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References Frame in Practice Seminar

Operational Aspects of GNSS CORS

Venue: Lali Room, Holiday Inn, Suva - Fiji

FIJI'S GEODETIC DATUM MODERNISATION PROGRAM AND CHALLENGES

By: Asakaia Tabua

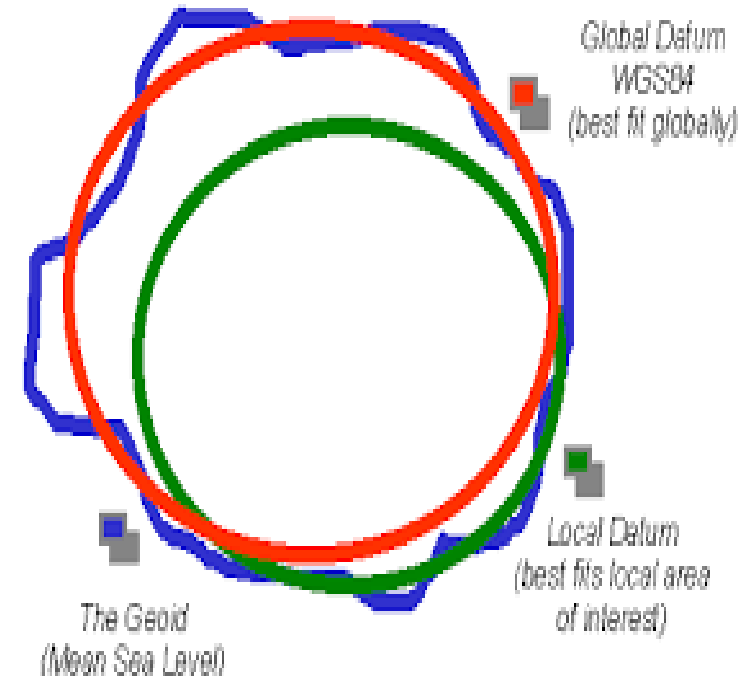
Ministry of Lands & Mineral Resources

Fiji

18 September 2018

WHAT IS DATUM?

❖ Is a mathematical model that approximates the shape of the Earth to enable accurate position, length and area calculations.





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DO WE NEED TO UPGRADE OUR DATUM?

- ❖ International Civil Aviation Organization
- ❖ International Hydrography Organization
- ❖ International Federation of Surveyors (FIG)
- ❖ UN-Global Geospatial Information Management (UN-GGIM)



UN-GGIM
UNITED NATIONS INITIATIVE ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT

Future trends in geospatial
information management:
the five to ten year vision

Location based service - GPS in vehicles





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Location based service - GPS in vehicles



GLOBAL GEODETIC REFERENCE FRAME (GGRF) RESOLUTION

- The United Nations Economic and Social Council (ECOSOC) established the United Nations Committee of Experts on Global Geospatial Information Management UNGGIM IN 2011
- PSLMR endorsed Fiji's support for the GGRF Resolution to ECOSOC for endorsement and further referral to the UN General Assembly
- Fiji's Permanent Representative to the United Nations in New York has been requested to sponsor the tabling of this Resolution to the General Assembly.



GGRF RESOLUTION



- Ambassador Peter Thomson Fiji's Permanent Representative to the United Nations in New York has been requested to sponsor the tabling of this Resolution to the General Assembly (GA).
- The resolution was table in 2015 and adopted by the GA



HOW WAS THE PROJECT STARTED?

5th Session of UN-GGIM



6th August 2015 – Joint Meeting – Norway and Fiji Delegation

Fiji Government Cabinet Decision

- 1st September 2018 - Cabinet approved to modernize Fiji's datum



FIJI DATUM PROJECT

OBJECTIVES

- To upgrade the existing local datum to internal standard



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FIJI DATUM PROJECT PLAN

The project is scheduled for three (3) years

Phase One

- Engagement Project Manager;
- Select the international datum and reference epoch to be adopted as the basis of the new national datum.
- Physical infrastructure establishment across Fiji - GNSS Continuously Operating Reference Station (CORS) network



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FIJI DATUM PROJECT PLAN

Phase Two

Field Campaign - High level passive control marks should be resurveyed with Continuous Observation across Fiji by the use of Global Positioning Systems equipment for 24/7.



