



Report on GNSS Application Development Initiatives in Zambia and the Sub-region

UN/USA International Meeting on the Use and Applications of GNSS

13-17 December 2004, Vienna, Austria



Presentation Outline

- Development of new Projects
- Notable GNSS activities in Zambia
- Regional networking efforts
- Focused projects interests



Notable & practical GNSS Activities in Zambia, 2004:

- Establishing of Tele-health Centres
- Cadastral Survey of Major Farm Blocks
- Rapid Emergence of Precision Agriculture
- Vehicle Fleet Tracking Management System



Non-exhaustive, varied reasons for increased levels of activity in the application of GNSS in Zambia:

- Follow up actions to UNOOSA regional and international GNSS meetings recommendations
- National /regional public policy directives /agendas
- Spontaneous private sector led initiatives
- Increased global- GNSS public awareness & knowledge transfer to decision makers
- Public Private Partnership
- Other parallel initiatives

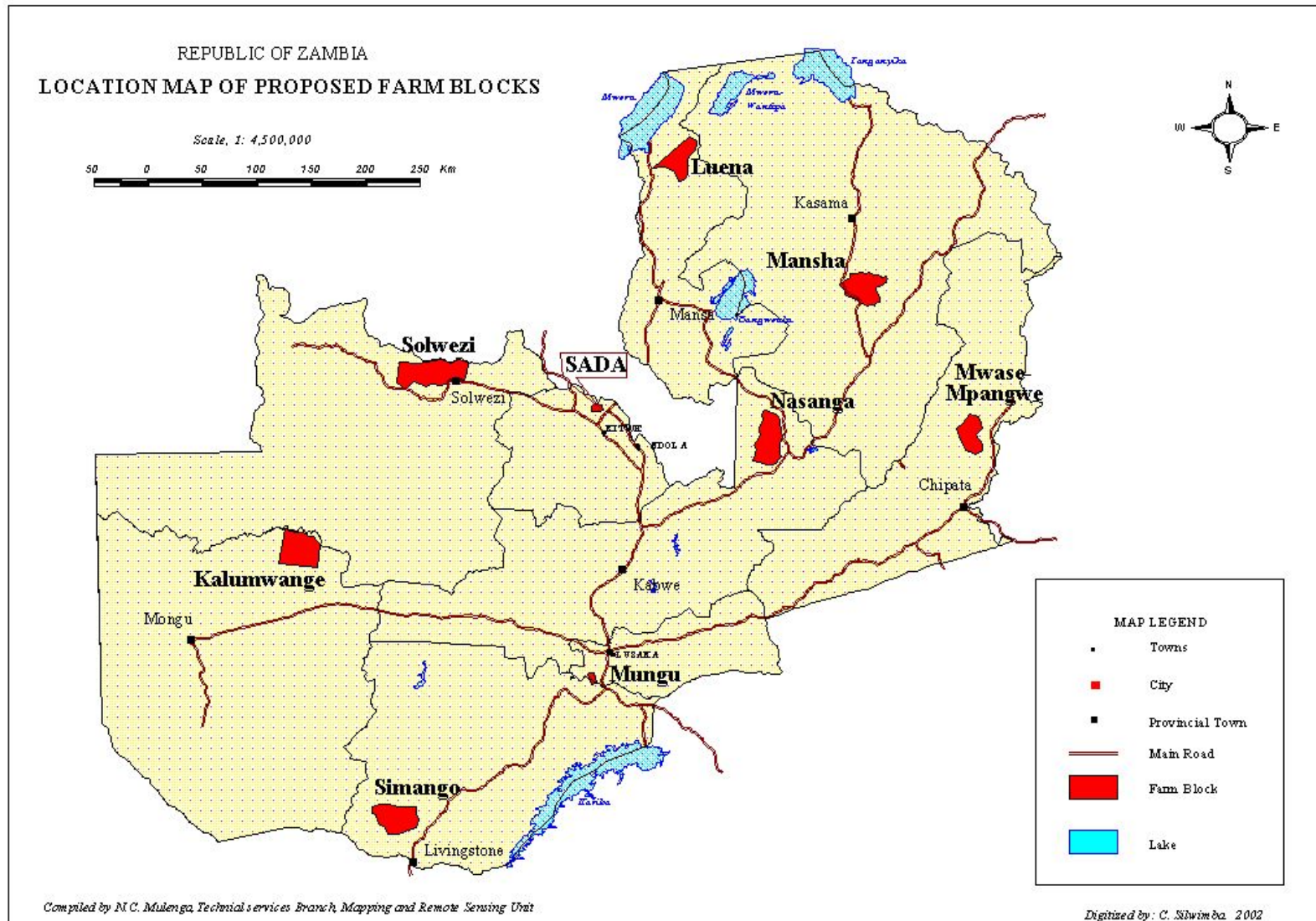


Establishing of pilot Tele-health Centres with GNSS/Telematics facilities:

- Feasibility study for 5 pilot sites done
- Implementation plan ready
- Tele-medicine equipment procurement logistics, installation and commissioning (remaining)



Cadastral Surveys for Major Farm Blocks Development

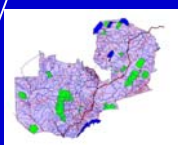


New Government priority - Agricultural sector development



GNSS survey and mapping application largely driven by the agricultural sector programmes:

- Phase One of the farm block development has commenced 2004 for 2 years – land use planning, topographic and cadastral surveys, construction of physical and social infrastructure, and settlement targeted to be achieved for three farm blocks
- Each farm block is approx. 150,000-200,000 Ha with parcels (50ha to 10,000 Ha) for small holder to investor level farm development
- Cadastral farm parcels surveyed with precision DGPS RTK - TRIMBLE 4700 / 5700 total stations (2 base; 4 rovers)
- Funds secured to procure additional Leica GPS 1200 Surveying System and Trimble 5800 DGPS sets in addition to other survey and mapping equipment / resources

