XXVII FIG CONGRESS
11–15 SEPTEMBER 2022
Warsaw, Poland

Volunteering for the future – Geospatial excellence for a better living

THE UGANDA GEODETIC REFERENCE NETWORK (UGRN) AS A BACKBONE FOR THE NATIONAL GEOSPATIAL INFRASTRUCTURE IN UGANDA

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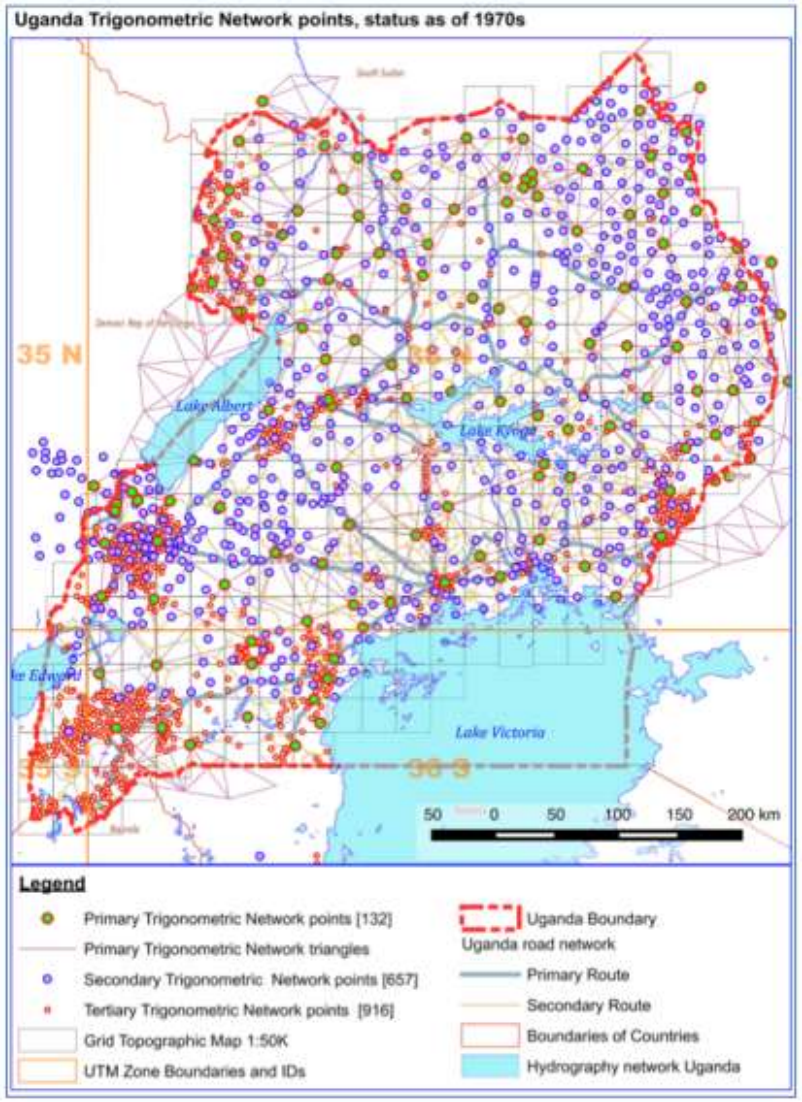
UGRN and Regional Geodetic Networks

