guidelines for IGIF, will be further developed in the coming months and the Network has been invited to participate in the discussions.

Additionally, and relevant to our Networks, FIG Commission 7 and the Working Party of Land Administration (WPLA) has invited us to participate in a task force for the development of principles for implementing land administration public-private partnerships (land PPPs) that support the achievement of the SDGs.

UN Open GIS Initiative

The UN Open GIS Initiative is an ongoing Partnership Initiative for Technology in Peacekeeping of the United Nations Department of Operational Support. The UN Open GIS Initiative aims to identify and develop an Open Source GIS bundle that meets the requirements of UN operations for both peace-building and peace-keeping. This significant undertaking is supported by mission partners (Member States, technology contributing countries, international organizations, academia, NGOs, and the private sector) with taking full advantage of their expertise. The UN Open GIS Initiative strategy shall collaboratively and cooperatively develop, validate, assess, migrate, and implement sound technical capabilities with all the appropriate documentation and training that in the end provides a united effort to improve the effectiveness and efficiency of utilizing Open Source GIS around the world.



UN Open GIS Initiative has an Education Working Group, where colleagues of various universities, like Ivana Ivanova (from Curtin University), Serena Coetzee (University of Pretoria) and Maria Brovelli (Politecnico di Milano) contribute providing training and support in building training material for UN staff. The platform used for training is that of Politecnico di Milano. Maria Brovelli is one a co-chair of the UN Open GIS Initiative.

UNECE Guidelines for the formalization of informal constructions

On the 17th of June 2020, UNECE organizes an online Workshop on "Formalizing the Informal to Protect Residents in Informal Settlements", this workshop looks at the situation of informal settlements in the pan-European region. It includes recommendations for protecting residents in informal settlements during the pandemic. UNECE and the Working Party on Land Administration (WPLA) will launch the UNECE Guidelines for the formalization of informal constructions during this online Workshop. Case studies from the region will illustrate how such a formalization process can be implemented. The Guidelines were developed jointly by UNECE and the International Federation of Surveyors. Some members of the Network (Prof. Chryssy Potsiou) contributed to the Guidelines.

Participation on UNGGIM events and other international geospatial conferences and seminars

During the last year (June 2019 - June 2020) the Academic Network had a strong presence in all UNGGIM events. Participation in international geospatial conferences and forums were also significantly notorious.

The following table summarises the events that members of the Network attended:

Month	Event	Member attending
June 2019	EOEC-GiT4NDM 2019, Chengdu, China. AN- UNGGIM was one of the knowledge partners. This event was conducted on June 24-26.	Southwest Jiaotong University
	6th Plenary meeting of UN-GGIM Europe (Brussels, 5-6 June)	Katholieke Universiteit Leuven
July 2019	GI4SDG, ISPRS and GEO Workshop on Geospatially enabled SDGs Monitoring for the 2030 Agenda, Changsha (China), Nov 2019	Multiple
A u g u s t 2019	FOSS4G 2019 - Academic Track - Presentation of activities related to the UN Open GIS Initiative (http://unopengis.org/unopengis/main/main.php) (26-30 August 2019)	Politecnico Di Milano, University of Pretoria



