Applying GIS for Knowledge Management in Rural Limpopo Health Sector, South Africa

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UNDP Support to the Health Sector in Limpopo

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Linking tacit knowledge with spatial data
• UNDP’s mission in South Africa is to strengthen capacity for participatory governance and pro-poor growth based on normative and inclusive human rights principles.

• UNDP’s Support to the Health Sector in Limpopo is a partnership with Limpopo Department of Health.

• Due to the remoteness and perceived unattractiveness of rural hospitals, many health professionals opt to work in urban areas and abroad. This has created chronic shortages of health professionals.

• As a result, health service delivery faces challenges which include:
  - Mismatch between health service demands and available resources;
  - Shortage of skilled professionals;
  - Inadequate evidence-based decision making, planning, and resource allocation; and
  - Inadequate management skills at all levels.

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Support to the Limpopo Health Department through 4 programmes:

Programme 1:
Health Professional Volunteerism and capacity development

Programme 2:
Health Planning Support (Health economics)

Programme 3:
Knowledge management and leadership development

Programme 4:
MDGs domestication, Monitoring and evaluation system.

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Limpopo province is situated in the north of South Africa. It shares borders with Gauteng and Mpumalanga provinces in the south, Mozambique in the east, Zimbabwe in the north and Botswana in the west.

The province covers 123,910 km² with an estimated population of 5.4 million (4th most populated in the country).

Limpopo province is predominantly rural with close to 80% of the population falling into this category.

The province’s health facilities include:
- 40 hospitals,
- 22 health centres, and
- 416 clinics.

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Limpopo Hospital Facilities

Types of facilities:

- 2 Tertiary hospitals
- 5 Regional hospitals
- 3 Specialist hospitals
- 30 District hospitals
UNDP Support Prog. 3: Knowledge Management for the health sector

• Why knowledge management?
  - Solutions to public health problems exist but are not applied because of knowledge gaps in the province.

• These gaps can be bridged through the development of an environment that encourages the discovery, creation, management, sharing, distribution and effective application of knowledge to improve health.

• The key objectives of health KM are:
  - To improve access to and sharing of health information and knowledge;
  - To maximize the impact of explicit and tacit knowledge, including health research and experiential knowledge, through effective knowledge sharing and application;
  - To foster e-Health as a powerful means of strengthening health systems and improving health service delivery, including quality of care.
Knowledge Management for Health

• KM in health includes: health research; medical education and other elements of human resources development; health situation analyses; programme monitoring and evaluation; and development of strategies, norms, standards and guidelines.

• Publications, library services, documentation centres, meetings, workshops and seminars all make up tools and methods for KM.

• Other tools available include electronic mail, electronic databases, internet web sites, intranets, search engines, video- and tele-conferencing, virtual libraries, electronic collaborative tools and expertise locators.

• E-Health and telemedicine are playing important roles in public health, clinical knowledge and medical practice.
• The Department has never had a GIS or KM Unit.
• However, GIS and KM functions are included in the organisational structure of the Department.
• Locational mapping of health facilities has been done by external agencies (no attribute data).
• This data is not being utilized.
• Hospital-based District Health Information Systems (DHIS) is the main database system in use.
• Therefore, policy-makers, health practitioners and communities often lack relevant information and knowledge when and where they actually need it.
Overview of KM Plan for Limpopo

Knowledge Discovery
- DHIS
- PHIS
- Local Profs Database
- UNV Database
- MIS/GIS

Knowledge
- Best Practice Pilot
- Resource Centre
- Case Study Databases

Knowledge Sharing
- KM Task Team
- Seminar Series
- Exchange Programs
- Community(s) of Practice

KM Technologies
- Intranet
- Virtual library
- e-mailing lists
- Blogging
- TeamWorks

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Rapid Situation Analysis Included Mapping of:

Hospital Profiles
• OPD averages
• No. of Beds
• No of Doctors
• Vacancy rates
• Medical services offered
• Hospital nursing school
• Research activities
• Community education
• Hospital outreach programmes

KM Tools & Methods
• Libraries
• Community information centres
• Documentation centres
• Databases
• Mobile phone reception
• Email
• Website
• Intranet
• Tele-conference
• Video-conference
• IT infrastructure

KM Activities
• Meetings
• Membership to forums
• Professional membership
• Seminars
• Conferences
• Distribution of information
• HR development

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Next, mapping of the following to done:

- Traditional healers
- Traditional / community midwifery
- Hospital catchment areas
- Facility resources
- Primary health catchment areas
- Disease prevalence (e.g. cholera)
- EMS coverage and network analysis
- Private hospitals
Situation analysis results

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Usable beds at facilities

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KM Tools: Doctors’ Access to the Internet

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Availability of library and information resource centres at facility or within 30min drive (50km buffer)
Doctors’ Access to Libraries & the Internet:

Reallocation of resources to focus on isolated hospitals

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State of IT Infrastructure

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Functional Tele-medicine facilities with 30min radius coverage

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Weaknesses and threats in the mainstreaming of Knowledge Management:

- Inadequate formal policies, norms, standards and strategies;
- Managerial and leadership styles that hinder learning, or knowledge sharing and application;
- Poor ICT infrastructure and the subsequent digital divide; and
- Limited human and financial resources.

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• Assist the provincial DoH in setting up a GIS
• GIS will be utilized to map health and health-related tacit, traditional and oral knowledge, particularly in rural areas.
• KM, including learning, sharing and application, to be made an integral part of the managerial culture in Limpopo’s health sector.
• KM is to be strongly associated with health information systems, health research and human resources development.
• Regular situation analysis of KM at district and provincial levels through surveys and special studies will be performed using GIS.
• Such analyses will generate evidence; identify best practices; consider explicit, tacit, community-based and traditional knowledge; and locate available expertise.
• Finally, KM to be embedded across the health system, including all programmes and projects.
Thank You
Please Help!!!

UNV Medical Volunteers Required for Limpopo!

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