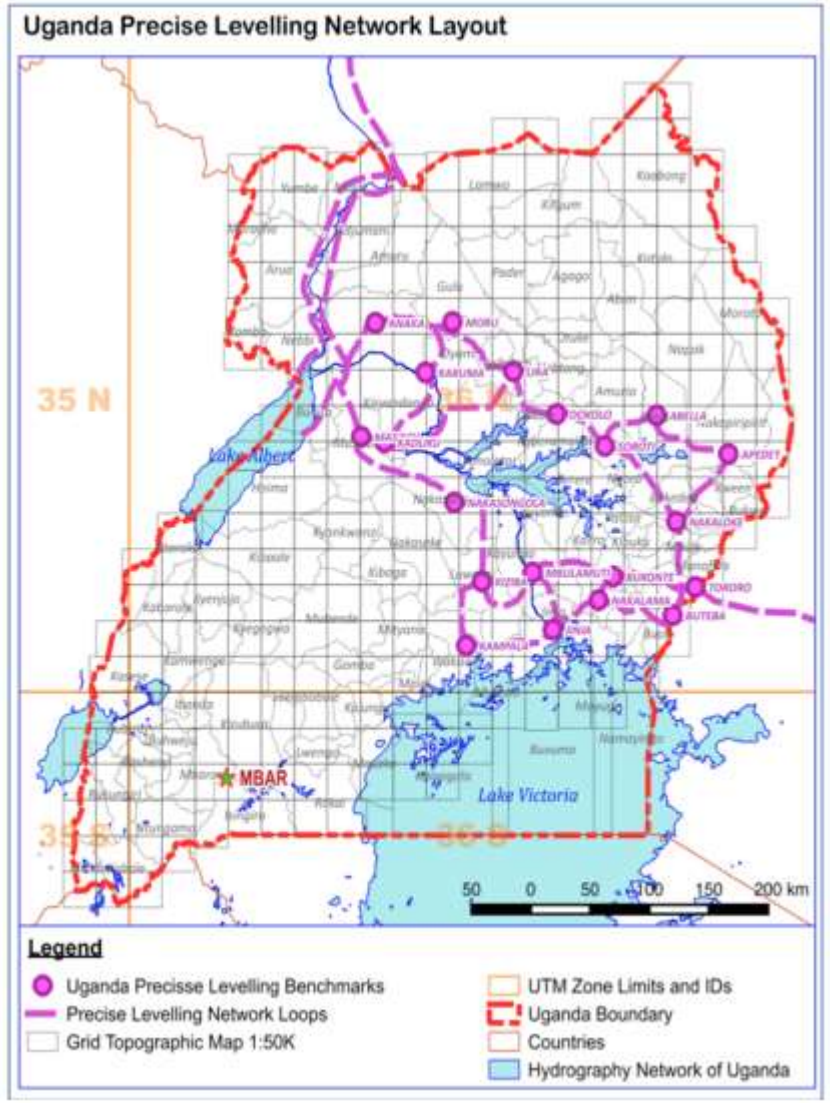
- With consistent improvements in the UGRN and its sustainability, the UGRN shall become:
  - ✓ An integral of the broader Geodetic Infrastructure Component in the East African Region.
  - ✓ Integral component of the African Reference Frame (AFREF).

- **With UGRN in place, the Science of "Where" will become a reality with Precision.**
- **National Infrastructure relies greatly on fundamental Geodetic Network.**



Historical Background on the Uganda Geodetic Reference Frame Network (UGRN)

