



FIG Working Week 2024

19–24 May

Accra, Ghana

Your World, Our World: Resilient Environment and Sustainable Resource Management for All



TECHNICAL PROGRAMME BOOK

Organised by



Platinum Sponsors

GEOSA

الهيئة العامة للمساحة
General Authority for Survey
and Geospatial Information



THE SCIENCE OF WHERE™



CONTENTS

Greetings from the Organisers	2
Conference Organisers	5
General Conference Information	7
Conference Theme	10
Conference Venue	12
Programme at a Glance	14
Opening Ceremony	15
Plenary Sessions	16
FIG Corporate Members	21
Technical Tours	22
Pre-Conference Events, FIG Sessions and Partner Sessions	24
Social Programme and Social Tours	27
Conference Sponsors and Supporters	28
FIG Legacy Project	31
Exhibition	32
Technical Programme	34
• Pre-Conference Events (17–19 May)	35
• Overview (by rooms) (20–22 May)	36
• Monday 20 May	38
• Tuesday 21 May	44
• Wednesday 22 May	50
• Thursday 23 May	55
The FIG Foundation & Charity Event	57



Dear Friends and colleagues,

Welcome to the FIG Working Week 2024, and to Accra, the vibrant city known for its rich traditions and immensely rich historical and cultural heritage. This conference is jointly hosted by FIG, Ghana Institution of Surveyors and Licensed Surveyors Association of Ghana.

The overarching theme of the conference “Your world our world: resilient environment and sustainable resource management for all” underscores FIG’s role in connecting surveyors in the land, geospatial, built and natural environments and from different world regions and cultures.

The conference theme draws on sustainability in the context of Planet. This is about making sure we make the best use of land and mineral resources and that our cities and settlements are resilient and adaptive. The environment and nature underpins the functions and health of the planet and thereby the existence and health of human kind. We play a crucial role in shaping our environment and ensuring the responsible use of land and mineral resources.

In our world, the rapid urbanisation and technological advancements have brought unprecedented connectivity. However, this connectivity also introduces new complexity and brings forth new challenges that will shape how we deal with the global agenda for years to come.

The 3-day plenary program is underpinned by SDG13, Climate action, during these days we’ll explore key issues and discuss how good land governance can serve society. Our conference program provides contributions on how to achieve the 2030 sustainable development agenda, leaving no one behind. Further highlighted by the traditional African leader’s plenary that will provide thought leadership on society inclusion in land practices, and their perspective on land governance remaining fit for the future. This discussion will also be continued in a special session.

In your world, the technical program addresses many of the issues facing our surveyors in the immediate and next years, including specific topics from work plans of all ten commissions and their working groups; as well as issues of special interest to the local surveyors; and fundamental questions such as, how to attract young people to our profession. Special sessions have been co-designed with FIG global and regional partners and those led by corporate members.

We are convinced that the scientific, professional, and social program will be very attractive thanks to all the hardworking commission chairs and the Ghanaian national delegates.

The conference, placed in a resort setting, offers not only meeting facilities and also opportunities for social activities and relaxation before or after the working week. Our Ghanaian colleagues have done their very best to contribute to include a Ghanaian flavour in the program.

Once again on behalf of the FIG Council and office, for all of you and especially for our newcomers, I extend to you a warm welcome to our FIG family and FIG Working Week 2024.

Diane A Dumashie
FIG President



Dear Colleagues,

I am delighted to welcome you to the FIG Working Week 2024 in Accra, the capital city of Ghana. Ghanaians and members of the Ghana Institution of Surveyors (GhIS) are honored to share with you the universally-spread African values, our cultural identity that uniquely defines us. We are also honored to showcase the achievements of surveyors in Ghana and the rich Ghanaian culture.

We firmly believe that hosting this prestigious event will expand the horizons of professional surveyors in Ghana, providing opportunities for development and international cooperation. This will be an opportunity for us to exchange ideas, experiences, and innovations, learn from each other, and grow together as a strong professional surveying body.

The FIG 2024 Working Week has been thoughtfully designed to address the theme ‘Your World, Our World: Resilient Environment and Sustainable Resource Management for All.’ Various programs have been outlined for different sessions to address this critical issue facing many countries worldwide, and our sub-region in par-



Dear Colleagues,

The Licensed Surveyors Association of Ghana (LiSAG) warmly welcomes you to the 2024 FIG Working Week in Accra, under the theme “Your World, Our World: Resilient Environment and Sustainable Resource Management for All.”

This historic event marks the first time the FIG Working Week is hosted in Ghana, offering a unique platform to exchange knowledge and shape the future of surveying and land management.

As you immerse yourself in the warmth of Ghanaian hospitality, prepare to be captivated by our diverse culinary offerings, melodious rhythms, and unique traditional dances. Explore the bustling streets of Accra, where modernity meets tradition, and engage with the local community to experience the true essence of Ghanaian culture.

ticular. We are hopeful that by the end of the conference, we would not only highlight the severity of the issue but also emphasize the contribution of surveying in creating sustainable and resilient environmental management mechanisms for our world and societies.

We have been working tirelessly to organize both the professional aspects of the Working Week and the social events. You have the opportunity to experience Accra, the capital city of Ghana, the Ghanaian culture, and hospitality. Please take the time to enjoy the wonderful attractions provided during the social events. Experience the vibrant life of Ghana, its people, culture, cuisine, and visit the places of interest within the city as well as the planned tours outside Accra.

On behalf of the Governing Council and the entire membership of GhIS, I wish you a successful conference and a pleasant stay in Accra and Ghana.

Akwaaba!

Welcome to Accra.

Surv. Dr. Anthony Arko-Adjei President, Ghana Institution of Surveyors (GhIS)

Surveyors in Ghana have long been guardians of the land, shaping boundaries, managing resources, and fostering equitable development. From the ancient days of the Ashanti Empire to the present, our profession has evolved to meet the challenges of urbanization, climate change, and sustainable growth.

Throughout the week, delve into engaging plenary sessions, interactive workshops, and enlightening field trips, spanning topics from cadastral systems to disaster risk reduction. Let us seize this moment to forge lasting partnerships, share best practices, and chart a course toward a more resilient and sustainable future.

On behalf of LiSAG and the people of Ghana, I extend a warm welcome to each of you. Together, let us harness the collective power of our knowledge and expertise to create positive change, not only for our world but for future generations to come. Thank you for joining us on this remarkable experience.

Surv. Ing. Samuel Larbi Darko, President, Licensed Surveyors Association of Ghana, (LiSAG)



One shared welcome: We are happy as the Co-Conference directors to welcome FIG Council Members, Honorary Presidents, All FIG Chairs and our distinguished participants to the 2024 FIG Working Week in Accra.



It has been a period of educative, sometimes exhilarating and many times very stressful episodes of putting together this 2024 Working Week. Together with the FIG Secretariat Louise, Claudia and Maria, we have worked exceedingly hard over the past year and half to put together this conference for you.



Welcome to FIG and to this very special FIG Working Week taking place in Accra, Ghana. The working week has been long underway, and now finally we are here. Already back in 2017 when Accra, Ghana was elected as destination for 2021 the preparations started with a dedicated local organising committee, however interrupted by the Covid19 pandemic. With some moving around, the FIG e-Working Week took place in 2021, and now, our journey to Ghana has been worth the wait.

It is such a pleasure and honour to welcome our attendees, sponsors, exhibitors, partners, local representatives, accompanying persons, yes all to this wonderful and remarkable place on Earth. You will find a packed programme with technical sessions, discussions and other activities about and around the surveying profession with topics relevant and urgent from a Ghanaian and African perspective, and useful for participants worldwide.

We hope that these efforts will meet with your expectations in having a successful conference. Do enjoy your stay in Accra and after the sessions do take off time to see Accra and other parts of Ghana.

Akwaaba.

Welcome.

**Surv. Dauda Sulemana Mahama, GhIS,
Co-Conference Director**

**Surv. Stephen Djaba, LiSAG,
Co-Conference Director**



Remember, this conference is not only about gaining knowledge. It is just as much about networking, establishing contacts and exploring Ghana, Accra and the local culture. Even though you might not find it comfortable, do talk with your neighbours in the coffee line, in the session rooms, at lunch, at dinners and use the various networking opportunity to meet with new colleagues. Be curious... be open... be present... The pandemic has taught us the privilege of face-to-face interactions – and the luxury of this undisturbed time to meet, learn, explore and reflect. I wish you productive and exciting conference days.

Finally, I would like to extend a heartfelt thanks to our dedicated local organisers for the cooperation and their preparations to make it possible for us all to meet during these days.

**Louise Friis-Hansen
FIG Director, Co-Conference Director**



International Federation of Surveyors (FIG)

FIG is a United Nations and World Bank recognised non-governmental organisation. Founded in 1878, FIG represents the interest of surveyors worldwide. Our members



The Ghana Institution of Surveyors (GhIS)

The Ghana Institution of Surveyors (GhIS) was founded on in 1969, during a General Meeting of the Ghana Branch of the Royal Institute of Chartered Surveyors.

The mission of GhIS is to develop, provide and maintain excellent professional leadership in surveying disciplines, offer valuable services, advance members welfare and positively influence the society in land management and development.



The Licensed Surveyors Association of Ghana (LiSAG)

The Licensed Surveyors Association of Ghana (LiSAG) has evolved from a welfare organization for its members to an association actively engaged in national initiatives. LiSAG now advocates for national issues such as amendments to the Land Bill and conducts advocacy programs alongside other national activities.



Local Organising Committee

- Samuel Larbi Darko**, LOC Chair
- Alhaji Sulemana Daud Mahama**, LOC Co- Chair
- Stephen Djaba**, Co-Conference Director
- Yvonne Danquah**, FIG LOC Secretary
- Benjamin Benyi Acquah**, Chair Budget & Finance
- Kofi Obeng Ayirebi**, Chair Venue
- Florence Lamptey**, Chair Accommodation
- Rosemargaret Esubonteng**, Chair Fundraising & Sponsorship
- Naa Dedei Tagoe**, Chair Exhibition
- Stephen Djaba**, Chair Publicity & International Relations
- Bernard Kumi Boateng**, Chair Registration & Accreditation
- Naa Lamikai Adofo**, Chair Volunteer Management
- Edwin Addo Tawiah**, Chair Technical Program
- Emmanuel Kofi Cobbold**, Chair Social Events & Technical Tours
- Michael Nyoagbe**, Chair IT & Media
- Robert Hackman Antwi**, Chair Transportation
- Jones Ofori Boadu**, Chair Protocol & Security

Conference Steering Committee

- Dr. **Diane Dumashie**, FIG President
- Surv. **Kwame Tenadu**, FIG Vice President
- Surv. Ing. **Samuel Larbi Darko**, LiSAG President
- Dr. **Anthony Arko Adjei**, GhIS President
- Rev. Mrs. **Rosemargaret Esubonteng**, GhIS Past President
- Surv. **Dauda Sulemana Mahama**, GhIS Past President and Co-Conference Director, GhIS
- Surv. **Stephen Djaba**, Co-Conference Director, LiSAG
- Ms. **Louise Friis-Hansen**, FIG Director and Co-Conference Director

FIG Office

- Ms. **Louise Friis-Hansen**, FIG Director and Co-Congress Director
- Ms. **Claudia Stormoen Pedersen**, FIG Event and Support Manager
- Ms. **Maria Bargholz**, FIG Finances and Administration



Registration and Conference Services

The FIG Registration desk is located on the ground floor at La Palm Conference.

Opening hours: Saturday 18 May 8:00–17:00, Sunday 19 May 8:00–21:00, Monday 20 to Wednesday 22 May 7:30–18:00, and Thursday 23 May 8:00–12:00.

Speakers Preparation Desk

The speakers' preparation desk is located by the Registration. Please bring your PowerPoint presentation to the staff desk for upload at least two hours before your session begins. Technicians will be available to assist you. Please have your presentation on a USB memory stick. Name your PowerPoint file with your abstract ID. Provide the session number to ensure it is sent to the correct room.

Opening hours: The same opening hours as the Registration Desk (Thursday closed).

Badges

Each registered delegate will receive a badge, which serves as the official pass for entry to all sessions, the exhibition, and social functions. Do not lose or forget your badge. New badges will not be issued.

Delegate/Young Surveyor Pass: Grants access to all technical sessions, the exhibition, lunches, coffee breaks with refreshments, the Welcome Reception, Opening Ceremony, and the Farewell Reception.

Exhibitor Pass: Provides entry to the exhibition area, along with all lunches, coffee breaks with refreshments, the Welcome Reception, and the Opening Ceremony.

Accompanying Person Pass: Includes attendance at the Opening Ceremony, Welcome Reception, and lunch on conference days, as well as a visit to the exhibition on Wednesday afternoon at 15:30.

Bag and Certificates

Delegates who opt for it during registration will receive a conference bag. Shuttlebus timetable is included in the conference bag. Certificates of attendance and presentation will be emailed after the conference.

Refreshment and Lunches

On the three conference days, coffee and tea will be available for free during the morning and afternoon breaks at designated coffee stations in the exhibition areas. Lunch on Monday, Tuesday, and Wednesday will be provided in the restaurant.

Conference Web Site and Technical Programme

- Conference web site: fig.net/fig2024
- fig.net/fig2024/technical_program.htm

Wireless Internet

Wireless Internet is available at the conference venue.

Shuttlebus Timetable

Shuttlebus timetable is included in the conference bag.

Social Media

FIG at LinkedIn:

www.linkedin.com/company/fig---international-federation-of-surveyors

FIG at Facebook:

<https://www.facebook.com/internationalfederationofsurveyors>

FIG YouTube Channel:

<https://www.youtube.com/channel/UCnILnXagUY5Y2f8Hy-yaw2Q>

#FIG2024 #FIGAccra #FIGWorkingWeek



GENERAL AUTHORITY FOR SURVEY AND GEOSPATIAL INFORMATION (GEOSA) KINGDOM OF SAUDI ARABIA



The General Authority for Survey and Geospatial Information (GEOSA) responsibilities are to regulate, develop, supervise, and monitor the Survey and Geospatial Sector in the Kingdom of Saudi Arabia in a manner that achieves quality, enhances performance, and maintains security, in coordination with relevant agencies. The Authority may undertake any measure it deems necessary to achieve its objectives, including but not limited to the following:



Regulating, developing, supervising, and monitoring Saudi Arabia's survey and geospatial sector, ensuring compliance with established standards for quality and security.



Setting and updating rules, proposing new laws with board approval, and maintaining national geospatial infrastructure, including geodetic networks and marine surveys.



Conducting strategic planning and research, managing licensing, and training practitioners to enhance sector capabilities.



Protecting stakeholder interests, fostering sector growth, and collaborating internationally to align with global best practices.



Representing Saudi interests globally, supervising national atlases, and developing databases for land and maritime boundaries.



Providing expert consultations and services to various government and private entities within and outside the Kingdom.



Basing strategies on global best practices tailored to local needs, ensuring optimal resource use, and meeting national objectives.



ACTIVITIES, PRODUCTS, AND INITIATIVES:

To carry on its vital mandate to support different national stakeholders in the Kingdom of Saudi Arabia, the General Authority for Survey and Geospatial Information's (GEOSA) main focus is to cover the following fields of services and activities, but not limited to:

- **Geodesy and Land Survey:** GEOSA maintains and updates Saudi Arabia's national geodetic infrastructure, which consists of the national spatial reference system (SANSRS), and operates and maintains the national geodetic networks, which include GNSS continuously operating reference stations, gravity, and leveling networks. It also sets standards and specifications for land surveying and performs comprehensive surveys across the Kingdom.
- **Topographic Information Production:** GEOSA compiles topographic data from aerial and satellite imagery and GPS data for mapping products such as terrain, water bodies, and man-made structures. It manages the National GeoNames Committee and produces various scales of maps.
- **Hydrography:** GEOSA conducts hydrographic surveys and supervises marine scientific research in Saudi marine areas, manages marine spatial data, develops hydrographic standards, and oversees hydrographic projects with modern technology.
- **National Geospatial Centre:** A national geospatial information reference to governance national geospatial data, prepare standards & criteria for complementary use of national geospatial information, organize geospatial data collection, sharing, exchanging, saving, updating, maintaining, and publishing on the National Geoportal Platform (NGP) according to the principle of easy, secure, and subjected to update and growth.
- **Geospatial Policy and Standards Development:** In collaboration with the Open Geospatial Consortium and other international organizations, GEOSA develops policies and standards to enhance the survey and geospatial sectors.
- **International Geospatial Centre:** Hosting the United Nations Global Geospatial Ecosystem Centre of Excellence in Riyadh, GEOSA fosters international collaboration and knowledge exchange in geospatial technologies.
- **Geospatial Support for SDGs:** GEOSA utilizes its geospatial data and technology to support national SDG initiatives, providing crucial data for planning and implementing sustainable projects. This includes developing geospatial infrastructures that aid in monitoring and managing natural resources, supporting disaster risk management, and enhancing the accessibility of essential services across the Kingdom. This activity is crucial for advancing urban development while ensuring environmental sustainability and resilience against natural disasters.
- **GEOSA is a member of the International Advisory Committee of the United Nations Global Geospatial Knowledge and Innovation Center and other organizations.**

GEOSA MEMBERSHIPS & CONTRIBUTIONS



FOR MORE INFORMATION ABOUT GEOSA: <https://www.geosa.gov.sa/En>

The environment and nature underpins the functions and health of the planet and thereby the existence and health of humankind.

- “Three quarters of land and two thirds of oceans are now impacted by humans and many of nature’s contributions to people are eroding. At the same time, people’s needs are not being met sustainably – if at all.
- By 2030, the world will require even more resources, including more water and more food, while nature loss is expected to continue to accelerate. (United Nations)

A sustainable agenda for planet and people is a universal agenda. And if we are to achieve economic, social and technological progress it is an imperative that this occurs in harmony with the natural environment of the planet. As survey and geospatial professionals from the land, built, and natural environments sector, we have a key role to lead and contribute to make this sustainable development agenda happen.

Your World, Our World: Resilient Environment and Sustainable Resource Management for All is the overall theme of this year’s FIG Working Week.

FIG agenda is underpinned by the need for a sustainable profession that delivers services in a sustainable manner and address the global development agenda and to act now to address the climate agenda. The conference title speaks to the global sustainability agenda and above all remains mindful of SDG 13 to take urgent to combat climate change and its impacts.

The conference theme draws particularly on sustainability in the context of planet. As outlined in FIG wider vision (i.e To serve People, Planet and working in Partnership for societal benefit), this is about making sure we make the best use of land resources and that our cities and settlements are resilient and adaptive Resilience is key. Resilience is both about withstanding stresses and shocks, its about thriving and growing despite them. Adaptation and resilience are essential to complement efforts at mitigation. Recognising the need to halt and reverse the loss of nature while restoring ecosystems, is essential to maintaining nature’s contributions to people, sustaining a healthy planet and mitigating climate change.

In FIG Working Week 2024, the agenda is predicated upon three key underlying forces that if acted upon will enable us to achieve a viable survey profession that in turn contributes to societal benefit. These forces are about connectivity: attracting and retaining Youth; embracing geoinformatics; and purposeful climate action. There will be three plenary sessions that will be setting the land governance and management scene for the three conference days as well as picking up the three underlying forces. More information on the plenary sessions, see pages 17–19.



GIS

Putting Right-of-Way in Its Place

Prepare Your Organization for Infrastructure Investments
by Leveraging GIS for Right-of-Way Management

Esri, the world leader in geographic information system (GIS) technology, has the tools and capabilities you need to map important assets, like rights-of-way. Knowing where your right-of-way is located enables you to make data-driven decisions to plan for infrastructure projects, manage acquisitions of land through visualized data, and improve operational efficiency and safety by understanding the right-of-way's condition in real time.

Learn how to manage your
rights-of-way with GIS.

Download the Right-of-Way Ebook
go.esri.com/row-ebook

Register for Esri's Right-of-Way Webinar Series
go.esri.com/row-webinars

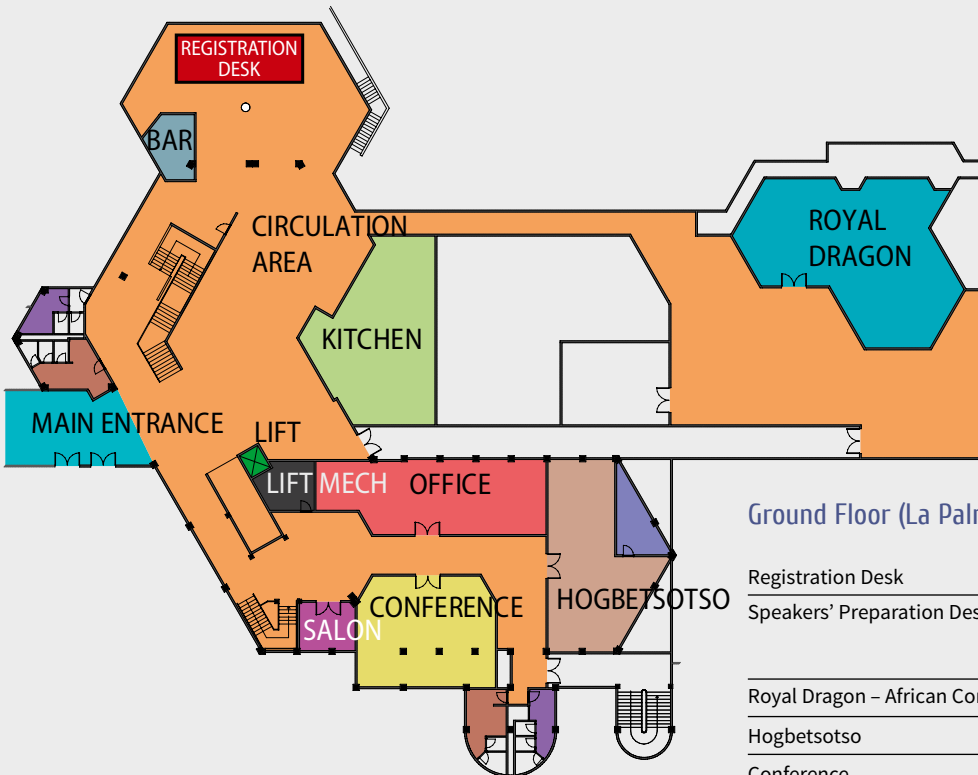


FIG Working Week 2024 is held at La Palm Royal Beach Hotel

Street Address: 1 Labadi Road, Accra, Ghana

<https://www.gbghana.net/web/home>

Poolside at La Palm, the venue for the Welcome Reception.

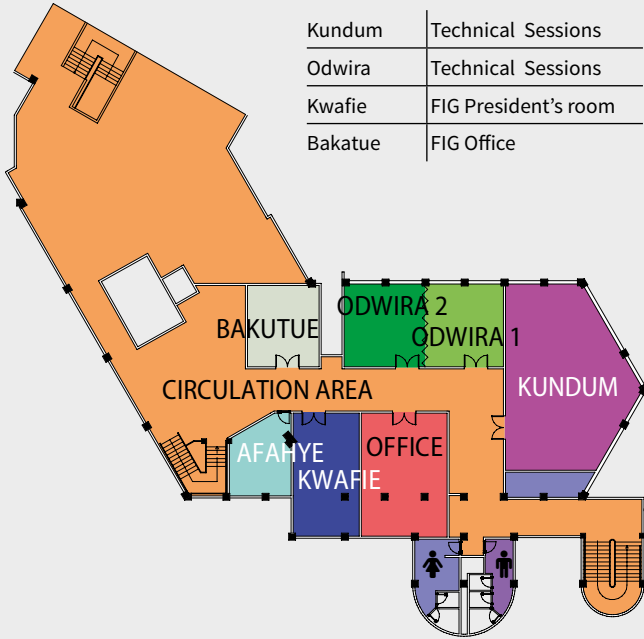


Ground Floor (La Palm)

Registration Desk	Opening hours see p. 7
Speakers' Preparation Desk	Same opening hours as the Registration Desk (Thursday closed)
Royal Dragon – African Corner	Technical Sessions
Hogbetsotso	Meeting Room
Conference	LOC Office

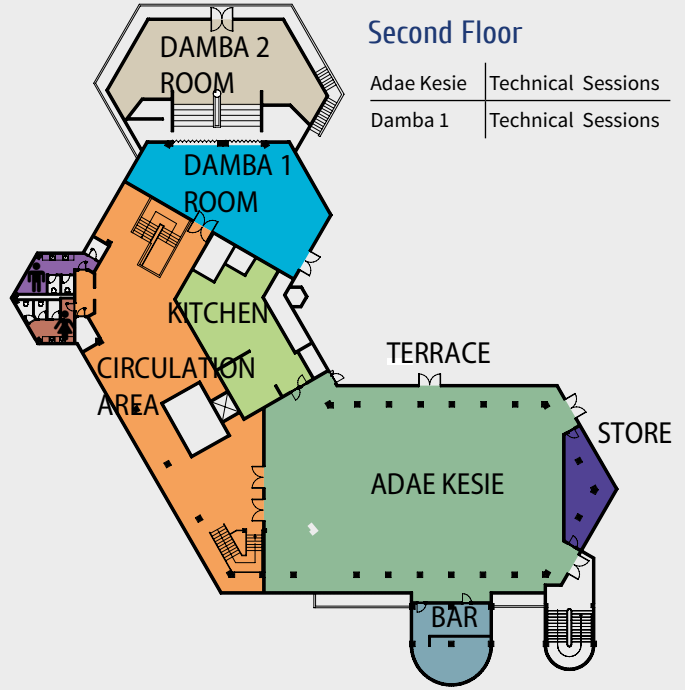
First Floor

Kundum	Technical Sessions
Odwira	Technical Sessions
Kwafie	FIG President's room
Bakatue	FIG Office



Second Floor

Adae Kesie	Technical Sessions
Damba 1	Technical Sessions



Tent Village

Plenary Dome	General Assemblies, Opening Ceremony, Plenary Sessions, Technical Sessions
Exhibition Hall	Exhibition
"The market"	Technical Sessions (in exhibition)

Come to the FIG Stand (Exhibition Hall booth B5 in the Tent Village) for a talk!

