

Challenges of implementing SDI in Botswana

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Outline of presentation

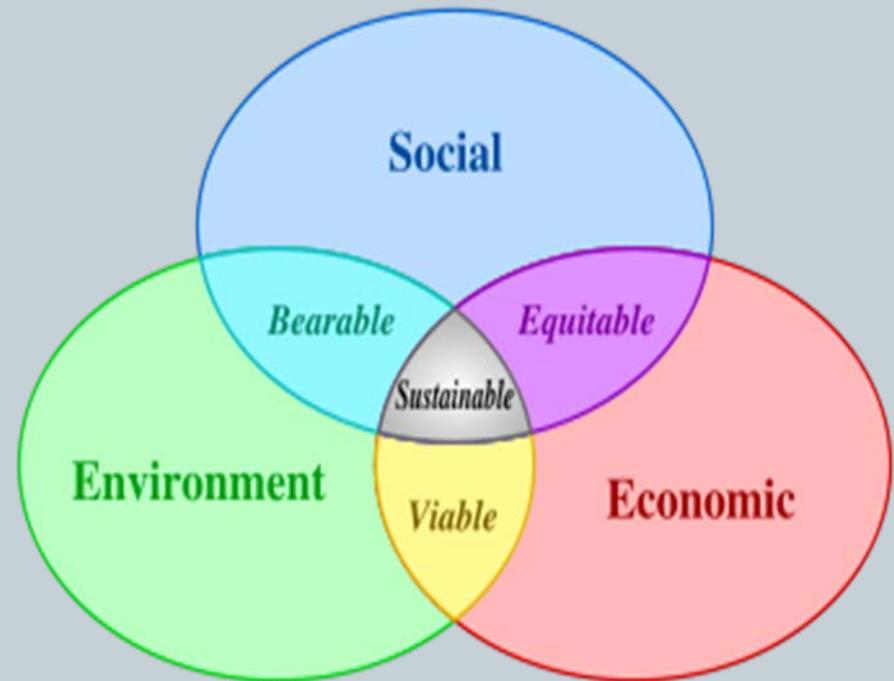
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- **Introduction**
- **NSDI and sustainable development**
- **Botswana National Spatial Data Infrastructure**
- **Current status**
- **Challenges of NSDI implementation**
- **Financing models**
- **Way forward**

Introduction

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- SDIs are meant to help achieve sustainable development and should not be seen as ends in themselves
- Sustainable development is that which meets today's needs of development without compromising future generations' ability to develop



Sustainable development

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- Earth Summit of 1992 proclaimed that “*without improving environmental management, development will be undermined and, without accelerated development in poor countries, the environment will continue to degrade.*”
- Indeed it might appear paradoxical that while we yearn for accelerated development we have to ensure that the environment is not harmed in the process.
- Apart from the environment there are social and economic considerations as well
- The basis of sustainable development it can be shown is information

Economic model

Comparative Advantage

Economic theory predicts all countries gain if they specialise and trade the goods in which they have a comparative advantage. This is true even if one nation has an absolute advantage over another country.

Rostow

This is a linear theory of development. Economies can be divided into primary secondary and tertiary sectors. The history of developed countries suggests a common pattern of structural change

Harrod-Domar

The Harrod-Domar model developed in the 1930s suggests savings provide the funds which are borrowed for investment purposes.

Lewis

The Lewis model is a structural change model that explains how labor transfers in a dual economy. For Lewis growth of the industrial sector drives economic growth

Dependency Theory

Dependency refers to over reliance on another nation. Dependency theory uses political and economic theory to explain how the process of international trade and domestic development makes some LDC's ever more economically dependent on developed countries

Balanced growth theory

Balanced growth (or the big push) theory argues that as a large number of industries develop simultaneously, each generates a market for one another.

Unbalanced growth theory

Unbalanced growth theorists argue that sufficient resources cannot be mobilised by government to promote widespread, coordinated investments in all industries

We are ruled by economic models

NSDI and sustainable development

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- SDIs are meant to be a collection of technologies, policies and institutional arrangements that facilitate the availability of and access to spatial data
- SDI provides a basis for spatial data discovery, evaluation, and application for users and providers
- This implies that SDI should indeed be a component of sustainable development because you cannot develop that which you know little about
- Those in the geospatial professions do not need convincing on the score