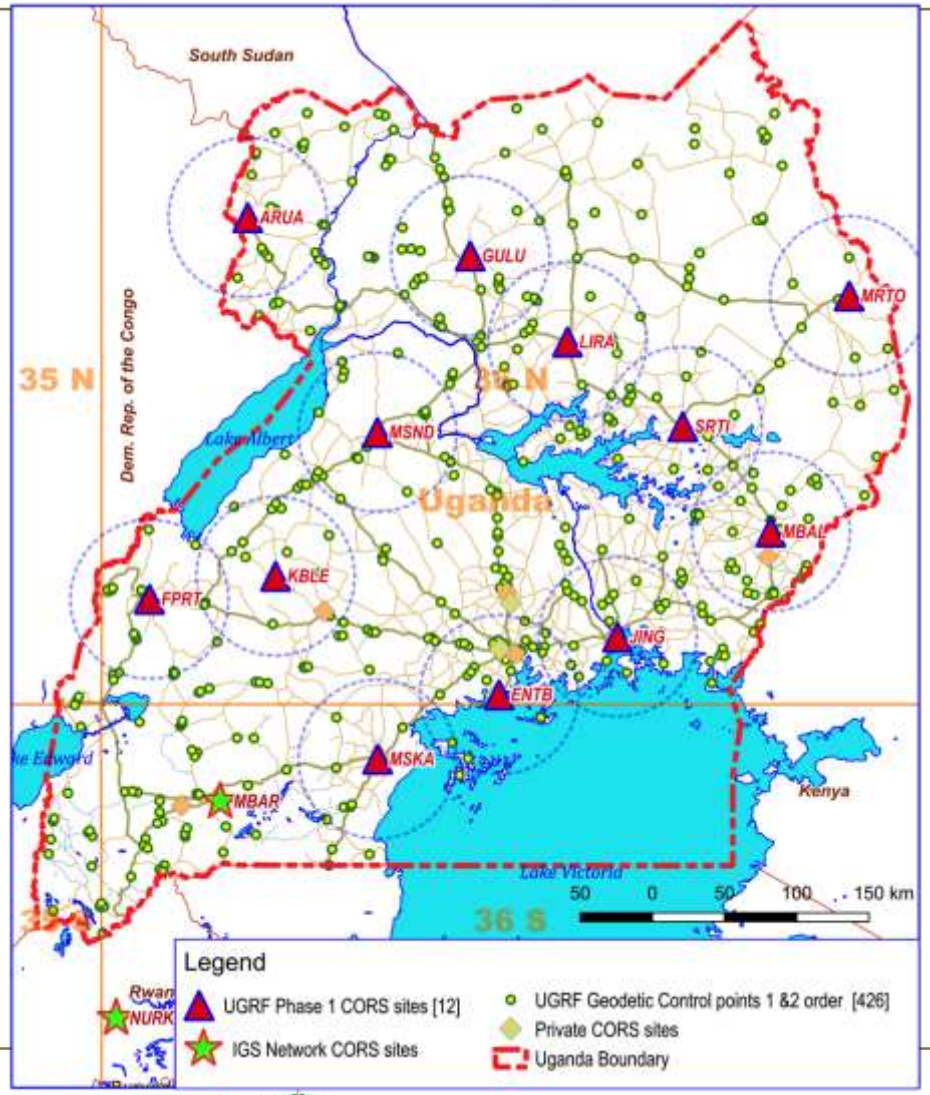
- The Horizontal Geodetic Network of Uganda – completed early 1970s, established the **national horizontal reference system** and included about 130 primary control points, 650 secondary control points and 950 tertiary control points.
- Total of 1,730 Horizontal Geodetic Network Points.
- To date the Horizontal Network was practically destroyed during the period of political turmoil in 1970's to 1980's, and can not serve any more for the purpose of the development of the country – estimated about 60 points survived.



Historical Background on the Uganda Geodetic Reference Frame Network (UGRN)