	20 May	21 May	22 May
Morning Break	FIG Vice President Candidates	FIG Young Surveyors Network	FIG Commission 2 FIG Commission 9 FIG Commission 10
Lunch	FIG Task Forces	FIG Commission 3 FIG Commission 8	FIG Regional Capacity Development Network: Africa, Americas and Asia/Pacific
Afternoon Break	FIG Commission 4 FIG Commission 7	FIG Commission 5 and 6	FIG Council FIG Office



Time	Sat 18 May	Sun 19 May	Exhibition			Thu 23 May		
			Mon 11:00-17:30 Mon 20 May	Tue 11:00-17:30 Tue 21 May	Wed 11:00-17:30 Wed 22 May			
	Registration 8:00-17:00	Registration 8:00-21:00	Registration 7:30-18:00	Registration 7:30-18:00	Registration 7:30-18:00	Registration 8:00-12:00		
08:00			Workshops and Newcomers Session	Workshops	Workshops and President's Meeting			
09:00								
09:15	FIG YOUNG SURVEYORS CONFERENCE 9:00-17:30 SUSTAINABLE LAND ADMIN. MODERNIZATION 9:00-18:00 REF. FRAMES 13:00-17:15 BIM FOR SURVEYORS 9:00-17:00 PRE TOUR	General Assembly Session 9:00-15:00		Plenary Session 1	Plenary Session 2	Plenary Session 3		
11:15				Morning Break	Exhibition and Networking Hour	Morning Break	General Assembly 9:00-11:30	
11:45					Technical Sessions	Commiss. Meetings	Technical Sessions	Farewell 11:30-12:30
13:15					Lunch	Lunch	Lunch	FFPLA WORKSHOP 13:30-18:00
13:15					Technical Sessions	Technical Sessions	Technical Sessions	
14:30					Afternoon Break	Afternoon Break	Afternoon Break	
14:30					Technical Sessions	Technical Sessions	Technical Sessions	
16:00					Technical Sessions	Technical Sessions	Technical Sessions	
16:30					Afternoon Break	Afternoon Break	Afternoon Break	
16:30				Opening Ceremony 17:00-18:30	Technical Sessions	Technical Sessions	Technical Sessions	
18:00								
		Welcome Reception	Ghanaian Evening	Commission Dinners	Gala Dinner			



Islander Images | iStock

Sunday 19 May at 17:00–18:30 Plenary Dome, La Palm

Master of Ceremony: Surv. **Stephen Djaba**, Co-Conference Director

The Opening Ceremony will provide a spectacular introduction to the FIG Working Week, its theme, and its unique location – a festive start of the week.



Welcome Addresses

- 1 Dr. **Anthony Arko Adjei**, GhIS President
- 2 Surv. Ing. **Samuel Larbi Darko**, LiSAG President
- 3 Hon. **Samuel A. Jinapor**, Minister for Lands and Natural Resources
- 4 Ms. **Nsama Nsemiwe Chikolwa**, Africa Union Representative
- 5 Dr. **Diane Dumashie**, FIG President
- 6 **Nana Addo Dankwa Akufo-Addo**, President of Ghana



We are honoured to welcome the President of Ghana, **Nana Addo Dankwa Akufo-Addo**, who will join us at the opening of the FIG Working Week 2024. The President is Chairperson of the Climate Vulnerable Forum (CVF) and Co-Chair of the UN Secretary General's SDG Advocates, too.

His speech will highlight the vital role of surveyors in sustainable development, climate resilience, and the importance of traditional land governance. The President extends warm greetings to all attendees.

Please join us in welcoming the President of Ghana!



On each of the conference days a plenary session sets the scene under the overall theme of the conference: "Your World, Our World: Resilient Environment and Sustainable Resource Management for All".

Plenary Session 1

Monday 20 May 9:15–11:15, Royal Dragon – African Corner

Part 1: People and Place: Africa insights connecting Land Governance for All

Chair: Dr. **Diane Dumashie**, FIG President

The first plenary session captures insights from African thought leaders by dividing discussion into two sections. Opening with a focus on SDG13 that brings in climate awareness and sustainable land governance policies and practice. The land, environmental and climate action agenda necessary to underpin governance needs strong institutions with good land laws. These operate on the land (and marine) continuum of rights, for a healthy planet and healthy people as well as good practice from a range of stakeholders. The speakers will be exploring the nexus of geo and the rights and responsibilities of land tenure and people recognising that Africa is on the critical path to achieve sustainability.



Hon Dr **Henry Kwabena Kokofu**, Former Executive Director of Environmental Protection Agency (EPA)
Implementing Ambitious Climate Actions in Ghana's NDCs: The Role of the Survey Profession and Geospatial Technologies



Ernest Acheampong, Capacity Development coordinator, Group on Earth Observation GEO
Supporting the Sustainable Development Goals – A Strategic Action for the Group On Earth Observations (GEO)

Part 2: Traditional Leaders, Africa: Governance Connectivity Challenges and Positive Impacts of Technology

Chair: Prof. **Stig Enemark**, FIG Honorary President

The plenary next moves into perspectives from governance leaders who are traditional chiefs exploring the Governance of land rights for All and the ongoing connectivity challenges in an era of planetary disruption and how the use of technology is furthering the role of land and sustainable development goals.



Nana Kobina Nketsia V,
Paramount Chief of Essikado Traditional Area,
Sekondi, Western Region of Ghana



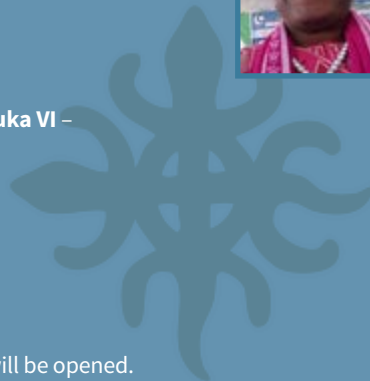
H.M (Arc,) Barr. King **Adedapo Aderemi Adeen**,
Nigeria



His Royal Highness Chief **Chamuka VI** –
MorganKumwenda, Zambia

Opening of the Exhibition

At the end of the plenary session, the exhibition will be opened.



Plenary Session 2 – Land Tenure, Resources and Minerals: Building Sustainable and Resilient Resource Management for the Planet

Tuesday 21 May 9:15–11:15, Royal Dragon – African Corner

Chair: Ms. **Paula Dijkstra**, Chair, FIG Task Force on SDGs.

The second plenary session, again driven by the agenda that Africa is on the critical path to sustainability (due to the quantity and amount of resources). It is noted that resilience measures must be implemented by all levels of society. This plenary will focus on minerals & forestry and the impact of the younger surveyor generation in community practices.

Our profession is purposefully in transition and connectivity is key often through technology, we rely upon the effective use of technology to address environmental goals as well as the development of environmentally sound technologies. This requires comprehensive geodetic infrastructure.

The relationship between national governance policy and community practice to achieve sustainable development will be highlighted. It will also unpack the benefits of working more closely with nature rather than depleting the services it can provide.



Hon **Joseph Boahen Aidoo**,
Chief Executive, Ghana Cocoa Board
*African Approach to Addressing Global Warming
and Climate Change: Cocoa, the Unsung Mollifier*



Professor **Daniel Mireku-Gyimah**, University of
Mines and Technology
*To Mine or Not to Mine – The Economic
Controversy and Its Resolution*



Nick Brown, Head of Office, UN-GGIM Global
Geodetic Centre of Excellence
*How Sustainable and Resilient Are the Global
Geodesy Foundations We Are Building On*



Roshni Sharma and
David Elegbede, FIG Young
Surveyors Volunteer Community
Surveyor Programme VCSP
*Mapping the World a Better Place:
The Impact of Young Surveyors On
Land Administration and Climate
Through the VCSP*



Plenary Session 3 – Your World – Our World: Inclusive Urban Geospatial Infrastructure

Wednesday 22 May 9:15–11:15 Royal Dragon – African Corner

Chair: Mr. **Mikael Lilje**, FIG Vice President

The final plenary session draws on Your world- our world that speaks to the diversity of approaches between the generations. This acknowledges why our profession needs to be connected to tackle the incredible pace of change occurring both on planet and in our societies. Surveyors have much to contribute in society and to highlight, advocate and above all act to ensure change that builds on a sustainability agenda.

To do this, our speakers will explore connectivity in urban environments and the required professional practices. That is how Ai, digital transformation and geospatial technologies and innovations as well as community connectivity become major tools in ensuring resilient environment and sustainable natural resource management for all.

Land and property Insights and innovation approaches from UN Habitat's work to build resilient settlements, in the West African region at city level governance and smart city/ BIM will be heard. And, the ever present and importance of youth in adopting digital smart professional practice – i.e. geo-data, geo-informatics will highlight the imperative that there is a purpose to our profession being in transition.

Survey professionals are key environmental actors to developing and implementing solutions to the climate and ecological emergency. First the role of practice and education and second, governance.



Oumar Sylla, Director, Regional Office for Africa (ROAf)

The Importance of Land Tenure In Rapidly Urbanizing Africa: Demonstrating The Centrality of Land in Achieving the SDGS (Goal 11) and the Africa Vision 2063 Accompanying Person



Bryn Fosburgh, FIG Foundation President and Vice President Trimble

Digital Transformation, Machine Learning, Automation , and Artificial Intelligence (AI): The Next Industrial Revolution



Adama Sarr, Mayor, Senegal (recently FIG Young Surveyor)

Youth and Tech In the City



Prof. **Robert Kaden**, BIM/Digital Twin Specialist

Digital Twins of the Built Environment – Challenges and Perspectives for Surveyors





Category A – Platinum Level

	Bentley Systems www.bentley.com
	Environmental Systems Research Institute, Inc. (ESRI), www.esri.com
	Leica Geosystems AG www.leica.com
	Trimble Navigation Ltd www.trimble.com


Category C – Silver Level

	Carlson Software www.carlsonsw.com
	Topcon Europe Positioning b.v. www.topconpositioning.com

Category D – Bronze Level

	GIM International – Geomares Publishing www.gim-international.com
	GIS/Transport Ltd. www.gistransport.com
	RIPRO Corporation, Japan www.ripro.co.jp
	Supermap Software Co, Ltd. www.supermap.com
	TopoDOT www.topodot.com

Category E – Basic Level


	Al-Qotr Professional Consulting Company alqotr.sa/
---	---

	Beijing iSpatial Co., Ltd, PRC ispatal.com.cn
	Geoide Geosystems S.a. www.geoide.pt
	Geoweb S.p.A www.geoweb.it
	NEH Vietnam www.neh.vn
	Whitestar whitestar.com

Category F – Regional Level

	Atlas Surveying atlas-surveying.com
	City Survey & engineering Consultants csecuk.com
	Construction Technological Services Private Limite, www.surveysrilanka.com
	GEO:connexion Ltd www.geoconnexion.com
	Georeference Engineering Consultants, Saudi Arabia, www.geotechsys.com/
	Geo-Tech Surveys Ltd, Ghana www.geotechsys.com/
	Multigeomatics Limited multigeomatics.com
	ORBITS Engineering Firm www.orbitseng.com
	Zimbabwe National Geospatial and Space Agency, zingsa.ac.zw

Category G – Other Sponsorship

	The Danish Society of Engineers, IDA https://english.ida.dk/
---	---

A number of attractive and informative Technical Tours have been organised to complement the conference experience. These tours will visit sites and organisations of particular interest to delegates. The Meeting Point will be located at the registration desk. Meeting time 10 minutes prior to departure time. Tickets may be available for purchase (50 USD) from the Registration Desk.

Monday 20 May

Mapping the Plastic

Time: 14:00–17:00

This technical tour will not be pretty, but it will be informative! We'll revisit the Lagoon where UMaT students have conducted a comprehensive survey using UAV multispectral and aerial imagery sensors. Representatives from various organizations including government ministries, universities, and UNDP have been invited to join us. Let's explore how the surveying and spatial community, especially Working Group 4.3, can contribute to addressing plastic waste issues in Ghana and beyond.

Monday 20 May

Visit to the Land Commission Office

Time: 14.00-17:30

You are invited to join us for an insightful visit to the Lands Commission, where you'll explore Ghana's land administration and management practices firsthand. Engage with local professionals and learn about the Commission's vital role in shaping the country's land governance framework.

During the visit, you'll interact with staff from the Client Service Access Unit (CSAU) and the Commission's four divisions: Land Valuation Division, Public and Vested Land Management Division, Survey and Mapping Division, and Land Registration Division. Gain valuable knowledge about the Commission's modernization efforts through digitalization and improved records management practices.

Tuesday 21 May

The Akosombo Dam

Time: 12.00-19.30

The Akosombo Dam, an awe-inspiring engineering feat, towers over Lake Volta, offering breathtaking scenery with lush forests and hills. Lake Volta, the largest man-made lake globally, owes its existence to this remarkable structure.

Providing electricity to Ghana and neighboring countries like Togo and Benin, the dam initially fulfilled 20% of Ghana's electricity needs, serving 70% of the nation.

Join us for a guided tour to explore the Akosombo Dam and immerse yourself in its scenic beauty. Gain insights into hydroelectric power generation and renewable energy through educational tour of the dam and its power plant. These experiences promote awareness about sustainable development and the significance of renewable energy sources.

Wednesday 22 May

Tema Port Expansion

Time: 14.00-17:30

Meridian Ports Services (MPS) recently completed a USD 1 billion investment in constructing MPS Terminal 3, the third container terminal at Tema Port, Ghana. This terminal boasts state-of-the-art equipment and efficient service delivery, enhancing the Port of Tema's reputation as the best performing container port in West and Central Africa.



FIG Working Week is much more than a conference with technical sessions. FIG Working Week is also administrative and organisational meetings, forums and sessions, sub-events, and special sessions with partners.

Sub-events	Date	Time	Location
8 th FIG Young Surveyors Conference	18–19 May	09:00–17:30 08:45–12:00	Adae Kesie
Reference Frame in Practise	18–19 May	13:00–17:15 08:30–16:00	Kundum
ESRI event: Sustainable Land Administration Modernization	18 May	09:00–18:00	Odwira
BIM For Surveyors	18 May	09:00–17:00	Damba 1
Adapting, Adopting and Evolving Approaches to Land Administration; Towards Effective Upscaling of FFP Approaches	23 May	13:30–18:30	Odwira

FIG Sessions	Date	Time	Location
General Assembly – Session 1	19 May	09:00–15:00	Plenary Dome
Newcomers Session – Introduction to FIG Working Week	20 May	08:00–09:00	Royal Dragon
FIG Director Generals Forum	20 May	14:30–16:00	Royal Dragon
Annual Meetings of FIG Commissions. Open for all interested. Same evening commission organises a dinner (self-paid)	21 May	12:15–13:15	Various rooms
FIG Academic Forum	21 May	14:30–16:00	Odwira
FIG Member Association Forum	21 May	16:30–18:00	Royal Dragon
FIG Presidents Meeting	22 May	07:30–09:00	Adae Kesie
FIG General Assembly – Session 2	23 May	09:00–11:30	Plenary Dome

FIG Sessions with Partners	Date	Time	Location
The Quest for Good Land Governance in Africa - Connecting the Modern and Traditional Land Administration Systems to Bridge the Chasms	20 May	11:45–13:15	Royal Dragon – African Corner
The Impact of Youth on Land Administration Globally: Showcasing the VCSP (GLTN)	20 May	14:30–16:00	Kundum
Consultations on the Global World Bank Program on Access to Land for Sustainable Climate Action and Infrastructure (WB)	20 May	16:30–18:00	Royal Dragon – African Corner
Accelerating Land Administration Success with GNSS CORS Networks: Insights for Senior Decision Makers	21 May	14:30–16:00	Kundum
What Specific Actions can Individual Surveyors and Professional Bodies take to Achieve Women’s Land Rights?	21 May	14:30–16:00	Damba 1
Transforming Ghana's Land Administration System: the Role of the Land Commission	21 May	16:30–18:00	Odwira
GNSS CORS Reference Stations and Networks – Session 2 for Technical Experts	21 May	16:30–18:00	Kundum
Critical Emerging Areas for Global Work towards Gender Equality in the Land Sector (GLTN)	21 May	16:30–18:00	Damba 1
Empowering and Improving the Life of Women in Muslim Communities through increased access to Housing, Land and Property	22 May	11:45–13:15	Damba 1
Valuation of Unregistered Land – Next Stages for Non-Market Value, Expropriation and Extractive Industries	22 May	14:30–16:00	Damba 1



Black and Abroad | iStock

SinoGNSS[®]
By ComNav Technology Ltd.

INNOVATION MAKES A DIFFERENCE



[Learn More](#)

LASER RTK

UNIVERSE SERIES GNSS RECEIVER

☀️ 📡 🔗 IMU PPP IP67 15KM

MARS PRO LASER RTK

MARS LASER RTK

VENUS LASER RTK



Renate Weifers | iStock



ym12092 | iStock



LindasPhotography | iStock



Renate Weifers | iStock

Social Programme

FIG Working Week would not be anything without the interaction and networking of our participants. Join these events to get to know your fellow peers.

Event	Date	Time	Location	Details
Charity Event	19 May	14:00–16:00	Beach by La Palm	Donation: 10 USD
Welcome Reception	19 May	19:00–21:00	Pool side, La Palm	All participants are invited
Ghanaian Evening	20 May	19:00–22:30	Kwame Nkrumah Memorial Park	Fee: 90 USD*
FIG Commission Dinners	21 May		To be decided by each commission – check www.fig.net/fig2024	Fee: Individual payment
Gala Dinner	22 May	19:00–22:30	Accra Ridge Church Events Center	Fee: 100 USD*
Farewell... and welcome to Brisbane	23 May	11:30–12:30	African Village, La Palm	All participants are invited

*) Limited number of tickets will be available at the registration desk.

Accompanying Persons Programme

Accompanying persons are very welcome at the FIG Working Week. Included in the registration for accompanying persons is the Opening Ceremony and Welcome Reception, lunches on 20–22 May, as well as a visit to the exhibition on Wednesday afternoon at 15:30-18.00.

Social Tours

A range of social tours will be offered for participating delegates and accompanying persons.

Event	Date	Time	Cost
Shai Hills Game Reserve	18 May	08:30–17:00	100 USD
Aburi Botanical Gardens & Tetteh Quarshie Cocoa Farm	19 May	09:00–15:00	105 USD
Accra City Tour including Kwame Nkrumah Memorial Park and Mausoleum	20 May	14:00–17:30	50 USD
James Town Walking Tour & Boxing Arena	21 May	14:00–16:30	50 USD
Sip and Paint	22 May	14:00–17:15	50 USD
Central Region: Kakum National Park and Cape Coast Castle	24 May	06:30–18:30	120 USD

Limited number of tickets will be available at the registration desk.

Thank you to our sponsors and supporters, we really do appreciate you being part of the FIG Working Week!

PLATINUM SPONSORS

GEOSA – The General Authority for Survey and Geospatial Information is responsible for regulating, developing, supervising, and monitoring the Survey and Geospatial Sector in Saudi Arabia. It aims to achieve the Kingdom's 2030 vision by aligning with international best practices and supporting economic and national projects. For more information, please visit <https://www.geosa.gov.sa>
GEOSA's Vision: To lead the Kingdom of Saudi Arabia in providing spatial intelligence, innovation, and security, driving sustainable development and national prosperity through robust geospatial infrastructure and expertise.

GEOSA's Mission:

ESRI – Esri, the global leader in GIS software and location intelligence, helps customers unlock the full potential of data to improve operational and business results. Esri software is deployed in more than 350,000 organizations globally and in over 200,000 institutions in the Americas, Asia and the Pacific, Europe, Africa, and the Middle East, including Fortune 500 companies, government agencies, nonprofits, and universities. Esri has regional offices, international distributors, and partners providing local support in over 100 countries on six continents. Esri engineers the most innovative solutions for digital transformation, the Internet of Things (IoT), and advanced analytics. Visit us at esri.com.

- To elevate Saudi Arabia as a leader in spatial intelligence, innovation, and security.
- To regulate and advance the geospatial sector with precision and efficiency, focusing on building and maintaining a national geospatial infrastructure, encouraging collaboration for its effective use, and enhancing national skills through training and partnerships.
- To engage internationally, contribute to geospatial science advancements, and ensure responsible data use.

TRIMBLE – Trimble is committed to enhancing connectivity between the physical and digital worlds through its advanced technology solutions in navigation, mapping, and spatial analytics. With over 40 years of innovation, Trimble aims to empower professionals across surveying, construction, agriculture, and transportation by addressing field and office challenges. As a sponsor of FIG Working Week, Trimble is invested in producing real-world solutions that enhance productivity and sustainability for professionals around the globe.



GOLD SPONSORS

GEOQODE GHANA – Driven by dedication to Geographic Information System and remote sensing, GeoQode was founded by experts with more than 35 years of experience in the Geospatial field. Their determination drove them to deliver successful and quality projects in the GCC area, the Middle East region, and the African continent. GeoQode's main milestone is to fulfill the needs of a wide range of clientele throughout their services, targeting both private and public sectors, NGOs and other funding entities. Believing in consistency and resilience, GeoQode's team has gained a broad and extensive understanding of UAV/Drone derived products, allowing them to amplify their skills and capabilities, becoming a leading subject matter expert in the field. We aspire to greater heights.

LEICA GEOSYSTEMS part of HEXAGON – With more than 200 years of history, Leica Geosystems, part of Hexagon, is the trusted supplier of premium sensors, software and services. Delivering value every day to professionals in surveying, construction, infrastructure, mining, mapping and other geospatial content-dependent industries, Leica Geosystems leads the industry with innovative solutions to empower our autonomous future. Hexagon is the global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

COMNAV TECHNOLOGY LTD. – ComNav Technology is dedicated to being an innovator and leader in high-precision GNSS technologies and applications. Until 2023, it has sold its products and solutions to 140+ countries with 0.8+ million units' modules/receivers in 10+ different industries, including land survey, MC, UAV, UGV, monitoring, personnel positioning, preci-

sion agriculture, marine. As a R&D-driven company, it owns 60+ patents and 50+ software copyrights, and invests at least 20% of annual revenue in R&D. This 26,000 sqm industrial park in Shanghai accommodates nearly 600 employees. With a dedicated team, it's committed to providing best-in-class positioning solutions for various applications to delight clients with high-precision requirements.

QUEST CONSOLIDATED LIMITED & SOUTH GROUP – QUEST (QQuality Engineering and Surveying Technology) is a distinguished consultancy with over 15 years of experience specializing in Surveying, Mapping, and Geographic Information System (GIS) solutions. We offer comprehensive services tailored to Land Information Systems and Automated Mapping/Facilities Management. As authorized dealers of SOUTH SURVEY INSTRUMENT, a leading entity within the SOUTH Group based in China, we extend our expertise and offerings to clients across Ghana and West Africa. SOUTH Group, a prominent provider of GIS solutions, encompasses R&D, production, sales, and services. With over 3000 employees and commanding over 60% market share domestically, SOUTH Group is recognized for its localization of survey equipment and commitment to advancing the Geo-information industry.

SUPER MAP – Established in 1997, is dedicated to the research, development, and application of GIS software technology. As a leading GIS software provider, SuperMap has been instrumental in advancing GIS platforms to support the digital transformation of governments and enterprises across various industries. Today, SuperMap holds the top position in the Chinese GIS market and has established partnerships with distributors in over 50 countries, serving GIS end users in more than 100 countries worldwide. Moving forward, SuperMap remains committed to delivering cutting-edge GIS technologies and products to an expanding global user base.

PLATINUM SPONSORS



GOLD SPONSOR



BRONZE SPONSORS



LOCALSPONSORS



INSTITUTIONAL PARTNERS



LOCAL PARTNERS



MEDIA PARTNERS



BRONZE SPONSORS

CHCNAV – CHC Navigation is a global leader in geospatial, precision agriculture and digital construction solutions for various professional applications. Our offerings include GNSS technology, land and marine surveying, 3D data collection, precision agriculture, unmanned navigation and more. At CHC Navigation, our innovations are driven by consumer and customer needs. With a commitment to making advanced technology accessible, we serve industry professionals in over 120 countries.