Septembe r 2019	Jalisco Forum for the Construction of a New Water Management Law	Berkeley University
	International Forum of Science and Engineering Students	
	Americas Geospatial Forum	
	Organiser of Academia-Business cooperation survey workshop (Sarajevo, Bosnia & amp; Herzegovina, 3 September 2019, ± 50 participants from academia or companies from Western Balkan). Active participation to Western Balkan Regional Cadastre/ SDI conference, Neum, Bosnia & Herzegovina, 3 September 2019)	Katholieke Universiteit Leuven
	Seminar Digitally enabled development engaging stakeholders in Eastern Europe for a sustainable future (Vrdnik, Serbia, 18-20 September 2019)	Texas A&M
	4th online meeting (Skype Business - 23 September 2019) of the Expert Group on Land Administration and Management Information as Academic Network representative.	
October 2019	Active participation to European Forum for Geography and Statistics Conference 2019	Katholieke Universiteit Leuven
	(Manchester, UK, 10-11 October 2019)	
November 2019	GI4SDG, ISPRS and GEO Workshop on Geospatially enabled SDGs Monitoring for the 2030 Agenda, Changsha (China)	Multiple
	International Cartographic Conference 2019 Tokyo, China Geospatial Week Wuhan 2019	Multiple
	Sixth Session of UN-GGIM: Americas	Berkeley
	Academic Network at 135 th Board of Delegates meetings of EuroSDR (Nicosia, Cyprus, 13-15 November 2019)	Katholieke Universiteit Leuven
	The Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific (UN-GGIM-AP)	Multiple
December 2020	Talent Yong Conference Dec 6, 2019, Chengdu, China	Southwest Jiaotong University`
2020	Organiser of Interoperability Academy Winterschool (Leuven, Belgium, 11-13 December 2019)	Katholieke Universiteit Leuven



April 2020	Virtual Geospatial Summit 2020 - GIS response to Covid-19 (8 April 2020) - Presentation of the Italian situation in the Session: GIS Data to support response to Covid-19 (GIS DATA TO SUPPORT RESPONSE TO COVID-19: THE ITALIAN CASE) GIS- Latam	University of the Republic (Uruguay), Politecnico Di Milano
		Berkeley
May 2020	UN-GGIM Extended Bureau Virtual Meeting	The AN Chair, University of Melbourne and University of Twente
May 2020	Virtual High-level Forum Events on United Nations Global Geospatial Centre for Geographic Analysis, Harvard University hosted a Virtual Forum: Responding to the Covid-19 Pandemic with Geospatial Research and Applications on May 1st.	Multiple Harvard University
	Virtual Jamaica Geospatial Forum - Mapping Covid-19 in the Caribbean, Opportunities for the Future - Presentation of the Italian second phase in the Session: Country Perspectives: Covid Impacts and Future Plans (Some analyses of the Covid-19 in Italy)	Politecnico Di Milano

Introduction to delegates to UNGGIM bodies

In order to fulfil the mission of an advisory body to UNGGIM, the Academic Network has delegates on each of the UNGGIM bodies. In December 2019, the chair of the Network sent introductory messages to the chairs of all UN-GHIM entities with the contact details of all delegate members from the Academic Network. The table below shows current representatives as of June 2020:

Body	AN Delegates
UNGGIM Asia-Pacific	Abbas RajabifardHuayi Wu
UNGGIM Americas	 Rosario Casanova Johanna Engström Charlotte Smith



UNGGIM Arab States	Marouane Temimi
UNGGIM Europe	 Maria Brovelli Joep Crompvoets Miro Govedarica
UNGGIM Africa	Serena CoetzeeJide Kufoniyi
Subcommittee on Geodesy (formerly WG on Global Geodetic Reference Frame)	Akylbek ChymyrovRiccardo Barzaghi
Expert Group on the Integration of Statistical and Geospatial Information	Jamal JokarEdzer PebesmaHuayi Wu
Expert Group on Land Administration and Management	Chryssy PotsiouJoep CrompvoetsMiro Govedarica
Working Group on Development of a Statement of Shared Principles for the Management of Geospatial Information	• Daniel Paez
Working Group on Trends in National Institutional Arrangements in Geospatial Information Management	Joep CrompvoetsBheshem Ramlal
Working Group on Geospatial Information and Services for Disasters	 Abbas Rajabifard Akylbek Chymyrov Maria Brovelli Chryssy Potsiou Songnian Li Marco Painho Huayi Wu
Working Group on Global Fundamental Geospatial Data Themes	Serena CoetzeeJide Kufoniyi
Working Group on Legal and Policy Frameworks for Geospatial Information Management	 Joep Crompvoets Babis Ioannidis Bheshem Ramlal Jide Kufoniyi
Working Group on Marine Geospatial Information	Gary JeffressMichael Starek (TAMU-CC)
Inter-Agency and Expert Group on Sustainable Development Goals Indicators (IAEG-SDGs) - Working Group on Geospatial Information	 Jamal Jokar Georg Gartner Babis Ioannidis Songnian Li Menno-Jan Kraak
UNGGIM Private Sector Network	Antonio Medrano
UN-GGIM Coalition of Geospatial Societies	Daniel PaezMenno-Jan Kraak