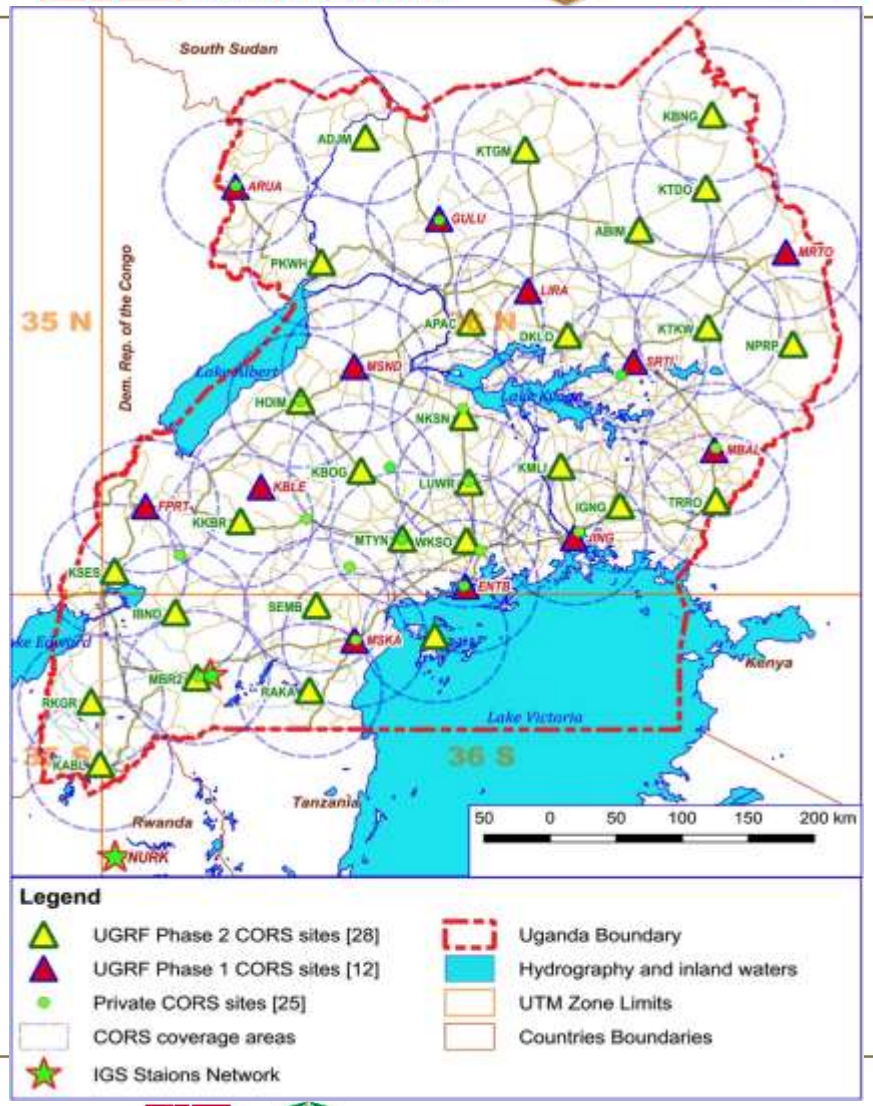
- The Vertical Reference for Uganda, based on the precise levelling, was established in the period 1930-1960.
- The Vertical Network based on Khartoum Vertical Datum has some surviving benchmarks on the ground but the network can no longer serve its purpose.

Modernization of the Uganda Geodetic Reference Frame Network (UGRN)