EPA – Established by Act 490 in 1994, the Environmental Protection Agency (EPA) is a regulatory body responsible for environmental governance and enforcement. It monitors, assesses, and regulates activities impacting the environment, promoting sustainable development and ensuring compliance with environmental laws and regulations.

GHANA WATER LIMITED (GWL) – A water utility company fully owned by the state. The company is responsible for potable water supply to all urban communities in Ghana. GWL currently operates 90 urban supply systems throughout the country. Average production is 881,680m3 per day (194 million gallons per day). With a vision to be a world class utility company, urban water supply coverage is currently 77.2%. With a staff strength of 5,549, GWL's mission is to provide safe, reliable, and sustainable water services to our customers while protecting public health and environment.

GIZ – The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is a global service provider in the field of international cooperation for sustainable development dedicated to shaping a future worth living around the world. As a public-benefit federal enterprise, GIZ supports the German government and many other clients in achieving their objectives in around 120 countries.

MENA3D – Offers a complete solution for a broad range of applications. In our Metrology sector, we offer the latest technology in reverse engineering, inspection, quality control and GD&T measurement. In our Geospatial sector, we provide traditional surveying applications including GPS, GIS, UAV, 3D laser scanning and software for many applications.

OFEK AERIAL PHOTOGRAPHY – For more than 30 years, Ofek Aerial Photography is a leading service provider in aerial and satellite mapping, geographic data collection and processing, GIS, Land Administration, 3D modeling, and numerous Geospatial Applications. Ofek's team of 120 experts has successfully implemented projects in Sub-Saharan Africa and over 32 Countries Worldwide.

UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION (UNCCD): The ambition of the G20 Global Initiative on Reducing Land Degradation and Enhancing Conservation of Terrestrial Habitats is to achieve a 50 per cent reduction in degraded land by 2040. Launched in 2020 under the G20's Saudi Arabia Presidency, we showcase best practice, build capacity, engage the private sector and empower civil society.

FIG LEGACY PROJECT

FIG Legacy Project Unveiling: Unity Globally: Mapping Tomorrow

The “Globe of Tomorrow” project seeks to install a globe statue in an elementary school in Accra, Ghana, to honour the FIG 2024 Working Week as a Legacy Project. This statue aims to represent global interconnectedness and encourage young Pupil to explore Surveying and mapping, geography, cultures, and its significance in comprehending and preserving our planet and People. Utilizing local artistry and sustainable materials, the project will integrate educational components to ensure its enduring value as a learning resource.



Your source for geospatial news, developments, and technology

- **Stay informed** with the the latest technology, industry news and cases
- **Connect globally** with a vibrant community of diverse industry professionals
- **Amplify your voice** by sharing your research, case studies, industry vision and technology



“ GIM is keeping me “in the ring” with the ever-emerging technologies. ”

“ Your efforts in keeping us informed about the ever-evolving survey industry are truly appreciated. ”

“ Best geospatial magazine out there in terms of quality of content. ”

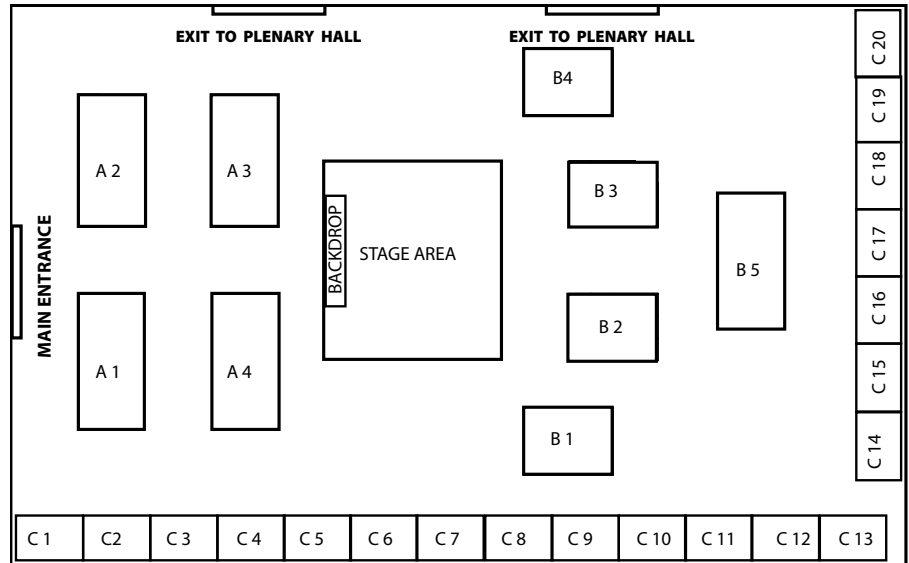
Join us
























An exhibition is running concurrently with the conference showcasing the latest and best in surveying and spatial products and services. The exhibition hall is located outside in the tent Village Area. For up-to-date information about the exhibition, please visit fig.net/fig2024/exhibitors.htm.

Opening Hours

The exhibition is open on Monday 20 May to Wednesday 22 May at 11:00–17:30.



	GEO SA	A1		MENA3D	C1		Geotech System Ghana Ltd.	C11
	Trimble	A2		TOKNAV	C2		Drone Hub Ghana	C14
	Esri	A3		Sacredion – Tersus GNSS	C3		Land Commission Ghana	C15
	SuperMap Software	A4		United Nations Convention to Combat Desertification (UNCCD)	C4		Environmental Protection Agency	C16
	South Survey Instrument & Quest Consolidated Limited	B1		National Agency of Public Registry	C5		Ghana Institution of Surveyors (GhIS) Licensed Surveyors Association of Ghana (LISAG)	C17
	ComNAV	B2		SingularXYZ Intelligent Technology Ltd.	C6		Ghana Tourism Authority	C18
	GeoQode Ghana	B3		CHCNAV – CHC Navigation	C7		SaVonne Travels	C19
	Hexagon/ Leica Geosystems	B4		Suzhou FOIF Co., Ltd.	C8		University of Environment and Sustainable Development	C20
	FIG Stand & Forthcoming Events	B5		Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	C9			
					C10			





TG23 | istock

TECHNICAL PROGRAMME

FIG's Technical Work is led by ten Commissions:

Commission 1	Professional Standards and Practice – Mr. Timothy Burch , USA
Commission 2	Professional Education – Dr. Dimo Todorovski , Netherlands
Commission 3	Spatial Information Management – Dr. Sagi Dalyot , Israel
Commission 4	Hydrography – Dr. M.D .Eranda K. Gunathilaka , Sri Lanka
Commission 5	Positioning and Measurement – Dr. Ryan Keenan , Australia
Commission 6	Engineering Surveys – Prof. Dr. Werner Lienhart , Austria
Commission 7	Cadastral and Land Management – Dr. Rohan Bennett , Australia
Commission 8	Spatial Planning and Development – Dr. Kwabena Obeng Asiana , Ghana
Commission 9	Valuation and the Management of Real Estate – Mr. Peter Ache , Germany
Commission 10	Construction Economics and Management – Ms. Mercy Iortyer , Nigeria

The Scientific Committee of the Peer Review Papers

Chief Editor: Prof. **Volker Schwieger**, Germany

Members:

- **Tim Burch**, United States
- **Dimo Todorovski**, the Netherlands
- **Hartmut Müller**, Germany
- **Eranda K. Gunathilaka**, Sri Lanka
- **Ryan Keenan**, Australia
- **Werner Lienhart**, Austria
- **Rohan Bennett**, Australia
- **Marije Louwsma**, the Netherlands
- **Heidi Falkenbach**, Finland

FIG COUNCIL MEETING

FRIDAY, 17 MAY 09:00–17:00
VENUE: KWAFIE – FIG PRESIDENT'S ROOM, LA PALM
CHAIR: DR. **DIANE DUMASHIE**, FIG PRESIDENT, UNITED KINGDOM
RAPporteur: MS. **LOUISE FRIIS-HANSEN**, FIG DIRECTOR, DENMARK

By invitation only

ACCO MEETING

SATURDAY, 18 MAY 09:30–16:30
VENUE: KWAFIE – FIG PRESIDENT'S ROOM, LA PALM
CHAIR: MR. **MIKAEL LILJE**, FIG VICE PRESIDENT
RAPporteur: MS. **LOUISE FRIIS-HANSEN**, FIG DIRECTOR

By invitation only

BIM FOR SURVEYORS

SATURDAY, 18 MAY 09:00–17:00
VENUE: DAMBA 1, LA PALM

Building Information Modeling (BIM) is changing the way how surveyors work, think, collaborate and earn money. Using and sharing multidimensional digital representations of buildings are the driving forces for the digitalization of our work. This affects many tasks surveyors and GIS professionals perform, e. g. cost estimation, GIS analysis, engineering surveying, construction work, land management and facilities management.

ESRI EVENT: SUSTAINABLE LAND ADMINISTRATION MODERNIZATION

SATURDAY, 18 MAY 09:00–18:00
VENUE: ODWIRA, LA PALM

In this workshop, delve into the Parcel Fabric data model and its extension for data migration. Explore record-driven and quality-driven workflows post-migration. Bring your laptops for hands-on exercises using ArcGIS Pro (instructions sent beforehand). Ideal for organizations managing cadastral records, the Parcel Fabric is LADM conformant, accommodating diverse data sources.

FIG YOUNG SURVEYORS CONFERENCE – DAY 1

SATURDAY, 18 MAY 09:00–17:30
VENUE: ADAE KESIE, LA PALM

The conference will draw from the present societal challenges of climate change, and its impacts, social injustices while drawing light to the importance of surveying in sustainable development and addressing these challenges. To preserve the tomorrow of both the profession and our world, young surveyors need to acknowledge their role in safeguarding the environment, maintaining professional standards while promoting technological advancements.

REFERENCE FRAME IN PRACTISE – DAY 1

SATURDAY, 18 MAY 13:00–17:15
VENUE: KUNDUM, LA PALM
COMMISSION: 5

The main focus is on reference frames in general with a specific focus on UN initiatives, global and regional frames as well selected national case studies. The technical seminar is aimed at surveyors, spatial professionals, students and operational geodesists who are interested in learning more about practical aspects of reference frames from some of the world's leading geodesists and geodetic surveyors.

Sunday, 19 May 2024

FIG YOUNG SURVEYORS CONFERENCE – DAY 2

SUNDAY, 19 MAY 08:45–12:00
VENUE: ADAE KESIE, LA PALM

REFERENCE FRAME IN PRACTISE – DAY 2

SUNDAY, 19 MAY 08:30–16:00
VENUE: KUNDUM, LA PALM
COMMISSION: 5

Rui Fernandes (Portugal), **José Antonio Tárrio** (Chile), **Chokila Chokila** (Bhutan), **Gonçalo Henriques**, **Pedro Almeida** and **Marcelo Caverlotti** (Portugal): Using NTV2 Files for Datum Transformations in Deforming Regions: The Cases of Bhutan and Chile (12678)

FIG GENERAL ASSEMBLY – DAY 1

SUNDAY, 19 MAY 09:00–15:00
VENUE: PLENARY DOME, LA PALM
CHAIR: DR. **DIANE DUMASHIE**, FIG PRESIDENT
RAPporteur: MS. **LOUISE FRIIS-HANSEN**, FIG DIRECTOR

FIG YSN CHARITY EVENT

SUNDAY, 19 MAY 14:00–16:00
VENUE: LA PALM BEACH

Join us for a fun-filled charity beach volleyball event!
 Are you ready to spike for a cause? We invite you to join us for an exhilarating day of beach volleyball in support of two incredible organizations the VCSO (Volunteer Community Surveyors Program) and the FIG Foundation.
Why It Matters
 Your involvement can make a significant difference. The FIG YSN-VCSO is dedicated to empowering young surveyors and communities through volunteerism, offering vital support and resources where they're needed most. Meanwhile, the FIG Foundation focuses on advancing the geospatial sciences, aiding in research, education, and outreach worldwide.



FIG WORKING WEEK 2028 RECEPTION

SUNDAY, 19 MAY 15:00–16:00
VENUE: ROYAL DRAGON – AFRICAN CORNER, LA PALM

This year, the location for the FIG Working Week 2028 was up for a vote. However, the decision has been made, and we'll be heading to Paris, France, to commemorate the 150th anniversary of FIG's founding. In 1878, seven national associations – Belgium, France, Germany, Great Britain, Italy, Spain, and Switzerland – came together in Paris to establish FIG on 18 July.

For official member delegates only.

OPENING CEREMONY

SUNDAY, 19 MAY 17:00–18:30
VENUE: PLENARY DOME, LA PALM

The opening ceremony will provide a spectacular introduction to the Working Week, its theme, and its unique location – a festive start of the Week.

During the opening all attendees will be met by the national and local culture and welcome addresses by our host from the Ghana and locally from Accra.

- Dr. **Anthony Arko Adjei**, GhIS President
- Surv. Ing. **Samuel Larbi Darko**, LISAG President
- Hon. **Samuel A. Jinapor**, Minister for Lands and Natural Resources
- Ms. **Nsama Nsemiwe Chikolwa**, Africa Union Representative
- Dr. **Diane Dumashie**, FIG President
- President **Nana Addo Dankwa Akufo-Addo**, President of Ghana

WELCOME RECEPTION: AKWAABA NIGHT

SUNDAY, 19 MAY 19:00–21:00
VENUE: POOL SIDE, LA PALM

Welcome to Accra! As the sun sets on the first day of the FIG Working Week, we invite all delegates, registered accompanying persons, and exhibitors to join us for the official Welcome Reception. Embrace the spirit of companionship and connection as we gather to renew old friendships and forge new acquaintances. This special evening, also known as Akwaaba Night, embodies the warmth and hospitality of Ghanaian culture, with 'Akwaaba' meaning 'Welcome' in the local language. Let's come together to celebrate the beginning of our conference journey and the vibrant community awaiting us in Accra. See you there!"

To attend the Welcome Reception, participants must first pick up their conference badge, which serves as their entry pass to the event. Upon badge collection, each participant will also receive two drink tickets, redeemable at the reception for complimentary beverages.

Monday, 20 May				
	PLENARY 1	PLENARY 2	ROYAL DRAGON – AFRICAN CORNER	“THE MARKET”
08:00–09:00			Newcomers Session	
09:15–10:05	PLENARY SESSION 1 – Part 1: People and Place: Africa insights connecting Land Governance for All – Plenary Dome, La Palm			
10:05–11:15	PLENARY SESSION 1 – Part 2: Traditional Leaders, Africa: Governance Connectivity Challenges and Positive Impacts of Technology – Plenary Dome, La Palm			
11:15–11:45	Deep Dive SDG – Plenary Dome, La Palm		Morning Break – Exhibition Hall, La PalmA	
11:45–13:15	TS02A: Open Spatial Digital Data for Resilient Environments and Societal Well-being– C: 3	TS02B: Transparency: Definition and Measurement of Transparency in the Real Estate Market, Good Cases– C: 9	TS02C: The Quest for Good Land Governance in Africa	TS02D: Deformation Monitoring of Civil Structures and Natural Phenomena– C: 6
13:15–14:30	Lunch – Restaurant, La Palm			FIG Platinum Member Session: LEICA GEOSYSTEMS
14:30–16:00	TS03A: Land Administration Education – C: 2, 7, GLTN, NELGA	TS03B: Facing the Changing Climate & Environmental Degradation: Hydropatial Solutions– C: 4 & TF Climate	FIG Director Generals Forum	TS03D: New Approaches in Data Acquisition, Visualization and Interaction with Data– C: 6
16:00–16:30	Afternoon Break – Exhibition Hall, La Palm			
16:30–18:00	TS04A: Academic Networks for Knowledge Sharing – C: 2	TS04B: Valuation Challenges: Valuation, Standards, Expropriation– C: 9	Access to Land for Sustainable Climate Action and Infrastructure– C: WB	Sponsor Presentations: GEOSA: 16:30–17:00 SUPER MAP: 17:00–17:30 SOUTH SURVEY INSTRUMENT: 17:30–18:00
Tuesday, 21 May				
08:00–09:00			TS05C: International Trends and Future Geospatial Information Ecosystem – C: TF Trends	
09:15–11:15	PLENARY SESSION 2: Land Tenure, Resources and Minerals: Building Sustainable and Resilient Resource Management for the Planet – Plenary Dome, La Palm			
11:15–12:15	Deep Dive SDG – Plenary Dome, La Palm (11:15–11:45)		Morning Break – Exhibition Hall, La PalmA	
12:15–13:15	ANNUAL MEETINGS– FIG COMMISSIONS 1– 10 (Diverse venues, see p. 45)			
13:15–14:30	Lunch – Restaurant, La Palm			FIG Platinum Member Session: TRIMBLE
14:30–16:00	TS07A: COCOBOD Session	TS07B: ESG-Valuation, Taxes and Economics– C: 9	TS07C: Meeting of Presidents of African Land Professional Associations– C: ARN	TS07D: In To Africa: Surveying History Revealed– C: History
16:00–16:30	Afternoon Break – Exhibition Hall, La Palm			
16:30–18:00	TS08A: Smart Hydrography for Sustaining the Hydrospatial Domain– C: 4	TS08B: Management of Real Estate under ESG Criteria– C: 9 & 10	FIG Member Association Forum	TS08D: Land Governance and Legal Solutions– C: 7
Wednesday, 22 May				
08:00–09:00			TS09C: Regional Capacity Development Networks – Collaboration Forum 1	
09:15–11:15	PLENARY SESSION 3: Your World – Our World: Inclusive Urban Geospatial Infrastructure – Plenary Dome, La Palm			
11:15–11:45	Deep Dive SDG – Plenary Dome, La Palm		Morning Break – Exhibition Hall, La Palm	
11:45–13:15	TS10A: Good Practices of African Academic Institutions in Responding to the Needs of the Land Sector	TS10B: Digital Technologies in Construction – The Future Vision of BIM– C: 10	CASLE MEETING (11:45–13:45)	TS10D: Land Management Tools for Spatial Governance– C: 8
13:15–14:30	Lunch – Restaurant, La Palm			FIG Platinum Member Session: ESRI
14:30–16:00	TS11A: GIS, BIM, Digital Twin, and NSDIs: Pushing-forward the Smart City Vision – Session 2– C: 3	TS11B: Southern Africa Innovations in Education – C: 2	TS11C: Regional Capacity Development Networks – Collaboration Forum 2	TS11D: Measuring Progress, Driving Impact: Surveyors at the Forefront of Sustainable Development– C: 2, 7 & TF SDG
16:00–16:30	Afternoon Break – Exhibition Hall, La Palm			
16:30–18:00	TS12A: Progresses in Crowdsourced and Grassroots Global and Local Initiatives– C: 3	TS12B: Diversity and Collaboration – How Experts can work together to improve transparency – C: 9	TS12C: The African Woman Land Professional and Good Land Governance in Africa: Challenges and Opportunities	

					Monday, 20 May
ODWIRA	KUNDUM	ADAE KESIE	DAMBA 1	OTHER	
	TS01F: Novel Cost-Effective Positioning & Engineering Systems and their Applications for Africa – C: 5 & 6	TS01G: Climate Change and Land Administration – C: 7 & TF Climate			08:00–09:00
					09:15–10:05
					10:05–11:15
					11:15–11:45
TS02E: Land Use Planning for Tenure Security in and around Urban, Peri-Urban and Rural Areas – C: 8, GLTN, NUST	TS02F: The Future of FIG YSN: Charting A Course For Sustainable Growth And Impact – C: YSN	TS02G: Fit-for-Purpose Land Administration: Cases and Impacts – C: 7	TS02H: Smart Construction Approaches for Sustainable Development – C: 10		11:45–13:00
					13:00–14:30
TS03E: Geo-Spatial Intelligence for Smart and Sustainable Settlements – C: 3 & 8	The Impact of Youth on Land Administration Globally: Showcasing the VCSP – C: 7, GLTN, Trimble & YSN	TS03G: 3D Land Administration and Digital Twins – C: 3, 7, ISO, OGC	TS03H: Promoting Inclusive Practices in Geospatial Professions		14:30–16:00
					16:00–16:30
TS04E: Addressing Land Degradation and Restoration through Spatial Planning – C: 8 & UNCCD	TS04F: Africa-China Joint Knowledge Exchange: Urban-Rural Land Experiences and Practices – C: 8, Hanns Seidel Found., NUST, GLTN	TS04G: Land Administration Domain Model: Status Check – C: 3 & 7	TS04H: Task Force on the Surveyor's Profession: Evolutionary Diversity and Inclusion – ROUND TABLE		16:30–18:00
					Tuesday, 21 May
TS05E: Spatialities: Land, Spatial Development and Climate Change – C: 8, GLTN, NUST, NELGA	TS05F: The Growing Roles & Responsibilities of Surveyors as Data Engineers and Resource Managers – C: 5, TF SDG	TS05G: Cadastral Data Quality, Openness and Methods – C: 7	TS05H: Land Administration Education Workshop – C: 2, 7, GLTN, NELGA Southern Africa	FIG Foundation Meeting (7:00–9:00) Kwafie – FIG President's Room	08:00–09:00
					09:15–11:15
		TS06G: Session en français – 1 (11:45–13:15)			11:15–12:15
					12:15–13:15
					13:15–14:30
FIG Academic Forum	TS07F: Accelerating Land Administration Success with GNSS CORS Networks: Insights for Senior Decision Makers – C: 5, 7, ARN, IAG, IGS, UN-GGIM-Africa, UN-GGCE	TS07G: Session en français – 2 (14:30–16:00)	TS07H: What Specific Actions can Individual Surveyors and Professional Bodies take to Achieve Women's Land Rights? – C: 1, 7, S4HL, WB		14:30–16:00
					16:00–16:30
TS08E: Transforming Ghana's Land Administration System: the Role of the Land Commission	TS08F: GNSS CORS Reference Stations and Networks – Session 2 – C: 5, 7, ARN, IAG, IGS, UN-GGIM-Africa, UN-GGCE	TS08G: Session en français – 3	Critical Emerging Areas for Global Work towards Gender Equality in the Land Sector – C: GLTN		16:30–18:00
					Wednesday, 22 May
TS09E: Mapping the Surveying Profession's Climate Impact Potential – C: YSN & TF Climate	TS09F: Advancing Surveying through Technology including Uncrewed Systems – C: 5	FIG Presidents Meeting (07:30–09:00)			08:00–09:00
					09:15–11:15
					11:15–11:45
TS10E: Investment and Finance Issues in Land Administration – C: 7 & 9	TS10F: Mapping the Plastic – C: 4 & TF Climate	TS10G: Cadastral Innovations World Tour – C: 7	TS10H: Empowering and Improving the Life of Women in Muslim Communities through increased access to Housing, Land and Property – C: GLTN		11:45–13:15
					13:15–14:30
Forum for Regional Bodies (FoRB)	TS11F: Exploring Climate Issues Together – Interactive Workshop Session – C: TF Climate	TS11G: Land Policy Issues and Innovations – C: 7 & UN-GGIM EG-LAM	TS11H: Valuation of Unregistered Land – Next Stages for Non-Market Value, Expropriation and... – C: FIG, RICS, IVSC, CASLE, FGF, UN GLTN	FIG Corporate Members Meeting Kwafie – FIG President's Room	14:30–16:00
					16:00–16:30
TS12E: Digitally Transformed Land Governance in Action – C: 7 & 8	TS12F: Climate Resilience Actions for the Future – C: TF Climate, 2, 3, 7, 8	TS12G: Cadastral AI and Remote Sensing – C: 7	TS12H: Construction Contract Management – C: 10		16:30–18:00

Monday, 20 May 8:00–9:00

NEWCOMERS SESSION

MONDAY, 20 MAY 08:00–09:00
VENUE: ROYAL DRAGON – AFRICAN CORNER, LA PALM
CHAIR: MR. MIKAEL LILJE, FIG VICE PRESIDENT, SWEDEN
RAPPORTEUR: MS. CLAUDIA STORMOEN, FIG EVENT MANAGER

New to the FIG Working Week?

Join us at the session for newcomers to meet members of the council, the FIG Office and other participants who will experience the FIG Working Week for the first time. Do not miss this opportunity to learn more about FIG, on how to maximize your conference experience and making most of your attendance. First time attendees will be introduced to the programme, the keynote speakers, the session tracks, the roundtable discussions, the sponsors and social events.

We look forward to seeing you there!