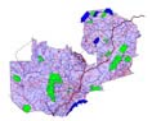
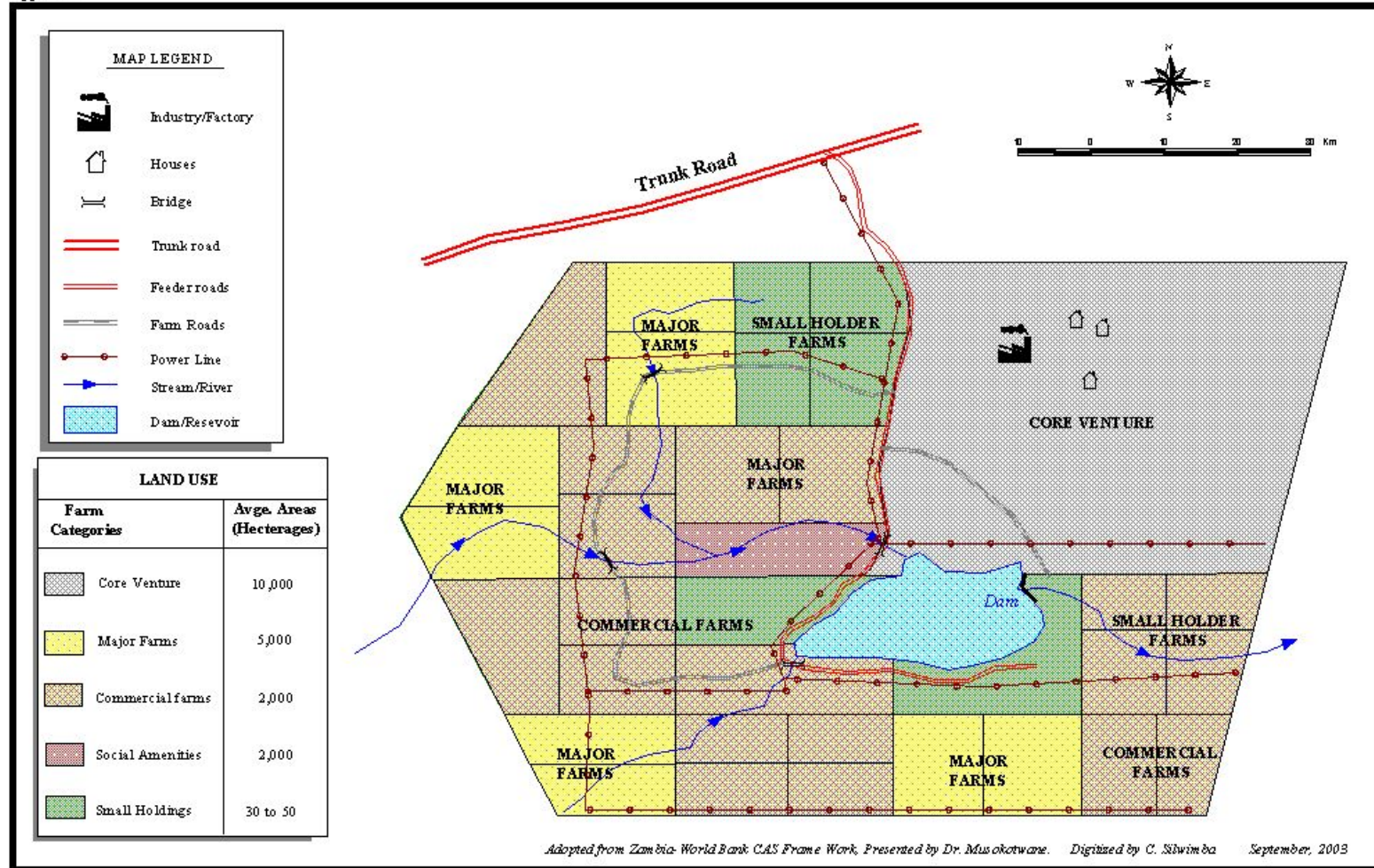


....Cadastral Surveys of Major Farm Blocks



NEW DEAL MODEL FOR NASANGA/KALUMWANGE FARM BLOCKS; INTERGRATED PROVISION OF WATER, ROADS, ELECTRICITY AND OTHER SOCIAL AMENITIES