FIJI DATUM PROJECT PLAN

Phase Three

- Development of National Transformation Parameter;
- Development of standards and documentation including a Fiji Datum technical manual describing the datum and associated map projection;
- Creation of a dataset of geodetic observations that would support national geodetic adjustment and
- Data management and dissemination
- A program of education and CPD for Stakeholder & industry

FIJI CORS NETWORK

– Geosciences Australia

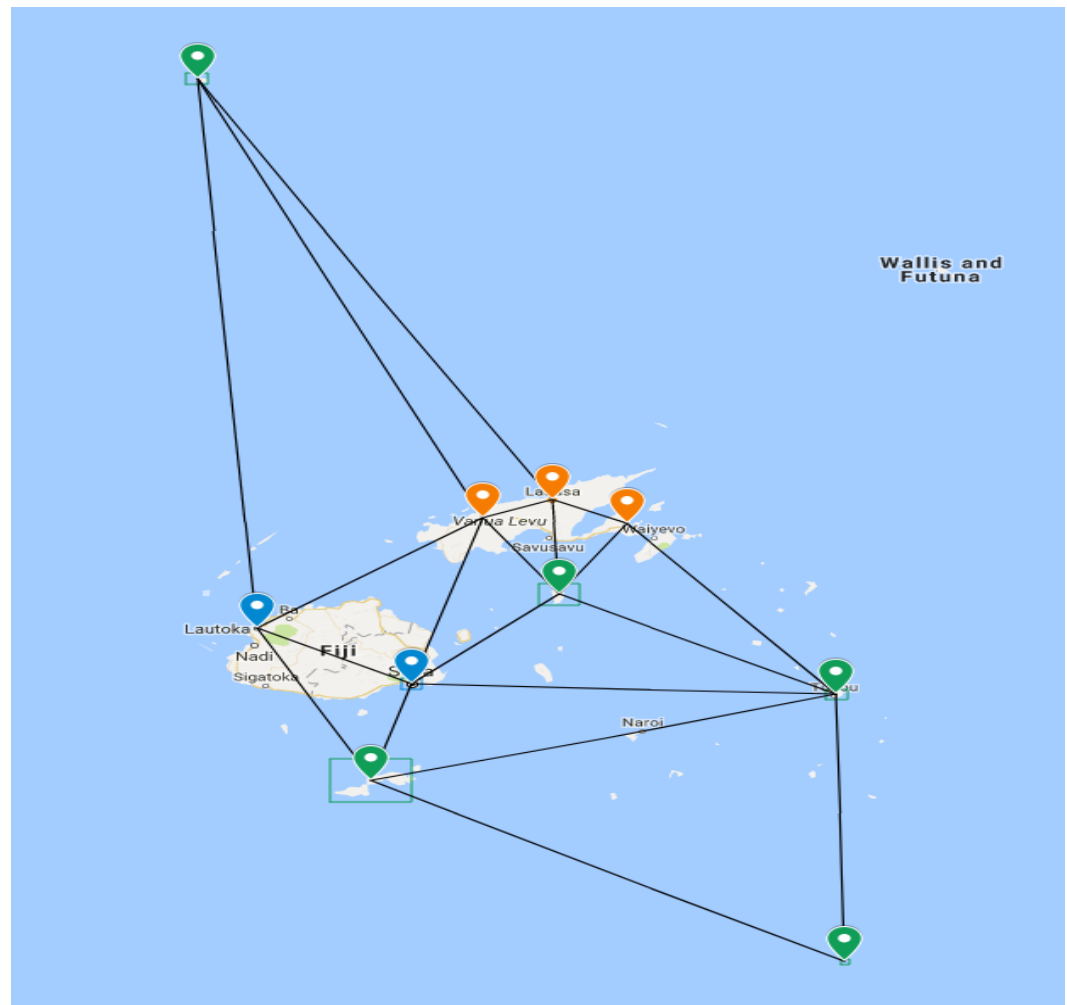
- LAUTOKA
- SUVA

– High Target Sites

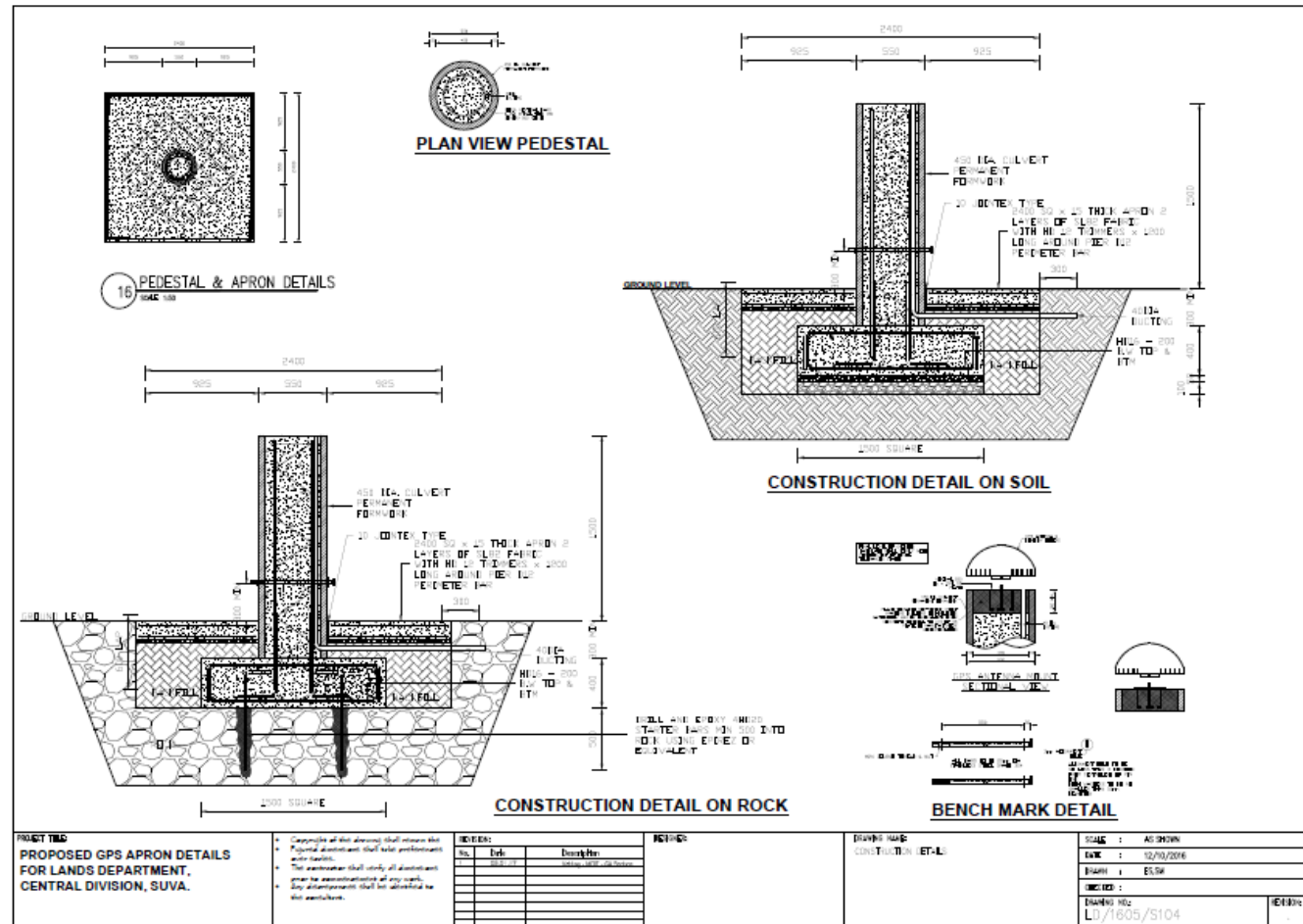
- LABASA
- TAVEUNI
- NABOUWALU

– Leica Geosystems

- ROTUMA
- KORO
- KADAVU
- LAUTOKA
- ONO

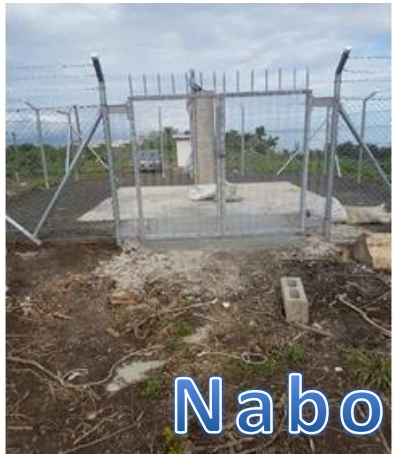


STANDARD



Pillar Plan

What is the progress so far?