TS01F: NOVEL COST-EFFECTIVE POSITIONING & ENGINEERING SYSTEMS AND THEIR APPLICATIONS FOR AFRICA

MONDAY, 20 MAY 08:00–09:00
VENUE: KUNDUM, LA PALM
COMMISSION: 5 & 6
CHAIR: MR. PETER BAUER, AUSTRIA
RAPPORTEUR: MR. DAVID MULINDWA, UGANDA

Krasimir Matev and Raphael Goudard (Switzerland): Best Practices for Adopting 3D Laser Scanning and Mobile Mapping (12437)

Jun Wang, Lee Hellen, Gao Wenzong, Wang Charles and Ryan Keenan (Australia): Low-Cost GNSS Solution to Denotify the National Terrestrial Reference Frame Stations (12561)

Okorocho Chika and Raphael Ehigiator (Nigeria): The Applications of Sacredion Online GNSS Positioning Service (SOGPOS) for Real-Time Kinematic GNSS Correction in Asset Mapping and Management (12563)

Joseph Owusu-Awuah (Ghana): Delivering Sustainable Surveying Engineering Business in the 21st century – The Entrepreneurial Approach (12577)

TS01G: CLIMATE CHANGE AND LAND ADMINISTRATION

MONDAY, 20 MAY 08:00–09:00
VENUE: ADAE KESIE, LA PALM
COMMISSION: 7 & TF CLIMATE
CHAIR: MS. ANGELA ANYAKORA, NIGERIA
RAPPORTEUR: DR. CHARISSE GRIFFITH-CHARLES, TRINIDAD AND TOBAGO

Edward A. A. Kwesi, Benjamin Edem Meteku, Joseph Amihere Kwofie, Mary N. Korklu Odai, Isaac Yirenkyi and Kwame Tenadu (Ghana): Mapping of Land Surface Temperature Trends in the Mining Areas of Tarkwa-Prestea, Ghana (12446)

Bamiji Michael Adeleye, Kenneth Ssemwogerere, Isolo Paul Mukwaya, Oluibukun Gbenga Ajayi (Namibia) and **Morenikeji Gbenga** (Nigeria): Spatio-temporal assessment of the influence of urban change on land surface temperature (12361)

Markus Junttila (Finland): Finnish wind power projects and its legal survey in expropriation procedure (12381)

Ganesh Prasad Bhatta, Reshma Shrestha, Dev Raj Paudyal and Sunil Babu Shrestha (Nepal): Resilient for Tenure Security in the Face of Climate Change: a Case from Nepal (12695)

Ugonna Nkwunonwo, Ndukwe Chiemelu and Elijah Ebinne (Nigeria): Sustainable Land Resources Management Using Goal programming MCDA model: Evidence from Best Practice in Natural Resources Management (12676)

Monday, 20 May 2024 9:15–11:15

PLENARY SESSION 1 – PART 1: PEOPLE AND PLACE: AFRICA INSIGHTS CONNECTING LAND GOVERNANCE FOR ALL

MONDAY, 20 MAY 09:15–10:05
VENUE: PLENARY DOME, LA PALM
CHAIR: DR. DIANE DUMASHIE, FIG PRESIDENT, UNITED KINGDOM

The land and climate action agenda necessary to underpin governance needs strong institutions with good land laws operating on the land (and marine) continuum of rights, for a healthy planet and healthy people as well as good stakeholder practice. Capturing insights by dividing this into two sections first UN multi-lateral approaches and second Traditional African Authority approaches. The speakers will be exploring the nexus of Geography and the rights and responsibilities of land tenure and people recognising that Africa is on the critical path to achieve sustainability in the context of SDG13 (Climate).

Speakers:

- Hon Dr **Henry Kwabena Kokofu**, Executive Director of Environmental Protection Agency (EPA)
- **Ernest Acheampong**, Capacity Development coordinator, Group on Earth Observation GEO
- **Henry Kwabena Kokofu** (Ghana): 1.1 – Plenary Session (12756)
- **Ernest Acheampong** (Switzerland): Supporting the Sustainable Development Goals – A Strategic Action for the Group on Earth Observations (GEO) (12757)

PLENARY SESSION 1 – PART 2: TRADITIONAL LEADERS, AFRICA: GOVERNANCE CONNECTIVITY CHALLENGES AND POSITIVE IMPACTS OF TECHNOLOGY

MONDAY, 20 MAY 10:05–11:15
VENUE: PLENARY DOME, LA PALM
CHAIR: PROF. STIG ENEMARK, FIG HONORARY PRESIDENT, DENMARK

Panel:

- **Nana Kobina Nketsia V**, Paramount Chief of Essikado Traditional Area, Sekondi, Western Region of Ghana
- **H.M (Arc,) Barr. King Adedapo Aderemi Adeen** of Ido-Osun, Nigeria
- **His Royal Highness Chief Chamuka VI** – Morgan-Kumwenda Zambia

DEEP-DIVE SESSION ON SDG

MONDAY, 20 MAY 11:15–11:45
VENUE: PLENARY DOME, LA PALM
COMMISSION: SDG
CHAIR: MS. MARISA BALAS, MOZAMBIQUE & MR. RONALD SSENGENDO, UGANDA

Join the plenary speakers on stage for a dedicated Q&A session. Dive deeper into the climate challenges in Africa and the role of land towards a more sustainable planet. Share knowledge, brainstorm and formulate actions for FIG to take the inspiring stories and lessons learned on board to achieve the Sustainable Development Goals.

TS02A: OPEN SPATIAL DIGITAL DATA FOR RESILIENT ENVIRONMENTS AND SOCIETAL WELL-BEING

MONDAY, 20 MAY 11:45–13:15

VENUE: PLENARY 1, LA PALM

COMMISSION: 3

CHAIR: MR. CROMWELL MANALOTO,

ITALY

RAPPORTEUR: MR. DANIELE CAMELE,

ITALY

Benedict Mberede (Nigeria): The Need for an Open Geospatial Data Platform for Smart City Development in Lagos, Nigeria (12711)

Frank Badu Osei (Netherlands): A Marginalized Zero-Inflated Spatially Varying Coefficient Model for Disease Modeling (12752)

Chigbu Njike and Francis Oti (Nigeria):

Geospatial Mapping and Visualization of Abia State Polytechnic, Aba, Nigeria: a Total Station-Based Digital Terrain Model Approach (12778)

TS02B: TRANSPARENCY: DEFINITION AND MEASUREMENT OF TRANSPARENCY IN THE REAL ESTATE MARKET, GOOD CASES

MONDAY, 20 MAY 11:45–13:15

VENUE: PLENARY 2, LA PALM

COMMISSION: 9

CHAIR: MRS. GRAZYNA WIEJAK-ROY,

UNITED KINGDOM

RAPPORTEUR: DIPL.-ING. PETER ACHE,

CHAIR FIG COMMISSION 9, GERMANY

Grazyna Wiejak-Roy, Jaideep Roy and Andrew D.A.C. Smith (United Kingdom): Opacity by Design – Transparency of the Allotment Gardens' Market in Warsaw (12422)

Ruud Kathmann, Luc Hermans and Marco Kuijper (Netherlands): Fit For Purpose Real Estate Valuation (12520)

Charl-Thom Bayer (Denmark) and **Laura Meggiolaro** (Italy): The State of Land Data in Africa: Fuelling Africa's Future (12521)

Audrey Darkwah (Ghana): Enhancing Equitable Compensation in Expropriation Affecting Businesses in Ghana: Exploring the Nexus Between Compensation Assessment, Legal Frameworks and International Standards (12573)

TS02C: THE QUEST FOR GOOD LAND GOVERNANCE IN AFRICA:

MONDAY, 20 MAY 11:45–13:15

VENUE: ROYAL DRAGON – AFRICAN CORNER, LA PALM

CHAIR: MR. MOHAMMED MAMMAN

KABIR, CHAIR FIG ARN, NIGERIA

RAPPORTEUR: MR. SULEMANA

MAHAMA, GHANA

Connecting the Modern and Traditional Land Administration Systems to Bridge the Chasms
Discover the intricate tapestry of land governance in Africa. Uncover the clash between traditional and modern approaches, the struggle for inclusivity, and the rising conflicts over land rights.

Join us as we delve into the urgent need for reevaluation and explore how traditional wisdom can shape a path towards sustainable development. Don't miss the chance to be part of the solution for Africa's land challenges.

The session aims to build upon the presentation of traditional leaders at the plenary session to create awareness on the need to connect modernity with tradition for a sustainable land governance in Africa.

The panelists and Discussants:

- Paramount chief Nana Kobina Nketia V. (Ghana)
- His Royal Highness Chief Chamuka VI Morgan Kumwenda (Zambia)
- H.M (Arc,) Barr. King Adedapo Aderemi Adeen (Nigeria)
- Mayor Adama Sarr (Senegal) to present city government's perspectives
- Mrs. Godelive Phanzu Bitaka (DRC) to present women perspectives
- Oumar Sylla (UN-Habitat)
- Mr. Eric Nyadimo (Kenya) to represent land professionals' perspectives
- Innocent Antoine Houedji, Coordinator of Youth Initiative for Land in Africa (YILAA) to represent African youth and NGOs

TS02D: DEFORMATION MONITORING OF CIVIL STRUCTURES AND NATURAL PHENOMENA

MONDAY, 20 MAY 11:45–13:15

VENUE: STAGE AREA – "THE MARKET", LA PALM

COMMISSION: 6

CHAIR: PROF. DR. WERNER LIENHART,

CHAIR FIG COMMISSION 6, AUSTRIA

RAPPORTEUR: DR. CRAIG HILL,

SWITZERLAND

Lidija Špiranec (Switzerland): Transforming Big Monitoring Data into Reliable Information About Movements (12432)

Adamu Bala (China, PR), **Bilal Sani, AbdulAzeez Onotu Aliyu and Aliyu Zailani Abubakar** (Nigeria): Analyzing a Section of Ahmadu Bello University's Electrical Grid Using Geometric Network Analysis and Trace Function (12554)

Prosper Laari, Ziggah Yao Yevenyo and Adusei Stephen (Ghana):

A Composite Open Pit Mine Wall Geodetic Deformation Prediction Model Based on Grasshopper Optimisation and Artificial Neural Network (12412)

Arnessa Gooding, Dexter Davis and Keith Miller (Trinidad And Tobago): Hybrid Networks for Geodetic Data Collection toward Deformation Monitoring (12683)

Craig Hancock, Paul Bhatia, Chris Hill, Jack Starkey, Angel Arcia and Tim Wright (United Kingdom): AIPLAN: Infrastructure Monitoring through AI-Integrated Geospatial Solutions (12727)

TS02E: LAND USE PLANNING FOR TENURE SECURITY IN AND AROUND URBAN, PERI-URBAN AND RURAL AREAS

MONDAY, 20 MAY 11:45–13:15

VENUE: ODWIRA, LA PALM

COMMISSION: 8, GLTN, NUST

CHAIR: MS. ELVENA HAYFORD, NAMIBIA

RAPPORTEUR: MS. PENEHAFO

RICARDO, NAMIBIA

Isham Pelpuo, Anthony Arko-Adjei and Kwame Obeng (Ghana): Impact of Cashew Plantation on Land Tenure in Jaman South Municipality (12541)

Xavier Prigent (France): The Concept of Land Sobriety: Zero Net Land Take The new challenges of urban and rural planning in Europe Proposal of a game to set up the territorial strategy (12647)

Jennilee Kohima (Namibia), **John Gitau** (Kenya), **Cathrine Marenga, Malcon Mazambani and Uchendu Chigbu** (Namibia): Critical Issues with Social Tenure Domain Model in Tenure-Responsive Land Use Planning in Okahandja, Namibia (12665)

Monday, 20 May 2024 11:45–13:15

TS02F: THE FUTURE OF FIG YSN: CHARTING A COURSE FOR SUSTAINABLE GROWTH AND IMPACT

MONDAY, 20 MAY 11:45–13:15
VENUE: KUNDUM, LA PALM
COMMISSION: YSN
CHAIR: MS. SHIRLEY CHAPUNZA,
 CHAIR, FIG YOUNG SURVEYORS NET-
 WORK, ZIMBABWE
RAPPORTEUR: MR. JAMES APPIAH,
 GHANA

The session is poised to be a pivotal discussion that delves into the evolving landscape of the Young Surveyors Network (YSN). As we navigate the dynamic challenges and opportunities in the field of surveying, this session aims to shape a forward-thinking strategy for the network, ensuring its continued relevance and impact within the FIG community and across the surveying profession. The goal is to foster an inclusive and collaborative YSN environment shaped by diverse perspectives, innovative ideas, and a commitment to global collaboration and sustainable development.

Guiding Questions for Discussions:

- Vision and Goals: What should be the specific goals for YSN in the next year? How can these align with the broader objectives of the FIG Council and surveying profession?
- Leadership Transition: How can we ensure a smooth transition of leadership within YSN? What qualities and skills should new leaders possess?
- Membership Engagement: In what ways can YSN enhance engagement with its members, considering diverse geographical locations and professional backgrounds?
- Global Collaboration and DEI: What opportunities exist for YSN to collaborate with other young surveyors' networks globally? How can such collaborations benefit the members and the profession as a whole?
- Technological Integration: How can YSN leverage emerging technologies and trends to better connect with and serve its members?

TS02G: FIT-FOR-PURPOSE LAND ADMINISTRATION: CASES AND IMPACTS

MONDAY, 20 MAY 11:45–13:15
VENUE: ADAE KESIE, LA PALM
COMMISSION: 7
CHAIR: MR. ISRAEL TAIWO, NIGERIA
RAPPORTEUR: MR. RAFIC KHOURI, FRANCE

Patrick Matata and Gordon Wayumba (Kenya):
 Utilizing Open Source Geospatial Technologies to Map Communal Land Rights in Kenya. (12550)

Israel Taiwo, Matthew Ibitoye and Sunday Oladejo (Nigeria):
 Comparison between Fit-for-Purpose and Conventional Cadastral Mapping Practices in Ekiti State; Nigeria (12407)
This is a peer reviewed paper.

Salaheldin Abukashawa (Sudan), **Rafic Khouri** (France), **Bidour Gusai** (Saudi Arabia), **Hisham Et Tigani** (Egypt) and **Ombretta Tempra** (Italy):
 Land Professionals in the Arab Region, Roles, capacities and contribution to land governance and land tenure security (12718)

Åse Christensen and Stig Enemark (Denmark):
 Providing Secure Land Rights in Informal Settlements: A Case Study from Mombasa, Kenya (12728)

Solomon Njogu and John Gitau (Kenya):
 Towards a Framework for Community Land Registration in Informal Settlement; Lessons and Experiences From Four Informal Settlements in Kenya (12601)

Aurélia Decherf, Aude Areste Lamendour (France), **Severin Nibitanga** (Burundi) and **Jean Philippe Lestang** (France):
 PRRPB: a Project to Secure the Land Rights of the Most Vulnerable People (12584)

Eva-Maria Unger, Claudia Lindner, Rohan Bennett (Netherlands), **Mahamat Abdoulaye Malloum** (Chad), **Kaspar Kundert** (Rwanda), **Kate Fairlie** (Australia) and **Christelle van den Berg** (Netherlands):
 Spatial Framework in Chad: An Assessment using COFLAS and the MCC Land Records and Transaction Systems Technology Toolkit for Effective Land Administration (12617)

Ahmed Hemoudi, Malumbo Chipofya and Dimo Todorovski (Netherlands):
 Community Land Registers for Internally Displaced Persons, South Darfur, Sudan: ICT Solution (12615)

Malcon Mazambani (Namibia):
 Advancing Land Administration Systems: Namibia's communal land administration system (12660)

TS02H: SMART CONSTRUCTION APPROACHES FOR SUSTAINABLE DEVELOPMENT

MONDAY, 20 MAY 11:45–13:15
VENUE: DAMBA 1, LA PALM
COMMISSION: 10
CHAIR: MR. BOLAJI SOTUNDE,
 NIGERIA
RAPPORTEUR: MS. GABRIEL NANI,
 GHANA

Daniele Camele, Enrico Davoli, Leonardo Franchi and Sara Geponi (Italy):
 Future-Ready Buildings: Increase Smart Assets Now to Prepare an Effective Building Renewal Tomorrow. (12638)

Nani Gabriel, Emmanuel Wiribare, Nkrumah Kwabena Mante and Yussif Halitu (Ghana):
 Smart Contracts for Decentralized Construction Project Bidding in Ghana: Challenges and Feasibility (12616)

Princess Nortey and Gabriel Nani (Ghana):
 Essentials for Green Building Adoption in Ghana (12424)

Priscilla Akabudike (Nigeria):
 Quantity Surveyors Role in Sustainable Development in the Nigerian Construction Industry (12496)

Robert Sarib, Damon Whish-Wilson and Bill Payze (Australia):
 A Multi-disciplinary and Collaborative Approach for Defining Cadastral Boundaries and Recognising Traditional / Customary Lands (12719)

LEICA GEOSYSTEMS: ADDRESSING COMPLEX GLOBAL CHALLENGES THROUGH GEOSPATIAL INNOVATION

MONDAY, 20 MAY 13:15–14:30
VENUE: STAGE AREA – "THE MARKET", LA PALM

Governments around the world are currently experiencing major global challenges, such as climate change, rapid population growth, resource shortages, and urbanisation. Join Leica Geosystems, part of Hexagon, to see why data is key to finding solutions to these problems, and discover how some of the latest geospatial innovations are already helping.

Speaker:

Dr. Simon Musäus, Vice President, Hexagon
FIG Corporate Platinum Member:

Mon 20 14:30–16:00

TS03A: INNOVATIONS IN EDUCATION

MONDAY, 20 MAY 14:30–16:00
VENUE: PLENARY 1
COMMISSION: 2
CHAIR: PROF. ROSARIO CASANOVA, URUGUAY
RAPPORTEUR: MR. OLUIBUKUN AJAYI, NAMIBIA

Oluibukun Ajayi (Namibia):
 Harnessing AI Chatbots in Higher Education for Innovative and Ethical Advancements in the Built Environment (12391)

Lopang Maphale and Sibonile Sibanda (Botswana):
 Bridging the Gap: Aligning University Geomatics Programs with Industry Needs and Enhancing Graduates' Employability in Botswana (12438)

Oleg Barsukov (Russia):
 Innovations in Surveying Education. Geospatial Digital Training of Qualified Specialists and Implementation of Technologies in the Real Sector of Economy. (12476)

Angela Omamuyowwi Anyakora (Nigeria) and **Manyo Samuel Mboh** (Cameroon):
 Unveiling Synergies: YSN-WA Webinars on African Geo-portals and the Impact of AI in Surveying for Sustainable Development in West Africa (12497)

TS03B: FACING THE CHANGING CLIMATE & ENVIRONMENTAL DEGRADATION: HYDROSPATIAL SOLUTIONS

MONDAY, 20 MAY 14:30–16:00
VENUE: PLENARY 2, LA PALM
COMMISSION: 4 & TF CLIMATE
CHAIR: DR. MALAVIGE DON ERANDA KANCHANA GUNATHILAKA, SRI LANKA
RAPPORTEUR: DR. CLARISSA AUGUSTINUS, IRELAND

Gordon Johnston (United Kingdom):
 Hydrographic Surveying and the Carbon Footprint of Data – Can we establish Sustainable Surveying? (12482)

Ivan Dario Camacho Puerto, Ana María Estupiñán Muñoz and Johan Andrés Avendaño Arias (Colombia):
 Effect of Sea Level Rise (SLR): Global Warming and, cadastral and population conformation of the Colombian Caribbean. (12546)

Priscilla Djaba and Stephen Djaba (Ghana):
 The Integration of Geographic Information Systems to Monitor and Analyze Coastal Erosion in the Central Region of Ghana (12572)

Fatima Eshun, Shine Francis Gbedemah, Samuel Joe Acquah, Eric Nyarko-Sampson and Edward Wiafe Debrah (Ghana):
 Geospatial Techniques in Mitigating the Effects of Climate Change to Create a Sustainable Environment in Yilo Krobo Municipality (12779)

Laurent Pronier, Benoit Cajelot and Jean Louis Carme (France):
 A High Resolution Accurate Seamless Coastal Model of 650+ km, North of France (12631)

Celine Buisson Rosvold (Norway):
 Marine Base Maps in the Coastal Zone – the Norwegian model for sustainable development (12689)

Tanja Dufek, Ralf Freitag, Thomas Kuhn and Harald Sternberg (Germany):
 Navigation Improvement in Post-Processing of Deep-Towed Multibeam Echo Sounder Data Used for Exploration of Hydrothermal Venting Sites (12751)

Jeff Opoku-Gyambibi, Michael Nyoagbe and Kwaku Nyarko (Ghana):
 Leakage Reporting and Management Using GIS: A Case Study of the Tema Region (12783)



FIG DIRECTOR GENERALS FORUM

MONDAY, 20 MAY 14:30–16:00
VENUE: ROYAL DRAGON – AFRICAN CORNER, LA PALM
CHAIR: DR. MIKAEL LILJE, FIG VICE PRESIDENT, SWEDEN

The annual FIG Director Generals Forum brings together Chief Executives or Director Generals of national (or provincial) agencies and FIG Affiliate Members that have responsibility over mapping, cadastre, valuation, planning and development, land administration and management from around the world. The Forum allows peer-to-peer engagement to address the present challenges and opportunities, including the responsibility of national agencies to stay relevant and effective.

This year the DG Forum is intended to focus on the 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals (SDGs). During this and the previous term, FIG has a Task Force on the Sustainable Development Goals. The intention is that the Forum will have introductory presentations presenting both global and national initiatives for governmental agencies on how the SDGs are part of and supporting the development for a region or country. The presentations will be followed by an open discussion where all participants are welcome to participate. The list of presenters will be shared in due time.

TS03D: NEW APPROACHES IN DATA ACQUISITION, VISUALIZATION AND INTER-ACTION WITH DATA

MONDAY, 20 MAY 14:30–16:00
VENUE: STAGE AREA – “THE MARKET”, LA PALM
COMMISSION: 6
CHAIR: PROF. DR. WERNER LIENHART, CHAIR FIG COMMISSION 6, AUSTRIA
RAPPORTEUR: MR. PETER BAUER, AUSTRIA

SURVEY REVIEW REWARD WINNER:
Peter Bauer, Caroline Schönberger and Werner Lienhart (Austria): Interactive planning of GNSS monitoring applications with Virtual Reality (12401)

This is a peer reviewed paper.

Gabriel Kerekes and Volker Schwieger (Germany): Possibilities and Limitations in the Extrinsic Synchronization of Observations from Networks of Robotic Total Stations (12449)

Derek Spalton, Giacomo Anderson and James Statham (United Kingdom): The Application of Traditional Traverse Control Using a Terrestrial Laser Scanner, a Case Study of the Gold Hill Scheduled Monument, Shaftesbury, Dorset Uk (12490)

Masaki MURAKAMI (Japan): Study on Modernizing the General Standard of Operation Specifications for Public Surveys (2) Estimation of Uncertainties Regarding the Proposed Operation Specifications for Control Surveys (12545)

TS03E: GEO-SPATIAL INTELLIGENCE FOR SMART AND SUSTAINABLE SETTLEMENTS

MONDAY, 20 MAY 14:30–16:00
VENUE: ODWIRA, LA PALM
COMMISSION: 3 & 8
CHAIR: DR. KWABENA OBENG ASIAMA, CHAIR FIG COMMISSION 8, GHANA
RAPPORTEUR: MR. ZIFCEAC IAROSLAV, ROMANIA

Walter Dachaga, Walter Timo de Vries (Germany) and **Elias Danyi Kuusaana** (Ghana): Land Tenure (in)formality and Disease Prevalence in Cities: an Exploratory Spatial Analysis of Urban Neighborhoods in Accra. (12619)

SURVEY REVIEW REWARD WINNER:
Markus Schaffert and Torge Steensen (Germany): Demographic Transition In Aging Neighborhoods: A GIS-Based Analysis From Germany's Countryside (12399)

This is a peer reviewed paper.

Emmanuel Idu and Pamela Agbonika (Nigeria): Optimizing Locations for Best Management Practices in Watershed Zones in Developing Societies (A Case Study of Edim Otop Area in Calabar, Nigeria). (12575)

Samuel O. Ukanwa, Maduabughichi Divine Okenzie, Njike Chigbu, J. O Ejikeme and Chioma Christaina Gabriel (Nigeria): Site Suitability Analysis and Risk Assessment of Petroleum Filling Stations in Umuahia Metropolis in Umuahia North I.g.a Using Gis Technique. (12559)

Issaka Yakubu, Felix Tabase, Bernard Kumi-Boateng and Prosper Basommi Laari (Ghana): Geospatial Assessment of Planning Schemes using GIS and Remote Sensing Techniques-A Case Study of the Tarkwa Area (12419)

Duncan Moss (United Kingdom), **Vladimir Krupa** (Croatia) and **Kalogiannakis Michalis** (Greece): The Role of Geodetic Surveyors in Disaster Management (12749)

THE IMPACT OF YOUTH ON LAND ADMINISTRATION GLOBALLY: SHOWCASING THE VCSP

MONDAY, 20 MAY 14:30–16:00
VENUE: KUNDUM, LA PALM
COMMISSION: 7, GLTN, TRIMBLE & YSN
CHAIR: MR. DAVID ELEGBEDE AND MS. ROSHNI SHARMA, CO-LEADS OF VCSP
RAPPORTEUR: MS. ANGELA ANYAKORA, NIGERIA

This session will launch the VCSP's FIG Publication about its in-Country Deployments, which showcases how the younger generation can contribute to land administration issues across all global regions. We'll talk about climate change and land security, new technologies and the impacts they have on communities on-the-ground, and the incredible impact of having the chance to work in these contexts to shape the career pathways of young surveyors.