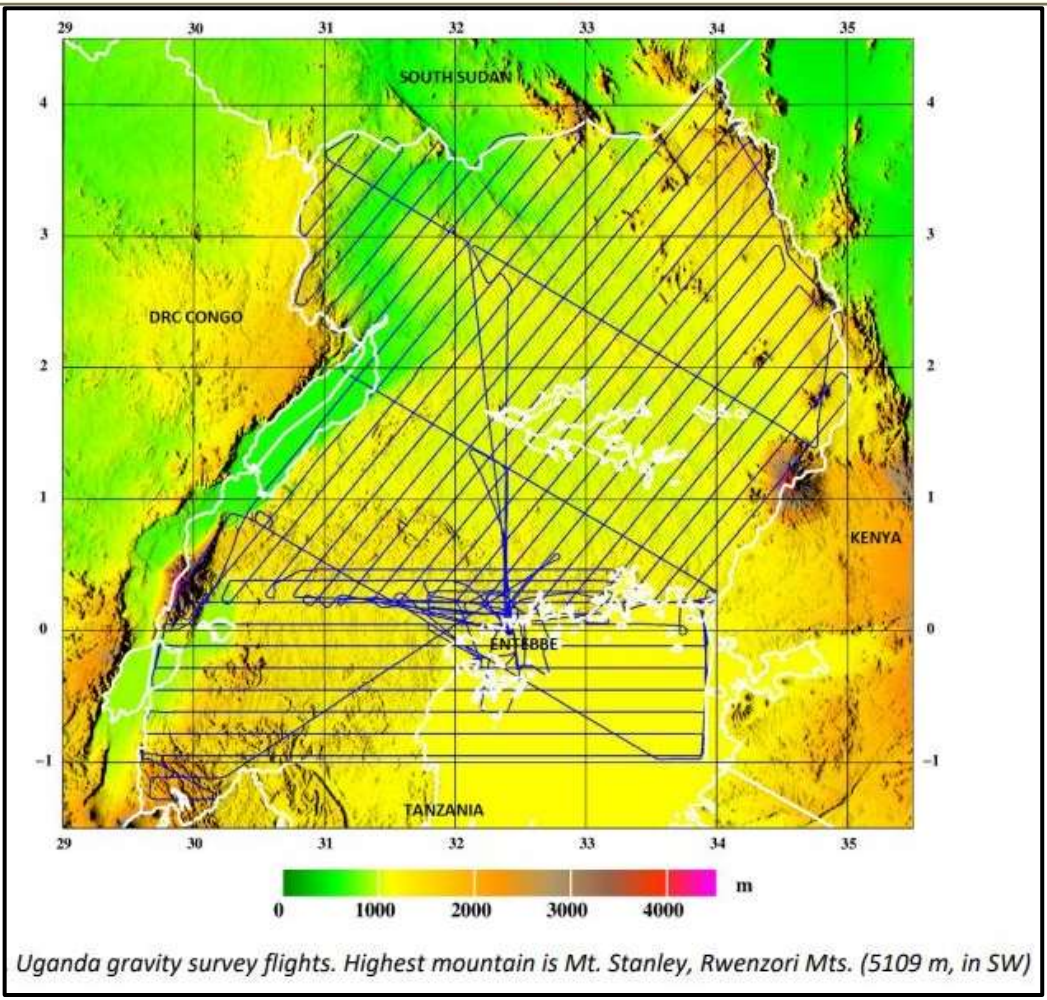


- The modern Uganda Geodetic Network is the core for realization of the National Geodetic Reference system for Uganda. This system is essential to provide reliable and fundamental Geodetic Reference Frame. The UGRN consists of active and passive stations and the National Geoid.
- The PASSIVE component are made up of permanently monumented Geodetic Control Points distributed throughout the territory to provide accurate geodetic reference that uniformly merges with the active stations.

Modernization of the Uganda Geodetic Reference Frame Network (UGRN)