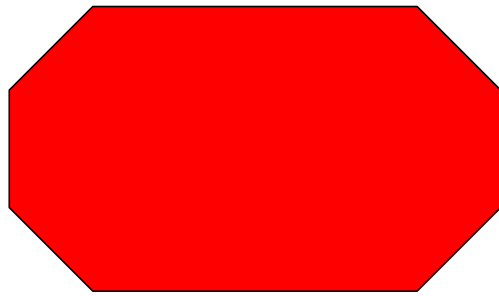
Appendix 1



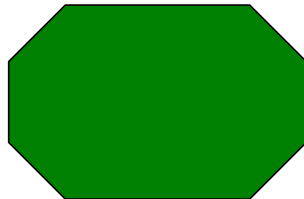


....Cadastral Surveys of Major Farm Blocks

Farm Block – Farm size structure



Core Venture



Major Farms

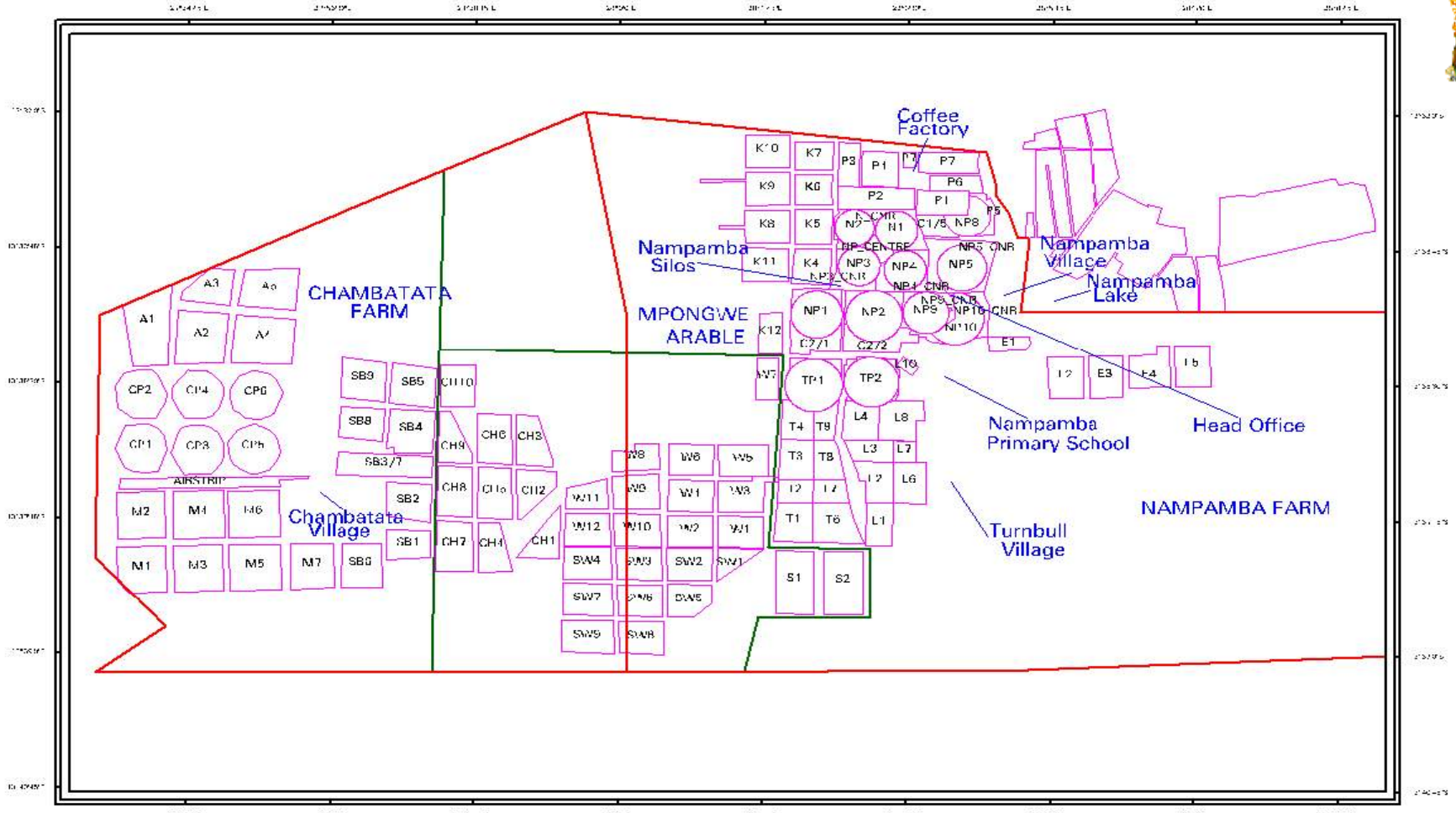


Commercial Farms



Small Holder Farms

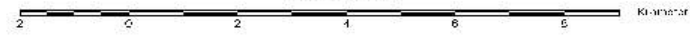




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PROJECTIONS
2011 UTM Zone 32 S
Datum: Everest
Units: Meter



LEGEND	
RED Hatched	Water
PURPLE Hatched	Water
Blue	Water
Green	Water

DATE: 15/05/2011
BY: [Name]
FOR: [Name]



AG Precision Agriculture initiatives in Zambia

Some causes of catalytic effect on increased level of GNSS application to precision agriculture (AG):

Government high priority to agricultural sector

Public Private Partnership

Spontaneous private sector initiatives

Zambia's regional comparative advantage:

Agro-ecological, agronomic conditions

Land tenure, land availability and access



Some cases on GNSS application – investment in AG



Unprecedented scale of AG procurement and farm installation. In less than one year alone over 200 “GNSS enabled” combine harvesters shipped in country. John Deere (GreenStar GPS), MF, Valtra commercial farm equipment.