During this session, we'll feature a panel discussion featuring the some of our Volunteer Community Surveyors who have been deployed in-Country, alongside the VCSP Core Team who have organised the program as it has evolved over the last seven years, GLTN as the primary sponsor who has allowed the program to happen, and Trimble who have supported new technologies to be involved. We'll then have a participatory discussion with you, our audience, on the impact of youth on land administration globally. Our hope is that through attending this session, you come away with a clear understanding of the important role that young surveyors play in land administration, and the inspiration and energy to encourage as many of the younger generation that you know to take on an active role as volunteers.

Guiding Questions for Discussions:

- What are the critical roles that youth can play in land administration issues?
- How has volunteerism changed over time (before, during and after COVID)?
- What might GLTN's Phase 4 bring in supporting young surveyors?
- How does the GLTN influence policy adjustment to support its approach in different countries?

Session format:

- Short Introduction by chairs
- Presentation to launch the FIG Publication
- Panel discussion – VCSP Core Team (**Roshni Sharma, David Elegbede, Angela Anyakora**), GLTN (**John Gitau**), Trimble (**Markus Koper**), VCS (**Diana Kyalo and Israel Taiwo** representing WG7.2).
- Open discussion

TS03G: 3D LAND ADMINISTRATION AND DIGITAL TWINS

MONDAY, 20 MAY 14:30–16:00
VENUE: ADAE KESIE, LA PALM
COMMISSION: 3, 7, ISO, OGC
CHAIR: MR. KEES DE ZEEUW, NETHERLANDS
RAPPORTEUR: MR. IAN HARPER, AUSTRALIA

Ian Harper (Australia): Fit For Purpose 2D Cadastres as the foundation for 3D Cadastral Modelling and Digital Twins. Comparing different solutions from Australia and Indonesia. (12552)

Dorus Kruse (Netherlands): Digitalisation and New Technologies Within Spatial Data in Relation to Key Registers Topography, Addresses / Buildings and 3d Cadastre. (12712)

Katie Pickett and Matthew Woodlief (USA): 3D Cadastres for Sustainable Development (12698)

Shlomi (Shlomo) Sivan and Yaron Felus (Israel): Development of a Cutting-Edge 3D Cadastral Management System (12710)

Juerg Luethy, Andreas Wieser (Switzerland) and **Victor Khoo** (Singapore): Success Factors for a Digital Twin of Subsurface Utilities – Experiences from the Comparison of Singapore and Zurich (12512)

Yosef Harvey Cortes Milan, Kellith Melixa Gomez Urrego and Johan Andres Avendaño Arias (Colombia): Methodological Cadastral Baseline for the Multipurpose Physical Survey of Properties Using SFM CRP Photogrammetric Techniques for 3d Reconstruction. (12696)

Zeynep Bayramoglu, Ismail Dursun, Mustafa Aslan and Mehmet Zeki Adli (Türkiye): Creation of 3D City Models and Sustainability of the Project; Türkiye Example (12564)

Mon 20 14:30–16:00

TS03H: PROMOTING INCLUSIVE PRACTICES IN GEOSPATIAL PROFESSIONS

MONDAY, 20 MAY 14:30–16:00
VENUE: DAMBA 1, LA PALM
CHAIR: MR. **STEPHEN DJABA**, CHAIR, FIG TASK FORCE ON DIVERSITY, GHANA
RAPPORTEUR: MS. **ANGELA ANYAKORA**, NIGERIA

Sara Gepponi, Enrico Davoli, Leonardo Franchi and Daniele Camele (Italy):
 Together for the Future (12499)

Rose Mwaura (Kenya):
 Diversity Within Surveying, and Also in the Provision of Surveying Services to the Community (12556)

Michelle Blicavs (Australia):
 Developing the Value of Surveying for Future Surveyors (12753)

Stephen Djaba (Ghana):
 Harnessing the Power of Kids in Surveying Program (12754)

Tomasz Malinowski (Poland):
 Geodesy Students' Club – How to Show Practical Activities in the Modern World of Geodesy (12536)

Malinowski Tomasz (Poland):
 Geodetic and Cartographic Knowledge Olympiad – Our World, Your Knowledge of How to Motivate Young People. (12533)

Monday, 20 May 2024 16:30–18:00

TS04A: ACADEMIC NETWORKS FOR KNOWLEDGE SHARING

MONDAY, 20 MAY 16:30–18:00
VENUE: PLENARY 1, LA PALM
COMMISSION: 2
CHAIR: DR. **DIMO TODOROVSKI**, CHAIR, FIG COMMISSION 2, NETHERLANDS
RAPPORTEUR: DR. **MONICA LENGIOBONI**, NETHERLANDS

Diogye Diouf and Demba Sow (Senegal):
 Short-term training : an alternative for capacity building and training of actors involved in land tenure in Senegal (12364)

Moinca Lengioboni (Netherlands), **Mireille Biraro** (Rwanda), **Katcho Karume** (Democratic Republic of Congo), **Agnex Mwasumbi** (Tanzania), **David Siriba** (Kenya) and **Adam Achameyeh Gashu** (Ethiopia):
 Impact of COVID-19 on Land Administration and Surveying Education: Online Education – Experiences from Eight Universities in Africa (12440)

Georgia Giannopoulou, Ekaterina Gorokhova and Jérôme Dutell (Germany):
 Attracting Foreign Surveyors to Germany: Intentions and Implementation (12534)

Pietro Grimaldi (Italy):
 International Training Summer School by COIFA (12755)

Dimo Todorovski, Luc Groot (Netherlands), **Rohan Bennett** (Australia), **Claudia Lindner** (Germany), **Andre da Silva Mano** (Portugal), **Gashut El Hadi** (Tunisia) and **Kholoud Saad** (Egypt):
 GLTN Workshop – Application of Fit-For-Purpose Land Administration in the Arab Region 5–8 December 2023 (12781)

José Valero and José Herrera (Colombia):
 Assisted teaching and self-learning Virtual tool in Land use and Cover Maps (12409)

TS04B: VALUATION CHALLENGES: VALUATION, STANDARDS, EXPROPRIATION

MONDAY, 20 MAY 16:30–18:00
VENUE: PLENARY 2, LA PALM
COMMISSION: 9
CHAIR: MR. **RUUD KATHMANN**, NETHERLANDS
RAPPORTEUR: MR. **PETER R. ACHE**, CHAIR FIG COMMISSION 9, GERMANY

Faus Tinus Handi Feryandi, Putri Nurul Probawati and Yohanes Nurcahyo Agung Wibowo (Indonesia):
 Define the Valuation Variables of Aquatic Land Parcels in Coastline Settlements of Indonesia (12428)

Wolfgang Glunz (Germany):
 The Residual Method – Opportunities and Risks (12495)

Nigel Sellars (United Kingdom):
 Sustainability and Residential Property Valuation (12625)

Frank Gyamfi-Yeboah and Jonathan Zinzi Ayitey (Ghana):
 Unexpired Lease Terms and Land Values in Ghana (12635)

CONSULTATIONS ON THE GLOBAL WORLD BANK PROGRAM ON ACCESS TO LAND FOR SUSTAINABLE CLIMATE ACTION AND INFRASTRUCTURE

MONDAY, 20 MAY 16:30–18:00
VENUE: ROYAL DRAGON – AFRICAN CORNER, LA PALM
COMMISSION: WB
CHAIR: MR. **MIKA TORHONEN**, GLOBAL LEAD LAND ADMINISTRATION SPECIALIST, WORLD BANK
RAPPORTEUR: MR. **LINUS POTT**, SR. LAND ADMINISTRATION SPECIALIST, WORLD BANK

The consultations on access to land for sustainable climate action and infrastructure seek to explore themes, approaches, and alliances for a proposed global World Bank program on Access to Land for Sustainable Climate Action and Infrastructure.

Vast tracts of land will be needed globally for climate actions (afforestation, Renewable Energy investments, low carbon urban development and others) committed in the COP26. At the same time the land stocks diminish for cultivation or living because of the temperature increases, drought, sea level rise, floods, and frequent disasters. This together with rapid urbanization add up to an unprecedented demand for land, which will stress private, public, communal, customary/ indigenous peoples' and other rights on land for decades. In this context, the consultations seek inputs to the proposed global program from governments, land sector professionals, private sector practitioners, and civil society.

The consultations specifically seek to hear voices from Africa but are open to participants from all regions.

Programme:

- **Introduction** of session objectives and proposed Global World Bank program on Access to Land for Sustainable Climate Action and Infrastructure by chair (10 minutes)
- **Gathering of initial reflections** to inform open forum:
 - Reflections from the FIG Young Surveyor Network (10 minutes)
 - Reflections from a government perspective (10 minutes)
 - Reflections from private sector and/or CSO perspectives (10 minutes)
- **Moderated Q&A** with the audience (45 minutes)
- **Wrap up** by chair (5 minutes)

GEOSA: SURVEY AND GEOSPATIAL INFORMATION IN SAUDI ARABIA IN THE PAST, PRESENT AND FUTURE

MONDAY, 20 MAY 16:30–17:00
VENUE: EXHIBITION HALL, LA PALM

We are going to talk about surveying work in the Kingdom of Saudi Arabia and what was established in the past, and how the current work of the General Authority for Survey and Geospatial Information began, and its pioneering role in the Saudi Arabia renaissance and achieving Vision 2030. And what are the future expectations for surveying and geospatial information.

Speakers:

- Eng. **Othman Alkherayef**
- Eng. **Naif Aljuhany**
- Eng. **Saad Alqahtani**
- Eng. **Ghazi Alqahtani**

GEOSA
 الهيئة العامة للمساحة
 General Authority for Survey and Geospatial Information



Monday, 20 May 2024 16:30–18:00

TS04E: ADDRESSING LAND DEGRADATION AND RESTORATION THROUGH SPATIAL PLANNING**MONDAY, 20 MAY 16:30–18:00****VENUE:** ODWIRA, LA PALM**COMMISSION:** 8 & UNCCD**CHAIR:** DR. **IYENEMI KAKULU**, NIGERIA**RAPporteur:** DR. **ADRIANNA CZARNECKA**, POLAND

Richard Sliuzas (Netherlands), **Borges Chivambo** (Mozambique), **Simon-Peter Mwesigye** (Uganda), **Maria Clara van der Hammen** (Colombia), **Monica Lengoiboni** (Netherlands), **Berta Rafael** (Mozambique), **Teddy Kisembo**, **Jordana Wamboga**, **Evelyn Ajambo** (Uganda), **Carlos Rodriguez** (Colombia), **Federica Acquaviva**, **Karel Boers** (Kenya) and **Marta Cavallaro** (Italy): Land Governance for Climate Resilience (12435)

Iyenemi Ibimina Kakulu (Nigeria) and **Charles Atakora** (Germany): Land Use and Spatial Planning Tools to Address Land Degradation and Promote Land Restoration (12519)

Guro Voss Gabrielsen (Norway): Spatial Land-Use Budgeting for Climate Actions (12576)

Katarzyna Redzińska, **Adrianna Czarnecka** (Poland), **Otha Pokladok** and **Oleksandra Dyda** (Ukraine):

Spatial Implications of Climate Actions – the Role of Spatial Planning for Climate Change Adaptation in Poland and Ukraine (12722)

Kate Fairlie (Australia): How Spatial Planning and Land Administration Reduce Deforestation – an Indonesian Case Study (12580)

TS04F: AFRICA-CHINA JOINT KNOWLEDGE EXCHANGE: URBAN-RURAL LAND EXPERIENCES AND PRACTICES**MONDAY, 20 MAY 16:30–18:00****VENUE:** KUNDUM, LA PALM**COMMISSION:** 8, HANNS SEIDEL FOUNDATION, NUST, GLTN**CHAIR:** MS. **JENNILEE KOHIMA**, NAMIBIA**RAPporteur:** MS. **PENEHAFO RICARDO**, NAMIBIA

Ruishan Chen (China, PR): Examining the land restoration in China in the past 30 years: policies, achievement and future development (12788)

Xiaoli Wang (China, PR): Exploration and Practice of China's Construction Land Saving and Intensive Use Evaluation System (12789)

Hongbin WEI (China, PR): Study on nature-based solutions to enhance resilience of urban land space in ecological restoration planning (12790)

Wang NAN (China, PR): Basic Farmland Protection System in China: Changes, Conflicts and Prospects (12791)

Uchendu Eugene Chigbu (Namibia), **Chen Ruishan** (China, PR), **Laina Alexander** (Namibia) and **Guo Xiaona** (China, PR): Rural Development in China and Namibia: Comparison of Problems and Policy Responses (12641)

SUPER MAP: THOUGHTS AND PRACTICES ON CONSTRUCTION OF 3D REAL SCENE AND NEW FUNDAMENTAL SURVEYING AND MAPPING**MONDAY, 20 MAY 17:00–17:30****VENUE:** STAGE AREA – “THE MARKET”, LA PALM

The construction of new fundamental surveying and mapping system is comprehensively advancing in China. Relying on high-precision surveying and mapping technologies and data processing capabilities, it is establishing a nationwide 3D real scene and smart city spatio-temporal big data platform. We will introduce SuperMap's thoughts and practices in the construction of the new fundamental surveying and mapping system from the perspective of integration of data production, management, service, and application.

Speaker: Mr. **Hu Chenpu**, General Manager of Product Engineering Team, SuperMap

SOUTH SURVEY: VIRTUAL REALITY GEO**MONDAY, 20 MAY 17:30–18:00****VENUE:** STAGE AREA – “THE MARKET”, LA PALM

VR-GEO has revolutionized the future of education. Since its introduction, traditional reliance on paper books has given way to a blend of digital and analog learning experiences. Over 300 schools have already embraced VR-GEO in their educational practices. Notably, prestigious institutions like Wuhan University and China University of Geosciences are among the early adopters. What factors could have persuaded 300 headmasters to integrate VR-GEO into their curricula within such a short timeframe?

TS04G: LAND ADMINISTRATION DOMAIN MODEL: STATUS CHECK**MONDAY, 20 MAY 16:30–18:00****VENUE:** ADAE KESIE, LA PALM**COMMISSION:** 3 & 7**CHAIR:** MR. **MICHAEL BARRY**, CANADA**RAPporteur:** MR. **DIDIER MILINDI RUGEMA**, ETHIOPIA

Christine Leslie (USA) and **Amir Bar-Maor** (Netherlands):

Exploring Research, Development and Innovation in the Parcel Fabric: a LADM-conformant Data Model for Representing, Storing and Adjusting Land Boundaries (12524)

Roy Joannides, **Dimo Todorovski** and **Javier Morales** (Netherlands):

Towards Improved Land Administration Services: A Model To Support Cadastral Data Interoperability Among Land Agencies In Accra, Ghana (12535)

Cathrine Marenga, **Tapiwa Maruza** (Namibia), **John Gitau**, **Paul Gathogo** (Kenya) and **Jennilee Kohima** (Namibia):

Land Information in Informal Settlement Upgrading: the Social Tenure Domain Model as an Empowerment Tool in Okahandja, Namibia (12634)

Wayumba Gordon, **Odhiambo Bernard**, **Martin Sure Ondiwa**, **Nyakongo Boaz** and **Samson Ayugi** (Kenya):

A Web-Based Object-Relational Cadastral Model for Kenya: The Case for Spatially Enabled Land Governance. (12423)

TS04H: TASK FORCE ON THE SURVEYOR'S PROFESSION: EVOLUTIONARY DIVERSITY AND INCLUSION – ROUND TABLE**MONDAY, 20 MAY 16:30–18:00****VENUE:** DAMBA 1, LA PALM**CHAIR:** MR. **TIMOTHY BURCH**, CHAIR FIG COMMISSION 1, UNITED STATES**RAPporteur:** MR. **NIGEL SELLARS**, UNITED KINGDOM

Recognizing the imperative of fostering diverse perspectives, equitable opportunities, and inclusive practices, this session serves as a platform for dialogue, reflection, and action towards building a more inclusive profession.

Panelists:

- **Stephen Djaba** (Ghana)
- **Hans Ni** (China)
- **Jennifer Whittal** (South Africa)
- **Paula Dijkstra** (Netherlands)
- **Tomasz Malinowski** (Poland)

Mon 20 Evening

Ghanaian Evening**MONDAY, 20 MAY 19:00–22:30****VENUE:** KWAME NKURUMAH MEMORIAL PARK

Join us for an enchanting Ghanaian evening, promising an immersive cultural journey like no other.

Step into the vibrant ambiance of the Kwame Nkrumah Memorial Park, an iconic venue set to host an unforgettable outdoor event.

Prepare to be captivated by a diverse array of musical and cultural performances, ensuring a memorable experience for every attendee.

From traditional dances to contemporary showcases, there's something for everyone to enjoy and cherish for years to come.

This special evening also serves a noble cause, as we proudly support the FIG Foundation, with Trimble as the main sponsor.

The Evening is sponsored by Trimble. €10,- per sold Ghanaian Evening goes to FIG Foundation.

Registration is required. Tickets available for purchase from the Registration Desk.

Tuesday, 21 May 2024 8:00–9:00

TS05C: INTERNATIONAL TRENDS AND FUTURE GEOSPATIAL INFORMATION ECOSYSTEM**TUESDAY, 21 MAY 08:00–09:00****VENUE:** ROYAL DRAGON – AFRICAN CORNER, LA PALM**COMMISSION:** TF TRENDS**CHAIR:** DR. KIRSikka RIEKKINEN, FINLAND**RAPPORTEUR:** DR. RYAN KEENAN, CHAIR, FIG COMMISSION 5, AUSTRALIA

Future Geospatial Information Ecosystem will be shaped by international trends such as technological development and economic pressure. What other trends have an influence, and what is their anticipated impact? Gather around round tables to discuss about the future of surveying and surveyors!

Guiding Questions for Discussions:

- Which international trends do you think are the most important regarding surveying and geospatial information?
- Considering the different fields and regions, do you feel that the same trends apply to the fields/regions? Why, why not?
- What are the most anticipated impacts or outcomes of the trends for industry and for professionals working in the industry?

Table hosts:

- Adamu Bala, China
- Daniel Stuedler, Switzerland
- Hartmut Müller, Germany
- Rosario Casanova, Uruguay

Tue 21 7:00–9:00

FIG FOUNDATION MEETING**TUESDAY, 21 MAY 07:00–09:00****VENUE:** KWAFIE – FIG PRESIDENT'S ROOM, LA PALM**CHAIR:** MR. BRYN FOSBURGH, FIG FOUNDATION PRESIDENT, UNITED STATES**RAPPORTEUR:** MS. LOUISE FRIIS-HANSEN, FIG DIRECTOR*By Invitation only***TS05E: SPATIALITIES: LAND, SPATIAL DEVELOPMENT AND CLIMATE CHANGE****TUESDAY, 21 MAY 08:00–09:00****VENUE:** ODWIRA, LA PALM**COMMISSION:** 8, GLTN, MUST, NELGA (SOUTH/WEST AFRICA)**CHAIR:** MS. JENNILEE KOHIMA, NAMIBIA
RAPPORTEUR: MR. MALCON MAZAMBANI, NAMIBIA

Moustapha Keita-Diop (Guinea): Climate change, environmental transformation and land tenure issues for local communities (12636)

Mario Siukuta, Penehafo Ricardo, Laina Alexander, Cathrine Marenga, Ntwala Vanessa Simataa and Uchendu Eugene Chigbu (Namibia): The role of Traditional Authorities in promoting Sustainable Climate Strategies in Namibia (12637)

Ntwala Simataa, Laina Alexander, Penehafo Ricardo, Cathrine Marenga, Mario Siukuta and Uchendu Eugene Chigbu (Namibia): Geo-agriculture for Climate Resilience: Towards Pioneering Anticipatory Adaptation in Namibia (12671)

Uchendu Eugene Chigbu and Penehafo Ricardo (Namibia): Socializing with Artificial Intelligence (AI) on Spatial Development in Sub-Saharan Africa (12624)

TS05F: THE GROWING ROLES & RESPONSIBILITIES OF SURVEYORS AS DATA ENGINEERS AND RESOURCE MANAGERS**TUESDAY, 21 MAY 08:00–09:00****VENUE:** KUNDUM, LA PALM**COMMISSION:** 5, TF SDG**CHAIR:** MR. HUMPHREY TOGBE AMEGADOE, GHANA**RAPPORTEUR:** DR. FRANK DERBY, GHANA

Samuel Osah, Akwasi Afrifa Acheampong and Osman Mohammed Abukari (Ghana): Ground-based GNSS for Meteorological Applications in Ghana (12701)

Ibrahim Magemeso, Richard Oput, Godfrey Toko, Cyril Romieu, Bosco Ogwang (Uganda): Enhancing Geodetic Controls for Secure Geospatial Data Quality and Integrity in Uganda (12591)

Gabriel Scarmana (Australia): Evaluating the Accuracy of Oblique Photography in Determining Urban Tree Heights (12351)

Alexander Ayetey (Ghana): Reaffirmation of Ghana-Togo Boundary: a Crossroads of Old and New Approaches to Position Determination (12642)

Paa Kwesi Ezanator Akuffo Owusu-Ensaw, Ernest Obiri-Yeboah, Anthony Wordi, Joseph Owusu-Awuah and Portia Gyemfah Addo (Ghana): Navigating Precision with Network Controls for Construction Continuity (12587)

Richmond Nii Otokunor Sackey, Eric Kofi Kwaako and Seyram Quist (Ghana): Construction Economics – The Economic Impact of a Resident Geomatic Engineer (12581)

Sylvester Efe Owhojeta (Nigeria): Surveying of Oil Theft Activities in Wetlands Nigeria – A Case Study of Niger Delta Region. (12640)

TS05G: CADASTRAL DATA QUALITY, OPENNESS AND METHODS**TUESDAY, 21 MAY 08:00–09:00****VENUE:** ADAE KESIE, LA PALM**COMMISSION:** 7**CHAIR:** MR. ANTHONY ARKO-ADJEI, GHANA
RAPPORTEUR: PROF. LEIV BJARTE MJØS, NORWAY

Kees de Zeeuw and Amir Bar-Maor (Netherlands): Best Practices of Cadastral Systems Using GIS (12477)

Cornel Paunescu, Catalin Ciprian Marinescu, Iaroslav Zifceac and Lia Stelea (Romania): Study on the Minimum and Maximum Number of Control Points on the Ground when Making an Orthophoto Plane (12569)

Sumeyye Ebrahimi, Ismail Dursun and Mustafa Arslan (Türkiye): Improving Data Quality of Cadastre Parcels Using Parcel Fabric Module and Evaluation of Dynamic Adjustment Approach: Rubber Sheetting and Least Squares Adjustment Methods Case Study: UQ Campus (12588)

Arve Leiknes and Leiv Bjarthe Mjøs (Norway): Methods for Improving Cadastral Maps – Case Study in Røst, Norway (12667)

Ludmila Pietrzak, Pawet Hanus and Hopper Andrzej (Poland): Property Marking Synchronization in the Cadastre (12537)

DEEP-DIVE SESSION ON SDG**TUESDAY, 21 MAY 11:15–11:45****VENUE:** PLENARY DOME, LA PALM**COMMISSION:** SDG**CHAIR:** MR. GANESH PRASAD BHATTA, NEPAL & MR. KENNETH NORRE, DENMARK

Join the plenary speakers on stage for a dedicated Q&A session. Dive deeper into the resource challenges in Africa on how our profession can contribute to more sustainable resource management practices for the planet. Share knowledge, brainstorm and formulate actions for FIG to take the inspiring stories and lessons learned on board to achieve the Sustainable Development Goals.

TS05H: LAND ADMINISTRATION EDUCATION WORKSHOP**TUESDAY, 21 MAY 08:00–09:00****VENUE:** DAMBA 1, LA PALM**COMMISSION:** 2, 7, GLTN, NELGA SOUTHERN AFRICA**CHAIR:** DR. SIMON HULL, SOUTH AFRICA

Time to roll up your sleeves, put your thinking caps on, and dive into the world of land administration education! In this session we will be exploring how best to design curricula to train land professionals in this dynamic and broad domain. The realisation of many SDGs is contingent on an environment of sound land governance and the presence of effective and functioning land administration systems. These require suitably trained and educated graduates. In this workshop, we will be exploring what this takes.

Guiding Questions for Discussions:

- At what educational level should land administration programmes be developed (UG, PG, CPD, etc. / Diploma, Bachelors, PG Dip/Hons, Masters, PhD)?
- What are the core knowledge areas and learning outcomes for land administration programmes?
- What is the scope of work like for land administration graduates, and what accreditation criteria do they need to meet?

MORNING BREAK: EXHIBITION AND NETWORKING HOUR**TUESDAY, 21 MAY 11:15–12:15****VENUE:** EXHIBITION HALL, LA PALM

Unlock unparalleled opportunities for networking and exploration during **Exhibition and Networking Hour**. Delve into an hour-long immersive experience designed to connect you with leading industry partners and companies and fellow attendees. This dedicated session promises not only extended time to peruse the latest innovations but also invaluable opportunities to forge new connections, exchange insights, and cultivate professional relationships. Don't miss this prime opportunity to amplify your conference experience and maximize your networking potential. Join us for an enriching hour of discovery and collaboration.