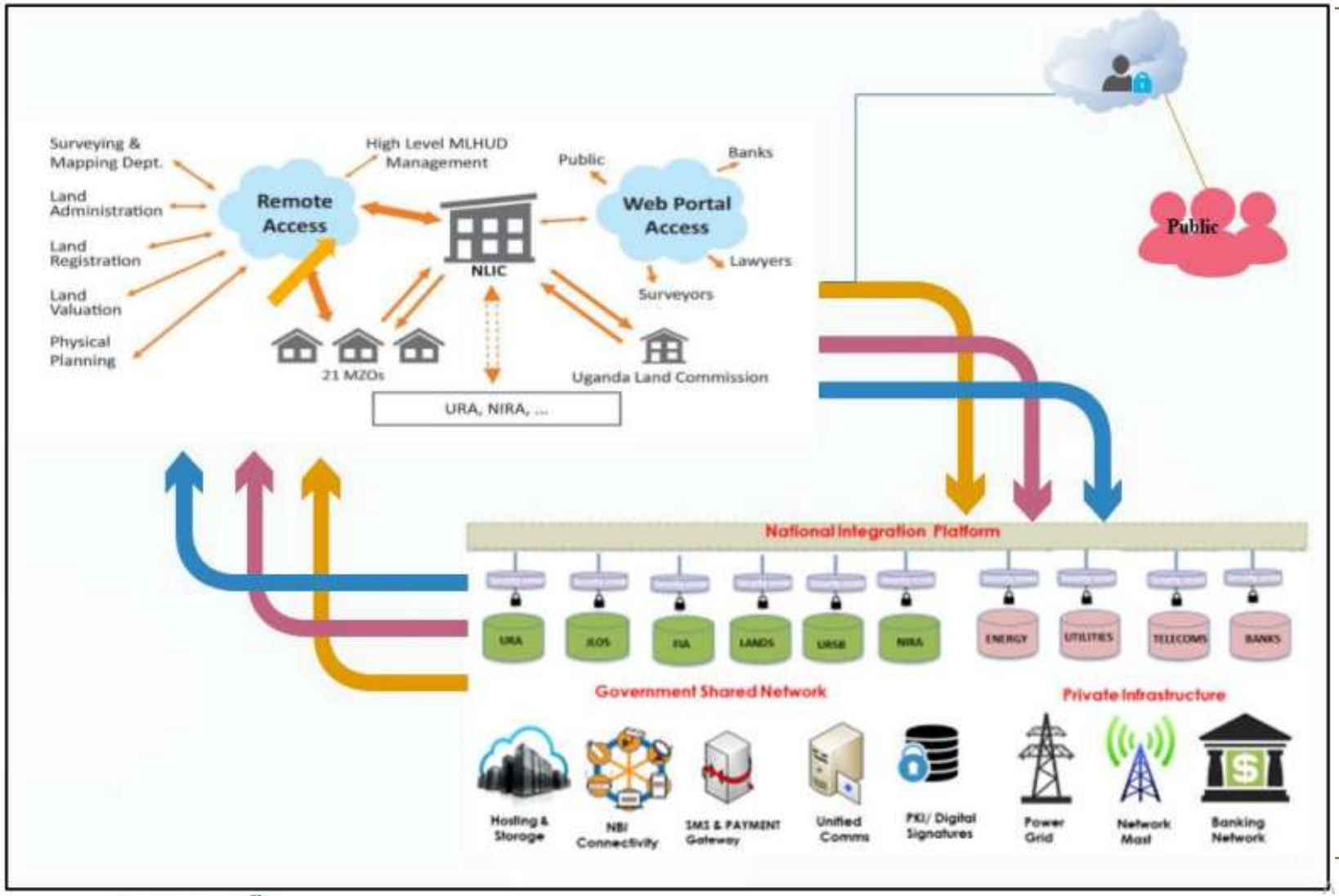
- The Continuously Operating Reference Systems (CORS) – ACTIVE are built to achieve the best accuracy for a modern GNSS technology and they provide Real Time Kinematic (RTK) services and Post Processing Positional Services (PPPS).
- Established and maintained 12 Stations.
- Planned to increase by 28 Stations to make 40 CORS.
- About 60 Private CORS in the country.



Uganda gravity survey flights. Highest mountain is Mt. Stanley, Rwenzori Mts. (5109 m, in SW)

Modernization of the Uganda Geodetic Reference Frame Network (UGRN)

- The Geoid Model (Geoid) of Uganda is an integral part of the Uganda Geodetic Reference Frame consisting of the Horizontal Geodetic Network (CORS, Zero Order, First Order and Second Order Geodetic Control Points) and the Vertical Reference (Geoid Height).
- Vertical Accuracy of 10 – 50 cm.
- Established with support from University of Technology – Denmark in 2020.



UGRN and UGSDI Linkage

- UGSDI Policy developed and published in 2020.
- The Infrastructure of UGSDI relies on fundamental UGRN.
- The Integration of UGRN and UGSDI will support data availability, access, control, release, accuracy, precision and sustainability.

Asante kwa Kusikiliza!

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