Commercial cropping – maize, tobacco, soya beans, wheat, sugar cane, cotton

Large scale commercial farming target group; main use guidance systems / land management systems



...Some cases on GNSS application – investment in AG



Some immediate challenges facing AG equipment brokers, public-private farm extension service agents and commercial farmers:

- Low usage / exploitation of AG infrastructure and spatial data;
- Strengthening user groups and outreach missions;
- Establishing peer exchange on technical experiences in other countries and regions where best practices have been adopted;
- Awareness, competence based training and skills development



Vehicle Fleet Tracking Management System

At Medical Stores Ltd

- A Public Private Partnership - Central Board of Health and Medical Stores Ltd
- Successful operation of a fleet of more than fifty (50) long haul trucking vehicles fitted with real time GPS tracking and locating facilities with two-way radio communications
- Demonstrated at the Regional GNSS workshop, July 2002, Lusaka
- Dispatch and delivery vehicle service for drugs, medical equipment and materials to hospitals and health centres through out Zambia



Functions and benefits of FMS at Medical Stores Ltd :

Real time tracking and locating with two way radio communication

Stop and idle time reports

Speed alerts

Boundary and geo-referencing with alerts

Some of the benefits experienced by Medical Stores Ltd

Stolen vehicle recovery

Stop unauthorized vehicle use

Lower fuel bills and improved vehicle use

Staff productivity and improved customer service



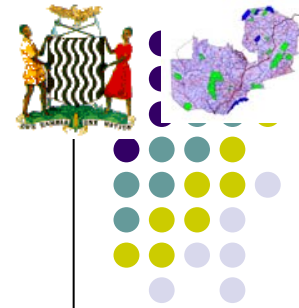


Regional Networking Efforts

- NEPAD - The New Partnership for Africa's Development - An African Union development agenda
- Zambia participated in the NEPAD southern Africa regional workshop on Science and Technology (S&T), November, 2004 in Pretoria, RSA
- 3 other regional S&T Flagship workshops taken place in December 2004 (Nairobi -Kenya, Algiers – Algeria and Dakar – Senegal)
- Development of a NEPAD Business plan for Science and Technology
- Space Science and Technology one of the S&T Flagship thematic areas
- UNOOSA/USA GNSS initiatives being adopted in business plan:
- Establishment of AISS and GNSS/EO satellite Pilot projects
- Approval of Business Plan - Conference of Ministers & Heads of Government Meeting May 2005



Space Science & Technology for Sustainable Development



African Institute for Space Sciences

SATELLITE APPLICATIONS

SPACE GEODESY
POSITIONING
NAVIGATION

EARTH OBS

COMMUNICATIONS

Regional development issues

SPACE TECHNOLOGY

Niche regional
competence
Sunsat

SPACE RESEARCH

Regional Advantage
SALT, HESS, SKA

CROSS-CUTTING ISSUES
IKS, ICT, CAPACITY BUILDING, LINKS WITH INT SPACE ARENA

CROSS-CUTTING THEMES
FOOD SECURITY, GLOBAL CLIMATE CHANGE

PILOT
PROJECT

PILOT
PROJECT

PILOT
PROJECT

PILOT
PROJECT

Project Focus - Critical GNSS applications for Zambia

- Telemedicine
- Education and Awareness
- Continental Reference Frame AFREF
- Regional Workshop on thematic areas

These have a direct impact on poverty reduction and wealth creation; food security, health for enhancing the quality of life for our people

Deliberations of this meeting should consider the above project proposals

Lights of the world

**THANK YOU FOR YOUR
ATTENTION**