PLENARY SESSION 2: LAND TENURE, RESOURCES AND MINERALS: BUILDING SUSTAINABLE AND RESILIENT RESOURCE MANAGEMENT FOR THE PLANET

TUESDAY, 21 MAY 09:15–11:15

VENUE: PLENARY DOME, LA PALM
CHAIR: MS. PAULA DIJKSTRA, CHAIR,
FIG TASK FORCE ON SDGS, NETHER-
LANDS

Driven by the agenda that Africa is on the critical path to sustainability. This plenary will focus on minerals & forestry and the impact of the younger surveyor generation in community practices. We rely upon the effective use of technology to address environmental goals which we will hear requires comprehensive geodetic infrastructure.

Speakers:

- **Hon Joseph Boahen Aidoo** Chief Executive, Ghana Cocoa Board
- **Professor Daniel Mireku-Gyimah** University of Mines and Technology
- **Head of office, Nick Brown** Head of office UN-GGIM Global Geodetic Centre of Excellence
- **Roshni Sharma and David Elegbede**, FIG Young Surveyors Volunteer Community Surveyor Programme VCSP
- **Joseph Boahen Aidoo** (Ghana): African Approach to Addressing Global Warming and Climate Change: Cocoa, The Unsung Mollifier (12760)
- **Daniel Mireku-Gyimah** (Ghana): To Mine or not to Mine – The Economic Controversy and its Resolution (12761)
- **Nicholas Brown** (Germany): How sustainable and resilient are the global geodesy foundations we are building on? (12762)
- **Roshni Sharma** (Australia) and **David Elegbede** (Nigeria): Mapping the World a Better Place: The impact of Young Surveyors on Land Administration and Climate through the VCSP (12763)

TS06G: SESSION EN FRANÇAIS – 1

TUESDAY, 21 MAY 11:45–13:15

VENUE: ADAE KESIE, LA PALM
CHAIR: MR. MARC
VANDERSCHUEREN, BELGIUM
RAPPEUR: MS. GODELIVE
PHANZU VANGU, CONGO,
DEMOCRATIC REPUBLIC OF THE

Cette session est en français pour permettre une participation active des membres non-anglophones de la FGF (Fédération des Géomètres de Langue Française) et donner la possibilité aux membres de la FIG.

Marc Lievin Vanderschueren (Belgium): Perspectives de la Fédération des Géomètres Francophones (FGF) en 2024 (12530)

Godelive Phanzu Vangu (Democratic Republic of Congo): Le leadership traditionnel en RDC (12731)

Audrey Alajouanine (France): Mise en œuvre d'un processus complet de collecte, de traitement et d'utilisation des données multispectrales des drones pour l'agriculture (12734)

Rodolphe Mawana and Godelive phanzubitaka (Democratic Republic of Congo): Problematique Des inondations Dans La Ville De kinshasa. (12745)

ANNUAL FIG COMMISSION MEETINGS

The FIG Commissions are responsible for pursuing FIG's technical objectives and are the backbone of the professional work in FIG. The Commission meetings are open for everyone who are interested in the work.

COMM. 1: PROFESSIONAL STANDARDS AND PRACTICE

TUESDAY, 21 MAY
12:15–13:15
VENUE: PLENARY DOME
CHAIR: MR. TIMOTHY
BURCH, UNITED STATES

Working Groups:

- WG 1 – International Ethics Standards
- WG 2 – Women in Surveying
- WG 3 – International Boundary Settlement and Demarcation

Severine Vernet

(France): OGE-France a Regulatory Body to Supervise the Surveying Profession Driving Forward and Sharing Its Vision of a Profession That Is Transforming Itself and Serving the Public Interest (12583)

COMM. 7: LAND MANAGEMENT AND CADASTRE

TUESDAY, 21 MAY
12:15–13:15
VENUE: ADAE KESIE
CHAIR: DR. ROHAN BENNETT, AUSTRALIA

Working Groups:

- WG 7.1 – Framework for Effective Land Administration (FELA)
- WG 7.2 – Fit for Purpose Land Administration (FFPLA)
- WG 7.3 – 3D and LADM (3D/LADM)
- WG 7.4 – Artificial Intelligence 4 Land Administration (AI4LA)
- WG 7.5 – Women's Access to Land and S4HL
- WG 7.6 – Integrated Land Management
- WG 7.7 – Education in Land Administration
- WG 7.8 – Comparative Land Administration

Rohan Bennett (Australia), **Paula Dijkstra** (Netherlands), **Eva-Maria Unger** (Austria) and **Christelle Van den Berg** (Netherlands): State of the Cadastre 2024 (12685)

COMM. 2: PROFESSIONAL EDUCATION

TUESDAY, 21 MAY
12:15–13:15
VENUE: PLENARY DOME
CHAIR: DR. DIMO
TODOROVSKI,
NETHERLANDS

Working Groups:

- WG 1 – Developing and strengthening academic networks
- WG 2 – Innovation in Curriculum development implementation
- WG 3 – Young surveyors in Education – Learning styles in surveying education
- WG 4 – Land Administration Education

COMM. 3: SPATIAL INFORMATION MANAGEMENT

TUESDAY, 21 MAY
12:15–13:15
VENUE: DAMBA 1
CHAIR: MR. MARKUS
SCHAFFERT,
GERMANY

Working Groups:

- WG 1 – Geospatial data: professionalism, technology, and services
- WG 2 – Urban challenges in developing countries
- WG 3 – GIS for sustainable (geo-)spatial planning
- WG 4 – LADM and 3D LA
- WG 5 – Geospatial next

COMM. 8: SPATIAL PLANNING AND DEVELOPMENT

TUESDAY, 21 MAY 12:15–13:15
VENUE: ODWIRA
CHAIR: DR. KWABENA
OBENG ASIAMA, GHANA

Working Groups:

- WG 1 – Urban-rural land linkages
- WG 2 – Unregistered Land and large-scale acquisition/compensation
- WG 3 – Spatial Planning Instruments and Climate Change
- WG 4 – Digital Transformation for Land Management and Spatial Governance
- WG 5 – Spatial Plan and Valuation Information in LADM Context

COMM. 4: HYDROGRAPHY

TUESDAY, 21 MAY
12:15–13:15
VENUE: PLENARY DOME
CHAIR: DR.
MALAVIGE DON
ERANDA KANCHANA
GUNATHILAKA, SRI
LANKA

Working Groups:

- WG 4.1 – Hydrographic Standards and Guidelines.
- WG 4.2 – Sustainable Oceans and Hydrography.
- WG 4.3 – Mapping the Plastic.
- WG 4.4 – Hydro-spatial Domain and Marine Administration.
- WG 4.5 – Climate Change induced Sea Level Rise and Adaptation.

COMM. 5: POSITIONING AND MEASURE-SURVEYS MENT

TUESDAY, 21 MAY
12:15–13:15
VENUE: KUNDUM
CHAIR: DR. RYAN
KEENAN, AUS-
TRALIA

Working Groups:

- WG 1 – Standards, Quality Assurance and Calibration
- WG 2 – 3D Reference Frames
- WG 3 – Vertical Reference Frames
- WG 4 – GNSS
- WG 5 – Multi-Sensor Systems
- WG 6 – Cost-Effective Positioning

TUESDAY, 21 MAY
12:15–13:15
VENUE: ROYAL
DRAGON – AFRICAN
CORNER
CHAIR: PROF.
DR. WERNER
LIENHART,
AUSTRIA

Working Groups:

- WG 1 – Deformation Monitoring and Analysis
- WG 2 – Dynamic Structural Monitoring
- WG 3 – Applications of immersive technologies in Engineering Geodesy
- WG 4 – Engineering Surveying Outreach

COMM. 9: VALUATION AND THE MANAGE- MENT OF REAL ESTATE

TUESDAY, 21 MAY
12:15–13:15
VENUE: DRAGON –
AFRICAN CORNER
CHAIR: MR. PETER R.
ACHE, GERMANY

Working Groups:

- WG 1 – Definition of Transparency on Real Estate Markets
- WG 2 – Best practice Cases on Transparent Real estate Markets
- WG 3 – Automated Valuation Modeling (AVM) with machine learning and artificial intelligence

COMM. 10: CONSTRUCTION ECONOMICS AND MANAGE- MENT

TUESDAY, 21 MAY
12:15–13:15
VENUE: PLENARY
DOME
CHAIR: MS. MERCY
IVORTYER, NIGERIA

Working Groups:

- WG 1 – Digital Technologies in Construction
- WG 2 – Sustainable Developments in the Built Environment
- WG 3 – Cost Information Management
- WG 4 – Commercial /Project Management

Tue 21 13:15–14:30

TRIMBLE: LEVERAGING TRIMBLE GEOSPATIAL SOLUTIONS FOR RESILIENT ENVIRONMENTS AND SUSTAINABLE RESOURCE MANAGEMENT

TUESDAY, 21 MAY 13:15–14:30

VENUE: STAGE AREA – “THE MARKET”, LA PALM

The FIG Conference 2024 in Accra, Ghana, provides a dynamic forum for practitioners, researchers, and stakeholders to learn and discuss the role of geospatial technologies in fostering resilient environments and sustainable resource management. This presentation will discuss the transformative potential of reality capture and augmented reality technologies and provide an overview of Trimble's software and hardware portfolio with practical examples.

Key themes to be addressed include:

- The benefits of mobile mapping and how AI enables the transformation of vast amounts of rich data into actionable insights for sustainable development.
- How 3D scanning solutions can be utilized to support informed decision-making coastal zones, forest ecosystems, and urban infrastructure to support informed decision-making
- An overview of Trimble hardware and software solutions for cadastral and boundary surveying as well as practical examples in the Fit-for-Purpose Land Administration sector. Map and define land ownership with accuracy.
- Join us in Accra, Ghana, as we explore how Trimble products and solutions, along with the seamless, connected workflows they facilitate, contribute to creating resilient environments and promoting sustainable resource management for everyone.

Speakers:

- **Munnawar Naik, Dennis Belgrado, Gilbert Sosi, Markus Koper**

FIG Corporate Platinum Member:



Tuesday, 21 May 2024 14:30–16:00

TS07A: COCOBOD SESSION

TUESDAY, 21 MAY 14:30–16:00

VENUE: PLENARY 1, LA PALM

TS07B: ESG-VALUATION, TAXES AND ECONOMICS

TUESDAY, 21 MAY 14:30–16:00

VENUE: PLENARY 2, LA PALM

COMMISSION: 9

CHAIR: DIPL.-ING. **PETER ACHE**, CHAIR FIG-COMMISSION 9, GERMANYRAPPORTEUR: **MR. NIGEL SELLARS**, UNITED KINGDOM

Michael Dermot McDermott

(Australia): Implementing Values by Setting Goals: What could Possibly go Wrong? (12579)

David Hunt (United Kingdom): Land Tax Reform for Greener Economies in the Caribbean: Trinidad & Tobago Case Study (12611)

Michael Nyoagbe, Gloria Afua Poku, Maxwell Akosah-Kusi, Francisca Ameley Armah and Matthias Otu Amanor (Ghana): Revolutionizing Revenue Streams: Harnessing Drone Technology for Seamless Meter Reading in Disaster Zones (12785)

Jean-Yves Bourguignon and

Xavier Prigent (France): Weighting and Optimizing Surface Areas for Economical Management of Existing Buildings (12644)

TS07C: MEETING OF PRESIDENTS OF AFRICAN LAND PROFESSIONAL ASSOCIATIONS

TUESDAY, 21 MAY 14:30–16:00

VENUE: ROYAL DRAGON – AFRICAN CORNER, LA PALM

COMMISSION: ARN

CHAIR: **MR. MOHAMMED MAMMAN**

KABIR, CHAIR FIG ARN, NIGERIA

RAPPORTEUR: **MR. DAGNOKO HAMED YACOUBA**, COTE D'IVOIRE

The meeting is to be convened as a follow-up to the First High Level Forum Meeting of Presidents of African land professional associations that took place at the African Union Headquarters, Addis Ababa, in November 2023. The Accra meeting will review the outcome of the meeting, access progress made, and chart the ways forward.

The meeting is closed and reserved for the presidents of African land professional associations, their deputies, and secretaries-general of the different associations.

By invitation only

TS07D: IN TO AFRICA: SURVEYING HISTORY REVEALED

TUESDAY, 21 MAY 14:30–16:00

VENUE: STAGE AREA – “THE MARKET”, LA PALM

COMMISSION: HISTORY

CHAIR: **MR. JOHN BROCK**, AUSTRALIARAPPORTEUR: **PROF. DR. KAZIMIERZ**

BECEK, POLAND

John Brock (Australia):

From Sydney to Sierra Leone – The Travels of NSW First Fleet Surveyor William Dawes (12679)

John AYER (Ghana):

LISAG, Tracing the Past and Charting a Strategic Path for a Better Tomorrow (12792)

Adam Łyszczowicz and Kazimierz Becek (Poland):

Nicolaus Copernicus, as a Surveyor and Cartographer (12526)

John Brock (Australia):

St. Helena Through the Eyes of Its Two Surveyors – Surveyor-General George Whalley Melliss and his His SOn Surveyor John Charles Melliss (12681)

FIG ACADEMIC FORUM

TUESDAY, 21 MAY 14:30–16:00

VENUE: ODWIRA, LA PALM

CHAIR: **DR. DIMO TODOROVSKI**, CHAIR, FIG COMMISSION 2, NETHERLANDSRAPPORTEUR: **PROF. ROSARIO CASANOVA**, URUGUAY

The aim of the Academic Forum, is to establish a platform for universities (Academic members) to meet, exchange ideas, and explore potential collaborations. A platform initiating discussions among participating universities to explore the value they derive from FIG, their expectations, and potential mutual benefits they could realize through collaboration. Agenda for this year's Academic forum is as follows:

- Opening
- Short intro of present Universities members (including one highlight and one challenge in your work)
- Presentation from Prof **Rosario Casanova**: results from the Global Survey on Geomatics/Land Surveying Education
- Inspiring ideas for the added value we could derive from FIG WW gatherings (e.g. joint research).
- Points that could be added to the next year's agenda of Academic Forum

TS07F: ACCELERATING LAND ADMINISTRATION SUCCESS WITH GNSS CORS NETWORKS: INSIGHTS FOR SENIOR DECISION MAKER

TUESDAY, 21 MAY 14:30–16:00

VENUE: KUNDUM, LA PALM

COMMISSION: 5, 7, ARN, IAG, IGS, UN-GGIM-AFRICA, UN-GGCE

CHAIR: DR. **RYAN KEENAN**, CHAIR, FIG COMMISSION 5, AUSTRALIA

GNSS Reference Stations (aka CORS) are now commonplace in nearly every nation on Earth – either as standalone stations or part of a networked solution, and contribute to both scientific and civil applications. They can support multiple purposes, ranging from real-time surveying and positioning on land, from the air, and on water.

The ambitious vision for extending land administration across Africa is highly dependent on nations establishing their own national reference frame as well as regional reference frames the establishment and sustained management of GNSS CORS infrastructure.

This session, is the first of two sessions, and will introduce the subject: GNSS CORS Reference Stations in the context of geodetic infrastructure to support and sustain land administration.

Diogoye Diouf (Senegal):

ITRF and Geodetic Reference Frames in Africa (12365)

Markus Bradke (Germany), **Ryan Ruddick** (Australia), **Allison B. Craddock** (USA) and **Ryan Keenan** (Australia):

Exploring the IGS Network: Engaging with the Global GNSS Community (12715)

Panel discussion:

- Ms. **Maroale Mimi Marth Chauke**, DRDLR, South Africa; President UN-GGIM-Africa
- Ms. **Izuegbu Ogochukwu**, Office of the Surveyor-General, (Nigeria)
- Mr. **Aslam Parker**, TRIGNET (South Africa)
- Mr. **Nicholas Brown**, Head, UN-GGCE (Germany)
- Ms. **Kate Fairlie**, Land Administration & FIG Commission 7 (Australia)
- Dr. **Ryan Keenan**, Chair FIG Commission 5 (Australia)

TS07H: WHAT SPECIFIC ACTIONS CAN INDIVIDUAL SURVEYORS AND PROFESSIONAL BODIES TAKE TO ACHIEVE WOMEN’S LAND RIGHTS?

TUESDAY, 21 MAY 14:30–16:00

VENUE: DAMBA 1, LA PALM

COMMISSION: 1, 7, S4HL, WB

CHAIR: DR. **MARISA BALAS**, MOZAMBIQUE
RAPPORTEUR: MS. **KATE FAIRLIE**, AUSTRALIA

Marisa Balas (Mozambique), **Rosana Albuquerque** (Portugal), **Christiaan Lemmen** (Netherlands) and **Kate Fairlie** (Australia): Singular Vision and Collective Action Are Required to Promote Women’s Access to Land and Land Tenure Security (12483)

Francesca Marzatico (New Zealand) and **Marisa Balas** (Mozambique):

The International Federation of Surveyors (FIG) publication n. 24 “Guidelines on Women’s Access to Land”: still relevant after 20 years. (12670)

Amy Cripps and **Kate Fairlie** (Australia): How Effective Are Initiatives to Recruit Women into Surveying? (12567)

Iyenemi Ibimina Kakulu (Nigeria):

Improving Gender and Women’s Access to Land by increasing land availability through land Conservation and land Restoration (12460)

Yenny Andrea Marín-Salazar, **Juan Sebastian Oviedo Mozo**, **Johan Andrés Avendaño Arias**, **Rolando Crespo** and **Luisa Cristina Burbano Guzmán** (Colombia):

Proposal to Measure Gender Gaps in Land Ownership Access in Colombia Using the Utilization of Administrative Records. (12553)

Leslie Hannay (USA) and **Nana Ama Yirrah** (Ghana):

Overcoming Barriers to Youth and Women’s Land Access and Tenure Security to Increase Efficiency, Equity, and Economic Empowerment Across Ghana’s Agricultural Value Chains (12528)

Basirata Abudu-Akindali and **Rebecca Dengure** (Ghana):

Introducing the Young Ones into Surveying Profession ESPECIALLY THE GIRL CHILD (12441)

Gad Asorwoe Akwensivie and **Priscilla Donkoh** (Ghana):

Women, land ownership and access to credit – Salient observations from rural Ghana (12782)

TS07G: SESSION EN FRANÇAIS – 2

TUESDAY, 21 MAY 14:30–16:00

VENUE: ADAE KESIE, LA PALM

CHAIR: MR. **JEAN-FRANCOIS DALBIN**, FRANCE

RAPPORTEUR: MR. **MARC VANDER-SCHUEREN**, BELGIUM

Cette session est en français pour permettre une participation active des membres non-anglophones de la FGF (Fédération des Géomètres de Langue Française) et donner la possibilité aux membres de la FIG.

Francis Gabele and **Marc Lievin Vanderschueren** (Belgium): Code civil belge : de la ruralité aux exigences du XXIème siècle (12531)

Godelive Phanzu Vangu (Democratic Republic of Congo): Votre monde, notre monde : un environnement résilient et une gestion durable des ressources pour tous (12732)

Xavier Prigent (France): Les nouveaux défis de la planification urbaine et rurale en Europe – Proposition d’un jeu pour mettre en place la stratégie d’aménagement du territoire (12733)

Bertin Mwanambuka Mafine and **Godelive Phanzubitaka** (Democratic Republic of Congo): Planification Integree De l’utilisation Des Terres soutenant La Conservation des Paysages Forestiers intacts Et L’utilisation durable Des Paysages conserves Et Productifs (12744)

TS08A: SMART HYDROGRAPHY FOR SUSTAINING THE HYDROSPATIAL DOMAIN

TUESDAY, 21 MAY 16:30–18:00
VENUE: PLENARY 1, LA PALM
COMMISSION: 4
CHAIR: MS. **TANJA DUFEK**, GERMANY
RAPporteur: DR. **KELVIN T.K.W.**, MALAYSIA

Sebastian Botsyo, Timothy Scott and Kenneth Kingston (United Kingdom): Ping DSP – Evaluation of Shallow Water Bathymetry and Object Detection Capability. (12404)
This is a peer reviewed paper.

Dino Dragun, Andrijana Horvat and Srečko Kajic (Croatia): Automated Solutions in the Off-shore Marine Geophysical Data Processing (12486)

Markus Kraft, Lukas Klatt and Harald Sternberg (Germany): Comparison of an EKF based Processing System with a Standard Hydrographic Software Tool using a Low Cost Bathymetric Multi Sensor Platform (12622)

Lukas Klatt, Markus Kraft and Harald Sternberg (Germany): Building a Platform for Testing Underwater Navigation Based on Environmental Sensor Data (12659)

Muhammad Algaamdi, Waleed AlMalki, Zeyad Ashanqity, Hamed AlMalki and Faisal AlShehri (Saudi Arabia): Evaluation of Positioning Methods Used to Fix Navigational Obstructions (12663)

Mohd Faizuddin Abd Rahman, Mohd Razali Mahmud, Ami Hassan Md Din and Mohammad Hanif Hamden (Malaysia): A Novel Approach of Integrating a Near-Seamless Tidal Datum and Digital Elevation Model for Maritime Boundary Delimitation (12747)

Gordon Johnston (United Kingdom): Hydrographic and Cartographic Competency Standards – Challenges and Opportunities (12481)

Michael Nyoagbe, David Nunoo, Mawunyo Kofiloto and Rosaline Arthur (Ghana): Improving Monitoring and Evaluation of Performance using spatial Data: Case Study GWL (12786)

TS08B: MANAGEMENT OF REAL ESTATE UNDER ESG CRITERIA

TUESDAY, 21 MAY 16:30–18:00
VENUE: PLENARY 2, LA PALM
COMMISSION: 9 & 10
CHAIR: PROF. **MALGORZATA RENIGIER-BILOZOR**, POLAND
RAPporteur: DIPL.-ING. **PETER ACHE**, CHAIR FIG COMMISSION 9, GERMANY

Bridget Adjei, Eric Tudzi, Anthony Owusu-Ansah and Joseph Kidido (Ghana): An In-Depth Systematic Literature Review of the Effects of Mining Activities on Land Tenure Systems in Ghana (12504)

Christopher Khaoya (Kenya): The Intersection of Building Maintenance and Quality of Urban Built Environment. (12568)

Stephen Ofori Smith and Akrofi E. O (Ghana): Spatio-Temporal Change Detection of Urban Green Space As a Result of Real Estate and Residential Development (Greater Accra) (12467)

Wilhelmina Mensah and Paul Eric Tudzi (Ghana): Outsourcing as a Strategic Tool for Enhancing Facilities Management Services in Ghanaian Manufacturing Firms (12503)

FIG MEMBER ASSOCIATION FORUM

TUESDAY, 21 MAY 16:30–18:00
VENUE: ROYAL DRAGON – AFRICAN CORNER, LA PALM
CHAIR: MR. **TONY WHEELER**, AUSTRALIA
RAPporteur: MS. **PAULA DIJKSTRA**, NETHERLANDS

FIG Member Association Presidents and representatives are invited to this Forum to discuss issues of relevance and importance to member associations, to network and to exchange. Attendees can raise issues relevant to their association or discuss FIG matters and this meeting will be held prior to the Presidents meeting, so that if needed, messages can be brought to FIG President and council.

By invitation only

TS08D: LAND GOVERNANCE AND LEGAL SOLUTIONS

TUESDAY, 21 MAY 16:30–18:00
VENUE: STAGE AREA – “THE MARKET”, LA PALM
COMMISSION: 7
CHAIR: MR. **JOHN GITAU**, KENYA
RAPporteur: MS. **JELENA UNGER**, CROATIA

Dony Erwan Brilianto, Vito Haga Mursa, Wahyu Sari Sabekti, Sandra Maria Stephanie Hutabarat and Ginanjar Drajad Prakoso (Indonesia): The Implementation of Collaborative Governance in Indonesia’s Agrarian Reform (Case Study of the 2022 Agrarian Reform Task Force) (12471)

Frank Gyamfi-Yeboah, Jonathan Zinzi Ayitey and Emmanuel Kofi Cobbold (Ghana): Ground Lease Renewals in Ghana – a Need for Policy Direction? (12574)

Kwabena Poku Appiagyey and Emmanuel Offei Akrofi (Ghana): A Customary Land Conflict Resolution Process Under the Asafo Land Secretariat (12599)

Charisse Griffith-Charles (Trinidad And Tobago): Incorporating Governance, Sustainability, and Land Policy Issues into Land Surveyors Rules of Practice (12485)

Didier Milindi Rugema (Rwanda), **Moges Wubet Shita, Sayeh Kassaw Agegnehu** (Ethiopia) and **Simon Hull** (South Africa): Land Governance Arrangements in Operationalizing Effective Land Administration Systems: Prospects for Evaluation Approach (12516)

Jaap Zevenbergen (Netherlands): Overlapping People-To-Land Relationships; a Problem for Land Registration or an Opportunity for Sustainable Land Use? (12606)

Mikael Lilje (Sweden): Sustainable Land Governance in Focus – Examples from Swedish Support (12560)

Michael Barry (Canada) and **Rosalie Kingwill** (South Africa): Regularisation by Land Title Adjustment in South Africa: An Inadequate remedy for Cloudy Titles (12420)

TS08E: TRANSFORMING GHANA’S LAND ADMINISTRATION SYSTEM: THE ROLE OF THE LAND COMMISSION

TUESDAY, 21 MAY 16:30–18:00
VENUE: ODWIRA, LA PALM

The session will delve into the historical evolution of land governance in Ghana, specifically focusing on the establishment and role of the Lands Commission, the primary government agency under the Ministry of Lands and Natural Resources (MLNR) responsible for land administration. This will include an exploration of the Commission’s key functions, such as surveying and mapping, land valuation, registration, and management of both public and vested lands. Additionally, the organizational structure of the Commission will be highlighted to emphasize its dedication to ensuring accessible and efficient services.