What is the progress so far?

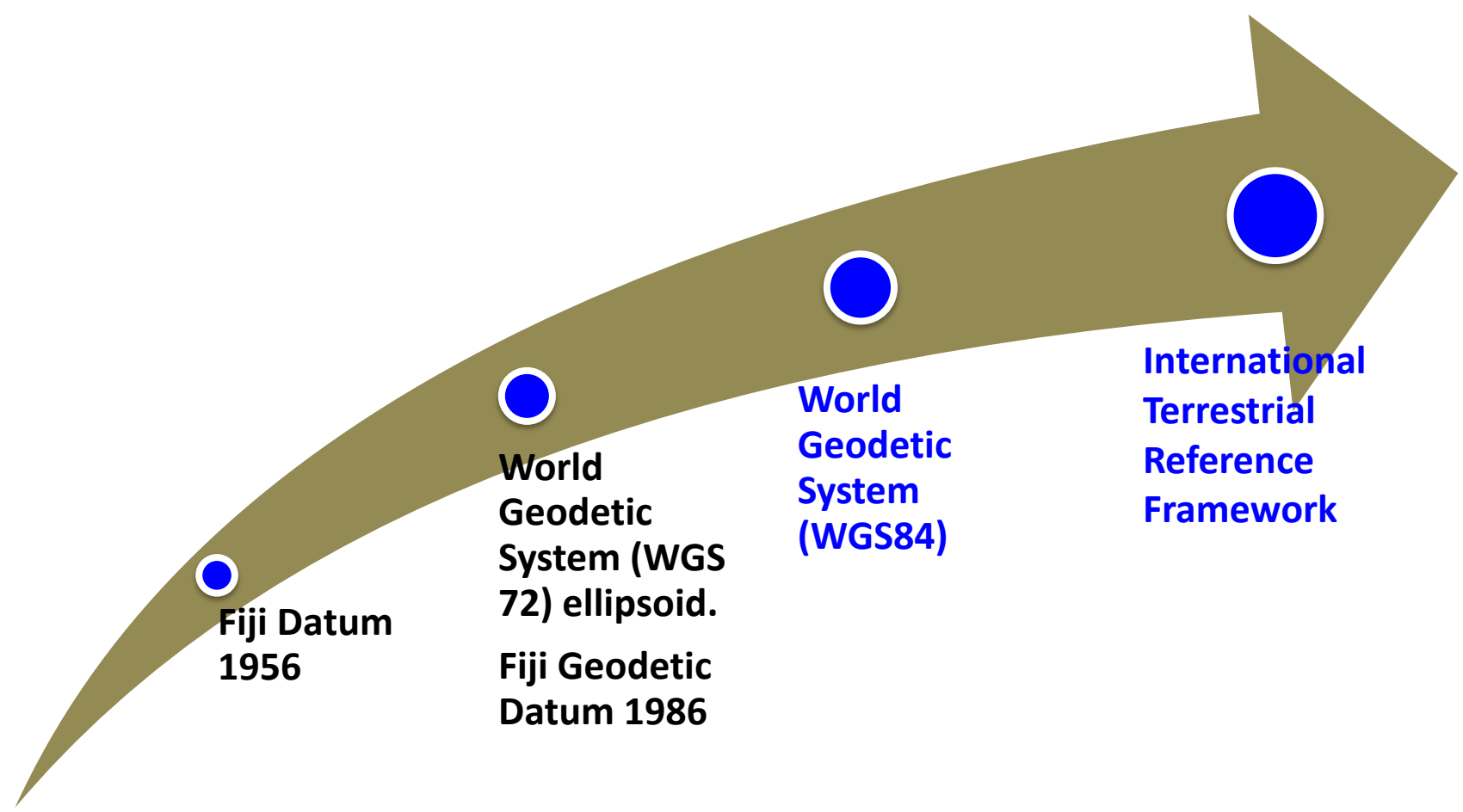
Taveuni



CHALLENGES

- Upgrading a geodetic datum has traditionally been a **complex technical task** involving a rigorous least squares adjustment of terrestrial observations & GNSS baselines or coordinates
- Human resources & tools for modern datum upgrade
- There may also be significant education, implementation, & adoption challenges
- Transforming existing geospatial information to new datum is a big challenge.

Where We Heading To?





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THANK
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