ONLINE TRAINING PLATFORM - TASKFORCE

After discussions between members of the AN Executives and leading representatives of America's subsidiary Ricardo Crespo and Rosario Casanova, the need to form a task force to answer key questions regarding the formation, governance and administration of an Oline Training Platform (OTP) was identified.

During the open meeting of the AN Advisory Committee in March 2019, the formation of the task force was approved, and a group of members volunteered to participate in the task force to be led by Dr Daniel Paez.

The main objective of the task force was to provide to AN executive a high-level design and implementation proposal for the formation of an OTP.

The task force proposed the following vision for the OTP:

In the next 5 years, the OTP will be an entity of the AN focusing on providing (either directly or using existing resources in universities and other training institutions) online training in areas identified by UNGGIM as a priority. The OTP will be a dynamic, financially self-sustain technical platform that offers technical short-term courses in a multi-lingual setting and available worldwide.

the following are answers to all questions given by the Taskforce provided in their final report (December 2019):

- What vision and mission should be established for the OTP?
 - OTP will focus on UNGGIM capacity building needs and use primarily existing resources within AN member to meet these needs
- What existing technologies or platform could be used to implement the OTP?
 - Existing platforms by AN member for short courses. If the course needs to be developed by the OTP, a partnership with existing platforms
- What should be its governance structure?
 - Independent entity with an administrator and a board with the AN executive and two additional AN members
- What Administrative scheme would ensure quality, efficiency and efficacy of the courses to be developed?
 - Using primarily existing courses provided by AN member
 - o Find donors and other institutions to reduce costs to potential students
- Which institution should provide certificates or completion of courses?
 - $\circ~$ If the course is already developed, the AN member is providing the course. Otherwise the OTP
- What possibilities or mechanism exist for funding course development and delivery?
 - $\circ~$ Partnership with AN member for the screening process, donors and government members of UNGGIM



- What relationship it should have with the World Bank-led training centre and other institutions such as FIG, FAO, UNGGIM Private Sector (PV) network and others?
 - Cooperation with these efforts by listing their existing course and support in their delivery and promotion as required.

FUTURE ACTIVITIES

The Academic Network has identified three research projects that will be conducted in 2020-2021, in collaboration with the Network Members, and other UN-GGIM Network and also the FIG Commission 7:

Open Access Book on COVID -19: Geospatial Information and Community Resilience

In response to COVID-19, the Academic Network is working on an Open Access book called COVID -19: Geospatial Information and Community Resilience. This book aims to provide UN-GGIM member states, leading professionals and academic practitioners the opportunity to combine their observations, research, and best practices in their jurisdictions and organizations that are relevant to professional lines of work or supporting training and teaching modules focusing on COVID-19 applications. The Academic Network has received a very positive response from multiple communities for this project, and the book will be ready for publication and launch in November 2020.

Cadastral Template 2.0 and Sustainable Development

Using the data collected over 50 countries, this research project will discuss global trends and propose effective local, national, and global solutions with an emphasis on how Cadastral Template 2.0 can contribute to the implementation of the SDGs. The Cadastral Template is a spatial data foundation for sustainable development and the significant role of land in development will be expanded in this research to facilitate the SDGs.

The Role of Geospatial Research and Innovation in Implementing the SDGs

The Academic Network will identify research areas that will contribute to the analysis and implementation of the SDGs. All Members of the Network will be invited to partake in this research project.