TS08F: GNSS CORS REFERENCE STATIONS AND NETWORKS – SESSION 2 FOR TECHNICAL EXPERTS

TUESDAY, 21 MAY 16:30–18:00

VENUE: KUNDUM, LA PALM

COMMISSION: 5, 7, ARN, IAG, IGS, UN-GGIM-AFRICA, UN-GGGE

CHAIR: DR. KEVIN AHLGREN, UNITED STATES

RAPPORTEUR: DR. CHRIS PEARSON, NEW ZEALAND

Wang Junyi, Xu Caijun, Wang Xiaohang, Zhao Xiong and He Kefeng (China, PR): The Coupling Evolution of Seismic Faults in the Eastern Margin of the Bayan Har Block Before and After Three \geq M7.0 Earthquakes (12770)

Aleksei Lapshin and Sergey Staroverov (Russia):

Creation and Development of Continuously Operating Networks in the Russian Federation. Yesterday, Today, Tomorrow. (12509)

Faisal Al Balushi (Oman), **Amir M. Abolghasem** (Germany), **Yousuf Al Wardi, Ismail Al Sheidi and Aseel Almusalhi** (Oman): A New Reference Frame for Oman, Derived by Precise Processing of the CORS Network (12396)

Wayneworth Hamilton (Turks And Caicos Islands): Development of a CORS Network for the Turks and Caicos Islands (12451)

Abdullah Al-Qahtani Al-Thawwad, Abdulwasii Salawu, Meshari Al-Shahrani, Abdullah Al-Qahtani and Othman Al-Kherayef (Saudi Arabia): The Maintenance of KSA-CORS Network in Saudi Arabia's Desert Areas (12505)

Peter T.Y. Shih (Chinese Taipei): An Analysis of Clock Performance in GNSS Receivers for CORS Applications (12474)

Christopher Pearson (New Zealand) and **Sebastien Vielliard** (France): Trimble's Support for Modernized Datums in Africa (12426)

Christian Kartey Quarcoo, Ziggah Yao Yevenyo and Bernard Kumi-Boateng (Ghana): Artificial Intelligence Approach to Predicting Local Crust Movement Using GNSS Continuous Operating Reference Systems Data (12376)

TS08G: SESSION EN FRANÇAIS – 3

TUESDAY, 21 MAY 16:30–18:00

VENUE: ADAE KESIE, LA PALM

CHAIR: MR. MARC VANDERSCHUEREN, BELGIUM

RAPPORTEUR: MS. GODELIVE PHANZU VANGU, CONGO, DEMOCRATIC REPUBLIC OF THE

Open meeting of the board of FGF. Réunion ouverte du Bureau de la FGF accessible à tous les membres de la FGF.

CRITICAL EMERGING AREAS FOR GLOBAL WORK TOWARDS GENDER EQUALITY IN THE LAND SECTOR

TUESDAY, 21 MAY 16:30–18:00

VENUE: DAMBA 1, LA PALM

COMMISSION: (GLTN)

CHAIR: MR. SALAHELDIN ABUKASHAWA, SUDAN

RAPPORTEUR: MS. ROSHNI SHARMA, AUSTRALIA

This interactive session will explore critical emerging issue areas for gender equality in the land sector and what partners within the Global Land Tool Network (GLTN) have learned through efforts to tackle them. The mini sessions will each feature an expert to provide key lessons learned and pose discussion questions related to the following thematic areas:

- Informal settlements and slums
- Urban/rural nexus—land tenure on the urban periphery
- Indigenous and customary settings
- Land and conflict settings
- Climate change.

The sessions will address the use of gender responsive land tools and approaches to ensure that both processes and outcomes are gender responsive. This session is based on GLTN's experiences using gender responsive land tools and approaches in the GLTN strategic priority thematic areas.

Presenters:

- **Salaheldin Abukashawa**, ISTIDAMA Center for Land and Environmental Governance
- **Roshni Sharma**, Co Lead VCSP
- **Clarissa Augustinus**, Chair FIG Task Force on Climate
- **Cathrine Marenga**, Namibia University of Science and Technology
- **Rafic Khouri**, Arab Union of Surveyors
- **Eugene Chigbu**, Namibia University of Science and Technology
- **Chief Chamuka VI**, Traditional Authority in Zambia
- **Nana Ama Yirrah**, COLANDEF
- **Hellen Ndungu**, UN-Habitat

COME TO THE FIG BOOTH (EXHIBITION HALL B5) FOR A TALK

	20 May	21 May	22 May
Morning Break	FIG Vice President Candidates	FIG Young Surveyors Network	FIG Commission 2 FIG Commission 9 FIG Commission 10
Lunch	FIG Task Forces	FIG Commission 3 FIG Commission 8	FIG Regional Capacity Development Network – Africa – Americas – Asia/Pacific
Afternoon Break	FIG Commission 4 FIG Commission 7	FIG Commission 5 and 6	FIG Council FIG Office

Wed 22 7:30–9:00

FIG PRESIDENTS MEETING

WEDNESDAY, 22 MAY 07:30–09:00
VENUE: ADAE KESIE, LA PALM
CHAIR: DR. **DIANE DUMASHIE**, FIG PRESIDENT, UNITED KINGDOM
RAPPORTEUR: MS. **LOUISE FRIS-HANSEN**, FIG DIRECTOR, DENMARK

This event is convened by the FIG President and is reserved for Presidents or Heads of delegation of Member Associations (or their representatives).

By invitation only

Wednesday, 22 May 2024 8:00–9:00

TS09C: REGIONAL CAPACITY DEVELOPMENT NETWORKS – COLLABORATION FORUM 1

WEDNESDAY, 22 MAY 08:00–09:00
VENUE: ROYAL DRAGON – AFRICAN CORNER, LA PALM
CHAIR: MR. **MOHAMMED MAMMAN KABIR**, CHAIR FIG ARN, NIGERIA
RAPPORTEUR: DR. **DANIEL ROMAN**, CHAIR FIG AMERICAS, UNITED STATES

Capacity Development Networks (CDNs) should work collectively to address the local, national, regional and global challenges that influence capacity and capability development (CCD) of their survey and geospatial information professionals. This forum is an opportunity for all participants to contribute, and to “have your say” through respectful sharing and exchanging of experiences and information about CCD.

Session overview

- Welcome – **Diane Dumashie**, FIG President
- Introduction to the IGIF – **Fernand Isseri**, co-chair for HLG-IGIF
- UN-GGIM Africa/ AFREF
- Education/training opportunities – **Rosario Casanova**, UN Academic Network/Commission 2
- Land administration in the Africa region – **Linus Pott**, World Bank

Discussions on five challenges:

- What are the top FIVE challenges influencing CCD?
- How can these challenges be overcome?
- What should FIG (and like-minded organisations) do to support or assist CCD?
- What are the next tangible steps?

TS09E: MAPPING THE SURVEYING PROFESSION’S CLIMATE IMPACT POTENTIAL:

WEDNESDAY, 22 MAY 08:00–09:00
VENUE: ODWIRA, LA PALM
COMMISSION: YSN & TF CLIMATE
CHAIR: MS. **ROSHNI SHARMA**, AUSTRALIA
RAPPORTEUR: MS. **ANGELA ANYAKORA**, NIGERIA

An interactive joint workshop with the Young Surveyors Network and Climate Compass Task Force

Our profession is unique both in interfacing with every other sector and industry on the planet, but moreso in its unique systems-thinking approach to solving problems. This innovative and inspirational workshop will fill you with renewed hope and enthusiasm for the future using the tools and knowledges of our profession to combat an increasingly urgent global challenge that affects us all – climate change. Join the Young Surveyors Network and Climate Compass Task Force in this workshop where we’ll leverage audience engagement to validate and map out the plethora of ways that surveyors can use our expertise and knowledges to impact management and mitigation of climate-related impacts at all scales, now and into the future (e.g. ground surveys, using spatial data for measuring carbon, wildlife, mangrove forests, watershed rehabilitation, forest fires, and community impacts).

TS09F: ADVANCING SURVEYING THROUGH TECHNOLOGY INCLUDING UNCREWED SYSTEMS

WEDNESDAY, 22 MAY 08:00–09:00
VENUE: KUNDUM, LA PALM
COMMISSION: 5
CHAIR: DR. **CHRIS PEARSON**, NEW ZEALAND
RAPPORTEUR: MR. **DAVID AVALOS**, MEXICO

Ngoc Ha Hoang (Viet Nam): Combining Gns with Terrestrial Measurement Systems for Modernizing the Coordinate Systems in Vietnam (12513)

Janet Tangadzani, Charles Paradzayi and Tanaka Muromo (Zimbabwe):

Application of UAV-based Photogrammetry in Monitoring Slope Deformations in Open Pit Mining Environments: A Systematic Review (12400)

This is a peer reviewed paper.

Audrey Alajouanine (France): Implementation of a Complete Process for the Collection, Processing and Use of UAV Multi-Spectral Data for Agriculture (12462)

Franz Okyere (Ghana), **Lena Augner, Fabius Limpaecher** (Germany), **Joshua Oddoye** (Ghana), **Ansgar Brunn, Franziska Heering** (Germany), **Tracy Arthur and Prosper Fometi** (Ghana): Enhancing Ambulance Accessibility in Deprived Regions: A Drone-Based Spatial Data Solution for Ashaiman, Greater Accra (12479)

Wed 22 9:15–11:15

PLENARY SESSION 3: YOUR WORLD – OUR WORLD: INCLUSIVE URBAN GEOSPATIAL INFRASTRUCTURE

WEDNESDAY, 22 MAY 09:15–11:15
VENUE: PLENARY DOME, LA PALM
CHAIR: MR. **MIKAEL LILJE**, FIG VICE PRESIDENT, SWEDEN

Drawing on Your world- our world that speaks to the diversity of approaches between the generations. This acknowledges why our profession needs to be connected to tackle the incredible pace of change occurring both on planet and in our societies. Our speakers will explore connectivity in urban environments and required professional practices, including government led work and city level governance. And, the ever changing role of geo and data technology in our professional practice- i.e. Ai, geo-data, geo-informatics . will refer to geo-informatics and the importance of the youth to highlight that our profession is in transition.

Speakers:

- **Oumar Sylla**, Head of UN Habitat Africa
- **Bryn Fosburgh**, FIG Foundation President and Vice President Trimble
- **Adama Sarr**, Mayor, Senegal (recently FIG Young Surveyor)
- Prof. **Robert Kaden**, BIM/Digital Twin Specialist
- **Oumar Sylla** (Kenya): 3.1 – Plenary Session (12764)
- **Bryn Fosburgh** (USA): Digital Transformation, Machine Learning, Automation , and Artificial Intelligence (AI): The Next industrial Revolution (12765)
- **Adama Sarr** (Senegal): Youth and Tech in the City (12766)
- **Robert Kaden** (Germany): Digital Twins of the built Environment – Challenges and Perspectives for Surveyors (12767)

TS10A: GOOD PRACTICES OF AFRICAN ACADEMIC INSTITUTIONS IN RESPONDING TO THE NEEDS OF THE LAND SECTOR

WEDNESDAY, 22 MAY 11:45–13:15

VENUE: PLENARY 1, LA PALM

CHAIR: PROF. JOHN TIAH BUGRI, GHANA

RAPPORTEUR: MR. OUMY DONDE FAYE AND PATRICK OPOKU, GHANA

The session will outline the importance of sound land governance curricula to address the needs of the labor market. Furthermore, it will show how support towards research can influence evidence-based decisions related to land governance. Finally, the sessions seeks to underline the importance of creating platforms such as NELGA and their contribution to policy reform and implementation.

Speakers:

- **Chikolwa Nsama**, on behalf of the African Union Commission, Department of Agriculture, Rural Development, Blue Economy, and Sustainable Environment (DARBE)
- Prof. **Eugene Chigbu**, Coordinator, NELGA Southern Africa, Namibia University of Science and Technology
- **Jonas Kramp**, SLGA, GIZ African Union, Addis Ababa
- Dr. **Agnes Mwasumbi**, Coordinator, NELGA East Africa, Ardhi University (tbc)
- Nana Ama Yirrah, COLANDEF, Ghana

DEEP-DIVE SESSION ON SDG

WEDNESDAY, 22 MAY 11:15–11:45

VENUE: PLENARY DOME, LA PALM

CHAIR: MS. ROSARIO CASANOVA, URUGUAY & MS.

SHIRLEY TENDAI CHAPUNZA, ZIMBABWE

Join the plenary speakers on stage for a dedicated Q&A session. Dive deeper into the topic of urban environments and the digital transformation for a more inclusive and sustainable planet. Share knowledge, brainstorm and formulate actions for FIG to take the inspiring stories and lessons learned on board to achieve the Sustainable Development Goals.

TS10B: DIGITAL TECHNOLOGIES IN CONSTRUCTION – THE FUTURE VISION OF BIM

WEDNESDAY, 22 MAY 11:45–13:15

VENUE: PLENARY 2, LA PALM

COMMISSION: 10

CHAIR: ING. ROBERT SINKNER, CZECH REPUBLIC

RAPPORTEUR: MR. HUMPHREY TOGBE AMEGADOE, GHANA

Alexander Bong (Germany), **Vladimir Nyvlt** (Czech Republic), **Hugo Rodrigues** (Portugal) and **Christian Clemen** (Germany): BIM for Higher Education – Intermediate report from the ERAS-MUS+ BIM4HEI project (12596)

Gabriel Nani and Emmanuel Wiribare (Ghana): Adoptability of Augmented Reality as a Supplementary Tool in Architecture, Engineering and Construction (AEC) Education in Ghana (12620)

Christoph Frey, Christian Dahmen and Christian Clemen (Germany): ETL processes for the conversion of parcels (2D) and terrain models (2.5D) to openBIM projects using IFC (12626)

Fenghua Lyu, Penghui Ding and Baohua Liu (China, PR): Construction of Refined 3D Real Scene Models of Buildings based on Air-ground Integration Method (12775)

Kang Seunghun (Republic of Korea): Use Case of National Digital Twin Standard for Buildings (12547)

Krzysztof Bakula (Poland): UAV Photogrammetry and Lidar Data in Inventory and Management of Civil Infrastructure Facilities Using Digital Twin (12673)

Choi Yin, Chelsie Chan, Lung Yan, Christy Chan and Ki, Vanessa Ma (Hong Kong SAR, China): Development of the Government BIM Data Repository in Hong Kong (12498)

TS10D: LAND MANAGEMENT TOOLS FOR SPATIAL GOVERNANCE

WEDNESDAY, 22 MAY 11:45–13:15

VENUE: STAGE AREA – “THE MARKET”, LA PALM

COMMISSION: 8

CHAIR: SURV. JONATHAN ZINZI

AVITTEY, GHANA

RAPPORTEUR: MR. CHARLES ATAKORA, GERMANY

Mustapha Okyere, Eric Paul Tudzi and Bernard Kumi-Boateng (Ghana): Land-Based Economic Displacement and Livelihood Reconstruction; A survey of Literature (12492)

James Chakwizira and Mac Mashiri (South Africa): Sustainable and resilient priority human settlement development areas: A case of Musligwa local municipality, South Africa (12686)

Olufemi Oyedele (Nigeria): A Study of Burdens of Construction Projects in Developing Nations (12371)

Adrianna Carnecka, Katarzyna Redzińska (Poland), **Oleksandra Dydya and Olha Pokladok** (Ukraine): Current Planning Practices for Implementing Nature-Based Solutions in Rural Development Projects in Poland and Ukraine (12721)

Ogechi Addline Wechie, Kpobari Peter Visigah and Iyenemi Ibimina Kakulu (Nigeria): Spatial Planning as a Tool for Halting and Reversing Land Degradation in Peri-Urban Towns in Nigeria (12566)

Davie Chilonga (Malawi), **Angel Shlomo and Carsten Bjornsson** (USA): Managing Urban Expansion – a Case Study from Malawi (12661)

Kwabena Obeng Asiama (Ghana): Governance in the Role of Customary Land Tenure Institutions in Peri-Urban Development (12674)

Helén Elisabeth Elvestad (Norway): Is Land Consolidation Necessary? – a Theoretical Perspective on Norwegian Land Consolidation (12387)

This is a peer reviewed paper.

TS10E: INVESTMENT AND FINANCE ISSUES IN LAND ADMINISTRATION

WEDNESDAY, 22 MAY 11:45–13:15

VENUE: ODWIRA, LA PALM

COMMISSION: 7 & 9

CHAIR: MS. CHRISTELLE VAN DEN BERG, NETHERLANDS

RAPPORTEUR: MR. RINDERT VOS, NETHERLANDS

Bertrand Mercier (France): A Private Public Partnership Between Land Administration and Surveyors to Serve Cadastre and Land Registry’s Update and Sustainability (12518)

Raja Ram Chhatkuli, Jagat Deuja, Ganesh Prasad Bhatta (Nepal) and **Hellen Ndungu** (Kenya): Land Banking for the Poor and Vulnerable: How Relevant in Nepal? (12571)

Torben Juulsager (Denmark): Land Surveyor Business Areas in Planning and Realization of Renewable Energy Plants – a Danish Case Study (12542)

Jones Ofori-Boadu (Ghana) and **Carsten Bjornsson** (USA): The modern trends in Land Administration coupled with a Private Sector arrangement for technical support and funding (12662)

Wordsworth Larbi (Ghana): Leaseholds as Dominant Land Management Model for Delivery of Developable Land in Ghana: a Flawed Policy Choice (12517)

Benjamin Ajabuin (Canada), **Joseph Kidido and Pascal Zini** (Ghana): Compensation Governance Framework: the Perceptions of Community Members in Selected Mining Communities in Ahafo Region, Ghana (12456)

CASLE MEETING

WEDNESDAY, 22 MAY 11:45–13:45

VENUE: ROYAL DRAGON – AFRICAN CORNER, LA PALM

CHAIR: MR. JAMES KAVANAGH, UNITED KINGDOM

By invitation only

Wednesday, 22 May 2024 11:45–13:15

TS10F: MAPPING THE PLASTIC**WEDNESDAY, 22 MAY 11:45–13:15****VENUE:** KUNDUM, LA PALM**COMMISSION:** 4 & TF CLIMATE**CHAIR:** MR. GORDON JOHNSTON, UNITED KINGDOM**RAPPORTEUR:** MR. ALEXANDER AYETTEY, GHANA

Working Group 4.3 will present the results of plastic waste surveys recently undertaken in Ghana and Sri Lanka. The session is primarily focussed on discussing ways in which the accurate mapping and classification of plastic waste can be offered as a relatively cost effective mapping solutions to communities inundated with plastic waste to assist with the rectification of the problem but must juggle competing demands on stretched budgets.

The first presentation will be the results surveys undertaken at the Korle Lagoon in Accra, Ghana, which is currently recognised as one of the most polluted water bodies on earth. The sites were surveyed using a UAV. Two orthophoto datasets were captured, one in February 2024 and the other in March of this year, by students from the University of Mines and Technology (UMaT), Tarkwa, Ghana under the direction of Senior Lecturer, Dr **Naa Dedei Tagoe** and processed using deep learning algorithms developed by Working Group 4.3. The presentation will discuss ways in which this solution can assist Ghanaian government agencies and the community in their efforts to restore this once beautiful water body. **Presenters:** Mr. **Simon Ironside**, New Zealand and Ms. **Naa Dedei Tagoe**, Ghana

The second presentation will be the results of sites surveyed along the Kelani River, which runs through Colombo, Sri Lanka, close to the river mouth. These UAV surveys captured multispectral and aerial imagery and were undertaken in April 2024 by students from the Sabaragamuwa University of Sri Lanka under the direction of Dr **Eranda Gunathilaka**. The data was also processed using the deep learning algorithms developed by Working Group 4.3. This presentation will also discuss ways in which our solution can be used to assist the Sri Lankan government and the wider community in remediating this and other waterways polluted by plastic waste. The attached photos are from the Sri Lankan surveys. **Presenter:** Dr. **Malavige Don Eranda Kanchana Gunathilaka**, Sri Lanka

TS10G: CADASTRAL INNOVATIONS WORLD TOUR**WEDNESDAY, 22 MAY 11:45–13:15****VENUE:** ADAE KESIE, LA PALM**COMMISSION:** 7**CHAIR:** MR. CHARL-THOM BAYER, DENMARK**RAPPORTEUR:** MS. KATIE PICKETT, UNITED STATES

Pascal Zini, Benjamin Ajabuin and Mustapha Okyere (Ghana): The Practice of Re-entry and Forfeiture and its Implication on Land Administration in Ghana (12393)

Fabrice Kossou, Damien N'Nledje (Benin) and **Christelle van den Berg** (Netherlands): From Paper to Pixels: Benin's Journey to a Nationwide Digital Land Registry and Cadastre (12614)

Leiv Bjarte Mjøs and Arve Leiknes (Norway): Documentation of Property Boundaries in Norway – the Røst Case (12643)

Abebaw Abebe Belay (Ethiopia): Comparative Analysis of Land Policy Instruments to Tackle Land Fragmentation (12699)

Glenn Campbell, Kanchana Kariyawasam, Armin Agha Karimi and Rangika Palliyaarachchi (Australia): What Effect Will Electronic Cadastral Survey Plans in Australia Have on Surveyor's Intellectual Property? (12398)

This is a peer reviewed paper.

Wed 22 13:15–14:30

ESRI: MEET AND GREET WITH ESRI**WEDNESDAY, 22 MAY 13:15–14:30****VENUE:** STAGE AREA – "THE MARKET", LA PALM

Meet and greet with Esri™ where you will get a unique chance to hear more about Esri, who we are, our ethos, where we came from, what we actually do, and how we help you to be successful. As someone famous once said – Esri is one of the best kept secrets in the world – So, join us at this event for some fun/real facts about Esri.

FIG Corporate Platinum Member:

Wed 22 14:30–16:00

TS11A: GIS, BIM, DIGITAL TWIN, AND NSDIS: PUSHING-FORWARD THE SMART CITY VISION**WEDNESDAY, 22 MAY 14:30–16:00****VENUE:** PLENARY 1, LA PALM**COMMISSION:** 3**CHAIR:** MR. DANIELE BRANCATO, ITALY**RAPPORTEUR:** DR. ENRICO RISPOLI, ITALY

Fei Man Chu, Huen Ki Chan and Ka Lam Yip (Hong Kong SAR, China):

Development of Underground Utilities Information System (UUIS) in Hong Kong Special Administrative Region (12447)

Kazmierczek Becek and Dominik Kazmierczak (Poland): Assessing Vertical Accuracy of Digital Elevation Model Using Actual Flood Line as Reference (12500)

Martin Saeter (Norway): From Spatial Data Infrastructure to Geospatial Knowledge Infrastructure: the Role of Management and Financing Models (12603)

Robert Jurzitza, Oliver Buchmann, Markus Muerth and Robert Kaden (Germany): BIM and GIS – Bidirectional Data Exchange for Renewable Energy Planning (12612)

Luisa Rodríguez Ocaño, Alexander Paez Lancheros and Johan Andrés Avendaño (Colombia): Roof Capture and Classification for Building Characterization from High-Resolution Images (12653)

Liang Zhai, Qin Yan, Zhendong Liu and Po Liu (China, PR): A Brief Overview of 3D Real Scene Construction in China (12773)

FIG CORPORATE MEMBERS MEETING**WEDNESDAY, 22 MAY 14:30–16:00****VENUE:** KWAFIE – FIG PRESIDENT'S ROOM, LA PALM**CHAIR:** DR. DIANE DUMASHIE, FIG PRESIDENT**RAPPORTEUR:** MS. LOUISE FRIIS-HANSEN, FIG DIRECTOR

By invitation only

TS11B: INNOVATIONS IN EDUCATION

WEDNESDAY, 22 MAY 14:30–16:00
VENUE: PLENARY 2, LA PALM
COMMISSION: 2
CHAIR: DR. **SIMON HULL**, SOUTH AFRICA

Simon Hull, Jennifer Whittal and **Rosalie Kingwill** (South Africa):
 What Is Land Administration? Exploring an Inclusive Definition. (12388)

Davey Edwards (USA) and **Wiejak-Roy Grazyna Aleksandra** (United Kingdom):
 Regulation and Accreditation of Surveying Professions - USA and UK - Challenges Going Forward (12421)

Simon Hull, Siphwe Mphuthi, Patroba Odera, Moreblessings Shoko, Kaveer Singh and **Jennifer Whittal** (South Africa):
 From Geomatics to Geospatial Science and Surveying: Undergraduate Curriculum Review at the University of Cape Town (12450)

Angel Collado (Spain) and **Kwame Tenadu** (Ghana):
 What is Geomatics?: Providing Clarity in the Academic and Professional Context (12515)

Diana María López Cardona and **Johan Andrés Avendaño Arias** (Colombia):
 Intercultural School of Geography for Life Community Capacity Building Project for Multipurpose Cadaster (12543)

Evi De La Rosa Ricciardi (Puerto Rico):
 Embracing Robotics and Artificial Intelligence in Land Surveying Education (12684)

TS11C: REGIONAL CAPACITY DEVELOPMENT NETWORKS – COLLABORATION FORUM 2

WEDNESDAY, 22 MAY 14:30–16:00
VENUE: ROYAL DRAGON – AFRICAN CORNER, LA PALM
CHAIR: MR. **MOHAMMED MAMMAN KABIR**, CHAIR FIG ARN, NIGERIA
RAPPOREUR: DR. **DANIEL ROMAN**, CHAIR FIG AMERICAS, UNITED STATES

Capacity Development Networks (CDNs) should work collectively to address the local, national, regional and global challenges that influence capacity and capability development (CCD) of their survey and geospatial information professionals. This forum is an opportunity for all participants to contribute, and to “have your say” through respectful sharing and exchanging of experiences and information about CCD.

- Discussions on five challenges:**
- What are the top FIVE challenges influencing CCD?
 - How can these challenges be overcome?
 - What should FIG (and like-minded organisations) do to support or assist CCD?
 - What are the next tangible steps?

TS11D: MEASURING PROGRESS, DRIVING IMPACT: SURVEYORS AT THE FOREFRONT OF SUSTAINABLE DEVELOPMENT

WEDNESDAY, 22 MAY 14:30–16:00
VENUE: STAGE AREA – “THE MARKET”, LA PALM
COMMISSION: 2, 7 & TF SDG
CHAIR: DR. **MARISA BALAS**, MOZAMBIQUE
RAPPOREUR: DR. **RONALD SSENGENDO**, SWEDEN

Surveyors are at the forefront of achieving the 2030 Agenda both as data providers and as drivers of impact. This session seeks to examine the contribution of FIG, the FIG Commissions and the global surveying community towards achieving the SDGs. It will explore the progress so far made by surveyors and discuss what surveyors can do to make rapid progress possible.

Guiding Questions for Discussions:

- What is the strategic influence of surveyors in Achieving SDGs?
- How can we as surveyors measure progress towards achieving the SDGs?
- What are the gaps and opportunities for action that exist?

Paula Dijkstra (Netherlands), **Marisa Balas** (Mozambique), **Rosario Casanova** (Uruguay), **Søren Brandt Pedersen** (Denmark) and **Ronald Ssengendo** (Uganda):
 2030 Agenda – in the minds of all FIG Commissions, Members & Delegates (12656)

Rosario Casanova and **Paula Teperino** (Uruguay):
 Sharing Experiences of How to Include Training of SDG in Education (12669)

Elvena Hayford and **Ricardo Penehafo** (Namibia):
 Communicating SDGs In the Land Sector: Gaps and Opportunities for Action in Southern Africa. (12639)

TS11F: EXPLORING CLIMATE ISSUES TOGETHER – INTERACTIVE WORKSHOP SESSION

WEDNESDAY, 22 MAY 14:30–16:00
VENUE: KUNDUM, LA PALM
COMMISSION: TF CLIMATE
CHAIR: MS. **ROSHNI SHARMA**, AUSTRALIA
RAPPOREUR: DR. **CLARISSA AUGUSTINUS**, IRELAND

Find out about the latest thinking from practitioners on climate and surveying – but more than that, come along to our interactive participatory session and tell us what you are doing and thinking! And a tutorial on Monitoring the Environmental Impact of Artisanal Mining Activities using Google Earth Engine (GEE) and Esri Story Maps.

Introduction by chair and Opening by the FIG President, **Diane Dumashie**.

Presentation of livescribed recording of the three February 2024 Task Force Global Seminars
 Panel discussion on what we learnt from the Global Seminars from our different specialties:
Naa Dedei Tagoe, Cromwell Manaloto, Angela Anyakora, Kwabena Asiama, David Elegbede, Simon Ironside, Gordana Jakovljevic & Clarissa Augustinus.

Interactive participatory discussion with participants following panel discussion.

Advertise the key climate papers to attend in different Commission sessions.

Short tutorial of 40 minutes on Monitoring the Environmental Impact of Artisanal Mining Activities using Google Earth Engine (GEE) and Esri Story Maps by **Naa Dedei Tagoe** and **Kate Grillo**.

FORUM FOR REGIONAL BODIES (FORB)

WEDNESDAY, 22 MAY 14:30–16:00
VENUE: ODWIRA, LA PALM
CHAIR: MR. **VICTOR SEDA**, IVP OF APPAT

By invitation only

Wednesday, 22 May 2024 14:30–16:00

TS11G: LAND POLICY ISSUES AND INNOVATIONS**WEDNESDAY, 22 MAY 14:30–16:00****VENUE:** ADAE KESIE, LA PALM**COMMISSION:** 7 & UN-GGIM EG-LAM**CHAIR:** DR. EVA-MARIA UNGER,

AUSTRIA

RAPORTEUR: MR. ANTHONY

ARKO-ADJEI, GHANA

Eva-Maria Unger (Netherlands), **Amalia Valasco** (Spain), **Joep Crompvoets** (Belgium) and **Rohan Bennett** (Netherlands): Framework for Effective Land Administration (FELA): Research Synthesis (12697)

Nikola Vučić and **Jelena Unger**

(Croatia):

Revitalizing of the Cadastre Has Always Depended on State Policy (12506)

Mamadou Mballo, Serge Vutegha

(Democratic Republic of Congo),

Gitau John, Oumar Sylla and**Hellen Ndung'u** (Kenya):

Land Reforms and Implementation of the Framework for Effective Land Administration (FELA): a Case Study for Customary Land Registry Implementation in the Democratic Republic of Congo (12510)

Oyedokun Abiodun and **Joseph****Odumosu** (Nigeria):

Land Administration and Policy Issues in the Nigerian Scenario: An Overview (12430)

Opeyemi Michael Ajayi, Kirsikka**Riekkinen** and **Oluwafemi****Adekola** (Finland):

Exploring Technology Integration Through FELA in Nigeria (12501)

David Kwesi Dautey and**Wordsworth Odame Larbi**

(Ghana):

Formulation, and Implementation of National Land Policy – Appropriate Change Management Tools, and Techniques (12589)

TS11H: VALUATION OF UNREGISTERED LAND – NEXT STAGES FOR NON-MARKET VALUE, EXPROPRIATION AND EXTRACTIVE INDUSTRIES**WEDNESDAY, 22 MAY 14:30–16:00****VENUE:** DAMBA 1, LA PALM**COMMISSION:** FIG, RICS, IVSC, CASLE,

FGF, UN GLTN

CHAIR: MR. JAMES KAVANAGH, UNITED

KINGDOM

RAPORTEUR: DR. MICHAEL

MCDERMOTT, AUSTRALIA

The Valuation of Unregistered Land (VUL) manual has been gaining significant traction and adoption in land valuation for large-scale land acquisition in the global south. The expert group has engaged with the World Bank, IGAD and numerous national land commissions and professional surveying institutions and is developing a better understanding of this complex and often fractious area of practice. A French translation will also be presented.

Guiding Questions for Discussions:

- What is the impact of non-market issues on VUL?
- What are the basic metrics on the possible costs of re-establishment of livelihoods?
- Is the continuum of land rights still valid?
- What are our initial comments on extractive industries?

Wednesday, 22 May 2024 16:30–18:00

TS12A: LOCAL INITIATIVES TO SPATIAL INFORMATION MODELLING**WEDNESDAY, 22 MAY 16:30–18:00****VENUE:** PLENARY 1, LA PALM**COMMISSION:** 3**CHAIR:** MR. LEONARDO FRANCHI, ITALY**RAPORTEUR:** MS. SARA GEPPONI,

ITALY

Explore the power of collective action, community engagement, and bottom-up approaches in addressing societal challenges, promoting sustainable development, and fostering positive change. Experts will share insights, case studies, and best practices showcasing the impact of crowdsourced and grassroots initiatives across diverse domains and geographic scales.

Felix Tabase, Issaka Yakubu,**Prosper Basommi Laari** and**Clement Maunger Dugbatey**

(Ghana):

Prediction Of Urban Expansion In The Upper Shama Area Using Artificial Neural Networks (12416)

Torbjørn Mandahl Pedersen(Denmark) and **Naa Dedei Tagoe**

(Ghana):

A Smartphone-based Reality Capture Solution for Digital Mapping of Subsurface Utilities (12511)

Rindert Vos and **Gerard Dabroek**

(Netherlands):

Transparency Versus Security of Privacy-Sensitive Data: How to Deal with This Tension as a (public) Organisation (12522)

Tariah Victor (Nigeria):

Estimating the Carbon Sequestration Potential of Trees within Rivers State University Main Campus (12433)

Firas Fahoum (Israel):

The Use of Multiple Methods to Map the City of Jerusalem and It's Use as a Foundation for a Smart City (12730)

Leonardo Franchi, Enrico Davoli,**Sara Gepponi** and **Daniele****Camele** (Italy):

Real-Time Mapping of the Network of Waterways and Sewers on Italian Territory (12502)

TS12B: DIVERSITY AND COLLABORATION – HOW EXPERTS CAN WORK TOGETHER TO IMPROVE TRANSPARENCY**WEDNESDAY, 22 MAY 16:30–18:00****VENUE:** PLENARY 2, LA PALM**COMMISSION:** 9**CHAIR:** DIPL.-ING. PETER ACHE,

CHAIR FIG COMMISSION 9, GERMANY

RAPORTEUR: MR. JAMES

KAVANAGH, UNITED KINGDOM

Transparency in the property market is a fine word. But making it a reality requires a great deal of effort. We experts must demand that property market data, valuation standards and the presentation of property market information be adapted to today's requirements and used by the state. It is a task for all professionals to act together. This session should help to bring together associations that are committed to improving transparency.

James Kavanagh (United

Kingdom):

Unregistered Land Valuation (UN GLTN manual) – Fair Compensation for a Just Transformation (12442)

Grazyna Wiejak-Roy (UnitedKingdom), **Peter Ache,****Eva Katharina Neubrand**(Germany), **Bastiaan Reydon**(Netherlands) and **James****Kavanagh** (United Kingdom):

Transparency in the Real Estate Market – a Global Comparative Study (12458)

Gad Asorwoe Akwensiwie

(Ghana):

Real Estate in Africa – Trends and Forecasts (12700)

Agnes Mwasumbi and **Komu****Felician** (Tanzania):

Implementation of International Safeguard Standards in Involuntary Resettlement Schemes- Experience from Tanzania (12578)

TS12C: THE AFRICAN WOMAN LAND PROFESSIONAL AND GOOD LAND GOVERNANCE IN AFRICA: CHALLENGES AND OPPORTUNITIES**WEDNESDAY, 22 MAY 16:30–18:00****VENUE:** ROYAL DRAGON – AFRICAN CORNER,

LA PALM

CHAIR: MR. MOHAMMED MAMMAN KABIR,

CHAIR ARN, NIGERIA

RAPORTEUR: DR. MARISA BALAS,

MOZAMBIQUE

While women constitute almost 50 percent of the population in Africa and play crucial roles in the continent's land use and development, they are underrepresented in ownership, access, and decision making on how the African land is used and governed. In land professional spaces, women constitute a decimal and silence minority. In many countries, they constitute less than 1 percent of the membership of the registered land professionals. There are even much fewer professional associations where women occupy leadership positions in Africa. This situation constitutes one of the main challenges in provision of good land governance and in the attainment of SDGs, particularly Goals 5 and 10.

In the bid to address these challenges, the FIG-ARN convenes a meeting of African women land professionals who are attending the FIG 2024 WW in Accra, Ghana. The meeting will review some of these challenges and develop strategies to address the issues. The meeting shall work towards the First All African Women Land Professional Associations Conference in the course of the year 2024.

TS12E: DIGITALLY TRANSFORMED LAND GOVERNANCE IN ACTION

WEDNESDAY, 22 MAY 16:30–18:00
VENUE: ODWIRA, LA PALM
COMMISSION: 7 & 8
CHAIR: DR. JAAP ZEVENBERGEN, NETHERLANDS
RAPPORTEUR: MR. WALTER DACHAGA, GERMANY

Leonardo Franchi, Greta Crescimbeni and Enrico Davoli (Italy):
 The Italian Cadastral Cartography System. automatic Real-Time Update and Dynamic Online Services (12628)

Teimuraz Gabriadze and Elene Grigolia (Georgia):
 Electronic Minutes Application – Catalyst for Systematic Land Registration in Georgia (12703)

Elene Grigolia and Teimuraz Gabriadze (Georgia):
 Smart Contract – New Era of Subsequent Registration of Immovable Property in Georgia (12704)

Dorus Kruse (Netherlands):
 The Growing Role of Europe with High Value Datasets and the Digital Transformation of the Spatial Data and 3d. (12713)

Benjamin Armah Quaye (Ghana):
 Modernizing Land Administration in Ghana: the Transformative Initiatives of the Lands Commission (12444)

TS12F: CLIMATE RESILIENCE ACTIONS FOR THE FUTURE

WEDNESDAY, 22 MAY 16:30–18:00
VENUE: KUNDUM, LA PALM
COMMISSION: TF CLIMATE; 2, 3, 7, 8
CHAIR: DR. KWABENA ASIAMA, CHAIR, FIG COMMISSION 8, GHANA
RAPPORTEUR: MS. ROSHNI SHARMA, AUSTRALIA

Enoch Mensah, Michael Nyoagbe, David Nunoo and Francisca Ameley Armah (Ghana):
 Live Water Demand Management Using Geospatial Dashboards and GNSS-Enabled Smartphones (12784)

Daniele Brancato and Cromwell Manaloto (Italy):
 Forest Fires and Climate Change – the Italian Law 353/00 to address economical speculation, portal security, data analysis (12491)

Joycelyn Makena Kaaria (Kenya):
 Application of Land Administration in Securing Wildlife Migratory Routes in Kenya: Challenges and Prospects (12613)

Ogochukwu Uju Izuegbu and Usman.S Lay (Nigeria):
 Flood Vulnerability Mapping of Ogbaru Local Government Area, Anambra State, Nigeria (12380)

Florian Lebourdais (France):
 The Role of the Surveyor in Disaster Management? Understanding Risks, from Prevention to Mitigation and Reconstruction (12427)

Daniel Owusu-Ansah and Sakina Ayiku Kanor (Ghana):
 The Youthmappers' Impact on Building a Resilient Environment (12389)

Adamu Bala (China, PR), **Ademola Fidelix Fasuba, Umar Barde** (Nigeria) and **Saied Pirasteh** (China, PR):
 Urbanization Effects on Land Surface Temperature in Soba Local Government Area, Kaduna State, Nigeria: A Spatio-Temporal Analysis (12488)

Nelson Nieto, Alexander Páez, González Mónica and Johan Avendaño (Colombia):
 Study of the Mangrove Forest with Earth Observation: Hyperspectral Field Data and Satellite Images for a Better Understanding of This Strategic Ecosystem and Its Relationship with Ethnic Communities of the Colombian Pacific Region (12654)

TS12G: CADASTRAL AI AND REMOTE SENSING

WEDNESDAY, 22 MAY 16:30–18:00
VENUE: ADAE KESIE, LA PALM
COMMISSION: 7
CHAIR: DR. KIRSikka RIEKKINEN, FINLAND
RAPPORTEUR: DR. JUERG LUETHY, SWITZERLAND

Kim Dongwoo (Republic of Korea):
 The Way to Improve Cadastral Resurvey Project with Making Google Street View Using 360 Camera (12549)

Enrico Davoli, Leonardo Franchi, Daniele Camele and Sara Gepponi (Italy):
 Monitoring of Cadastral Cartography Through the Use of Artificial Intelligence Aimed at Protecting Public Assets (12632)

Tsz-kin Ng and Nok-hang Ng (Hong Kong SAR, China):
 Semantic Segmentation-based Study of Solar Panel Footprints in Hong Kong (12687)

Rodolfo Yesid Meza Patacón and Sonia Constanza Garzón Martínez (Colombia):
 Utilizing Sentinel 2 Imagery and Cadastral Data to Analyze Urban Growth, in Colombia (12677)

Alexander Ayettey, Kwabena Obeng Asiama and Anthony Arko-Adjei (Ghana):
 UAVs for Land Regularization (12646)

Ruiqian Zhang, Yan Qin, Xiaogang Ning and Zhang Hanchao (China, PR):
 Multimodal Foundation Model Based Siamese Network for Change Detection in Remote Sensing Imagery (12774)

GALA DINNER

WEDNESDAY, 22 MAY 19:00–22:30
VENUE: ACCRA RIDGE CHURCH EVENT CENTRE

Welcome to the Gala Dinner of the FIG Working Week! Get ready for an unforgettable evening filled with cultural immersion and unforgettable musical experiences that will leave you wanting more. Enjoy the festivities and let the music move you!

Registration is required. Tickets available for purchase from the Registration Desk.

TS12H: CONSTRUCTION CONTRACT MANAGEMENT

WEDNESDAY, 22 MAY 16:30–18:00
VENUE: DAMBA 1, LA PALM
COMMISSION: 10
CHAIR: MR. SIEW WENG SIEW, MALAYSIA
RAPPORTEUR: MR. BLESSED TOCHUKWU, NIGERIA

Tochukwu Blessed Enyinna and Oduwegwu Obianinulu (Nigeria):
 The Role and Need to Engage Young Quantity Surveyors as Construction Economics Experts as we build back together. (12348)

Bolaji Sotunde (Nigeria):
 Enabling Project Success Through the Synergy of Commercial and Project Management (12780)

Victor Acheamfour, Theophilus Adjei-Kumi, Ernest Kissi, Oliver Korny and Joseph Oduro-Gyan (Ghana):

An Expert System for Contractor Qualification Criteria Selection (ES_QS) (12459)

Henry Opoku Gyampoh, Prince Sasu, Akwesi Ampomah Poku and Francis Ayerizemi Akunyagra (Ghana):
 Management of the Construction of Tailing Storage Facility Under Multiple Contractors – the Role of the Survey Consultant (12645)

FIG GENERAL ASSEMBLY DAY 2

THURSDAY, 23 MAY 09:00–11:30
VENUE: PLENARY DOME, LA PALM
CHAIR: DR. DIANE DUMASHIE, FIG PRESIDENT
RAPPORTEUR: MS. LOUISE FRIIS-HANSEN, FIG DIRECTOR

FIT FOR PURPOSE WORKSHOP

THURSDAY, 23 MAY 13:30–18:00
VENUE: ODWIRA, LA PALM
COMMISSION: 7
CHAIR: MR. ISRAEL TAIWO, NIGERIA

ADAPTING, ADOPTING AND EVOLVING APPROACHES TO LAND ADMINISTRATION; TOWARDS EFFECTIVE UPSCALING OF FFP APPROACHES
 – Dive into the Future of Land Administration at FIG Working Week 2024!

With flexibility, inclusiveness, participation, affordability, reliability, attainability and upgradeability in perspective, join us to dive into the Future of Land Administration at FIG Working Week 2024!

This event promises riveting discussions on “Adapting, Adopting and Evolving Approaches to Land Administration; Towards Effective Upscaling of FFP Approaches.”

A portion of the event will focus on the connection between FFPLA and WLR, and how FFPLA can help improve women’s access to land and security of tenure. By highlighting the importance of FFPLA in this context, we can emphasize its role in promoting gender equality and women’s empowerment.

FAREWELL...AND WELCOME TO BRISBANE

THURSDAY 23 MAY 11:30–12:30
VENUE: AFRICAN VILLAGE

Delegates are invited to farewell the FIG Working Week 2024 and its host city in an informal environment. Join us as we toast to a successful event and at the same time have a taste of the FIG Working Week 2025 in Brisbane, Australia.

Hosted by FIG Working Week 2025, Brisbane, Australia.





*Climate Responsive Land Governance and Disaster Resilience:
Safeguarding Land Rights*

Regional Conference 2024

Kathmandu, Nepal
14–16 November

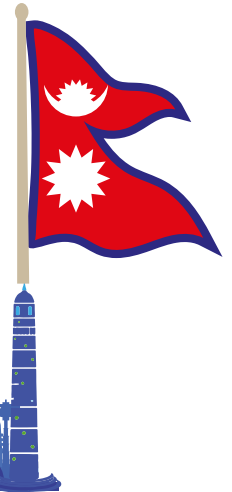


fig.net/nepal2024

What if your RTK Rover could see?

Discover the Leica GS18 I

Introducing Leica GS18 I, a versatile, survey-grade GNSS RTK rover with Visual Positioning. Designed for surveying professionals to measure points which previously could not be measured with a GNSS rover easily and accurately.

The GS18 I allows you to quickly capture sites in images and measure points from them, either in the field or later in the office.



Scan the QR code to learn more, or visit us at stand B4 in the exhibition area



Leica Geosystems AG
leica-geosystems.com



FIG YSN CHARITY EVENT

JOIN US FOR A FUN-FILLED CHARITY BEACH VOLLEYBALL EVENT!

Are you ready to spike for a cause? We invite you to join us for an exhilarating day of beach volleyball in support of two incredible organizations the VCSP (Volunteer Community Surveyors Program) and the FIG Foundation.

Why It Matters

Your involvement can make a significant difference. The FIGYSN- VCSP is dedicated to empowering young surveyors and communities through volunteerism, offering vital support and resources where they're needed most. Meanwhile, the FIG Foundation focuses on advancing the geospatial sciences, aiding in research, education, and outreach worldwide.



DATE
19TH MAY 2024

TIME
START FROM 2 - 4 PM

LOCATION
LA PALM BEACH



FOR MORE INFORMATION



THE FIG FOUNDATION

The FIG Foundation is an independent body under the International Federation of Surveyors and has been established for the purpose of raising funds to finance surveying education development projects and supporting young surveyors in order to build a sustainable future. The FIG Foundation will build a sustainable future by:

- grants and scholarships to projects, for instance to develop curricula for surveying education, training and capacity building, especially in developing countries;
- encouraging research into all disciplines of surveying and to disseminate the results of that research;
- promoting high standards of education and training for surveyors and to facilitate continuing professional development;
- educating people in the disciplines of surveying, particularly in developing countries and countries in transition;
- promoting the use of distance learning, networking, eLearning and knowledge management if surveying education and continuing professional development;
- promoting the exchange of surveying personnel for greater understanding of all facets of the profession of surveying;
- supporting by seed funding conferences, meetings of young surveyors and similar events in co-operation with international agencies such as the United Nations. .

Donations to the FIG Foundation

By attending the FIG Working Week you support the FIG Foundation with 10USD. Your participation in the Ghanaian Evening also supports the Foundation. If you would like to give an extra donation contact the FIG Office in room Bakatue or at the registration desk.

More information at fig.net/figfoundation.





Frazao Studio/Latino | iStock



Jacek_Sopotnicki | iStock



LindaPhotography | iStock



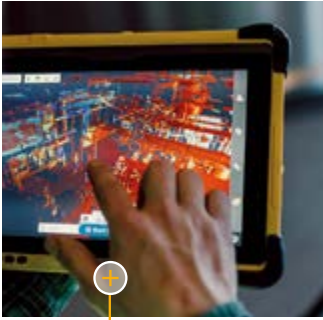
Gerhard Pettersson | iStock



EmikaSopotnicka | iStock



Renate Wefers | iStock



Innovation to support the way you work.

Elevate your surveying capabilities with technology tailored for everyday project demands. From advanced GNSS receivers, data collectors and innovative 3D laser scanning to comprehensive field and office software solutions, Trimble is your partner in unparalleled accuracy and efficiency.

Embrace the power of automated data collection, in-field processing and real-time visualization to conquer complex challenges and excel in land surveying, construction and environmental management. With Trimble, you're not just measuring land, you're shaping the future.



Find out more at:
geospatial.trimble.com



WORKING WEEK 2025

6-10 APRIL • BRISBANE AUSTRALIA

Collaboration, Innovation and Resilience: Championing a Digital Generation



FIG XXVIII Congress 2026 Cape Town, South Africa



International Federation of Surveyors (FIG)



South African Geomatics Council (SAGC)



The South African Geomatics Institute (SAGI)

The Future We Want - The SDGs and Beyond. Where we are, Where we want to be.

24-29 May 2026

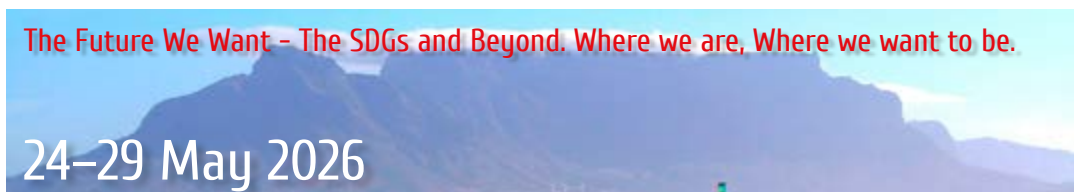


FIG Working Week 2027 Stavanger Norway 23-27 May

The Power of Where for the new Generations



FIG Working Week 2028 Paris, France

Celebrating the 150th Anniversary of FIG