SDI and political appreciation

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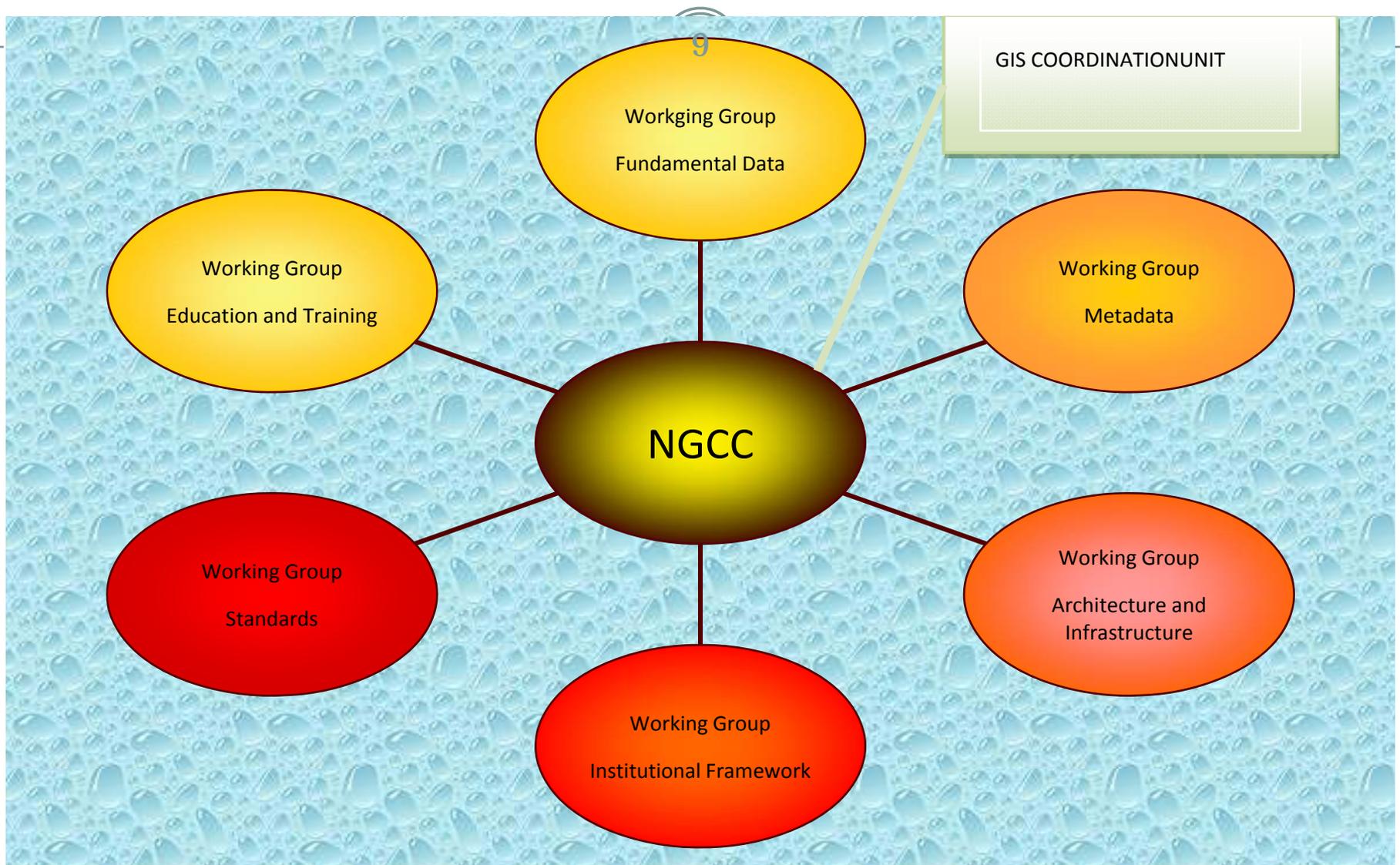
- As we extol the virtues of an NSDI most of the African governments do not seem to give it the same kind of admiration as they do other infrastructures such as road networks, phone networks
- Reasons for this could be
 - The lack of awareness of the value of SDI
 - Confusions surrounding the definition of SDI
 - Lack of policy and coordinating arrangements
 - The complexity of national issues such as the political, cultural, and economic positions of most countries

The Botswana National Spatial Data Infrastructure

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- In Botswana there has been considerable government support however on the implementation of an NSDI and official launch was done in 2002

NSDI structure



http://www.ngis.gov.bw

National Spatial Data Infrastructure for Botswana - Windows Internet Explorer

http://www.ngis.gov.bw

File Edit View Favorites Tools Help

National Spatial Data Infrastructure for Botswana

NATIONAL SPATIAL DATA INFRASTRUCTURE FOR BOTSWANA

GOVERNMENT OF BOTSWANA

- HOME
- PROJECT INFORMATION
- NEWS
- WORKING GROUPS
- SERVICES
- CONTACT US

NATIONAL SPATIAL DATA INFRASTRUCTURE FOR BOTSWANA

The website for the initiative of National Spatial Data Infrastructure for Botswana was developed within the Establishment of a National Geographic Information System project.

NSDI – is an established framework for linking geographic data from different organizations. NSDI is defined as the technologies, policies, standards and procedures necessary to promote sharing of geospatial data throughout all levels of government, the private sector and the academia.

The goal for this infrastructure is to reduce duplication of efforts among organizations, improve quality and reduce costs related to geographic information, to make geographic data more accessible and to increase the benefits of using the available data.

An SDI consists of four main components:

- Institutional Framework**
Inter-institutional agreements, Data sharing policies, data pricing policies, institutional responsibilities, legislation, private integrity policies etc



Dept. of Information Technology, headquarters of the NSDI initiative in Gaborone

Site info
Last updated: 11/14/2007
Visitors: 15739

Links
www.gov.bw

Contact the GIS Unit
gis.unit@gov.bw

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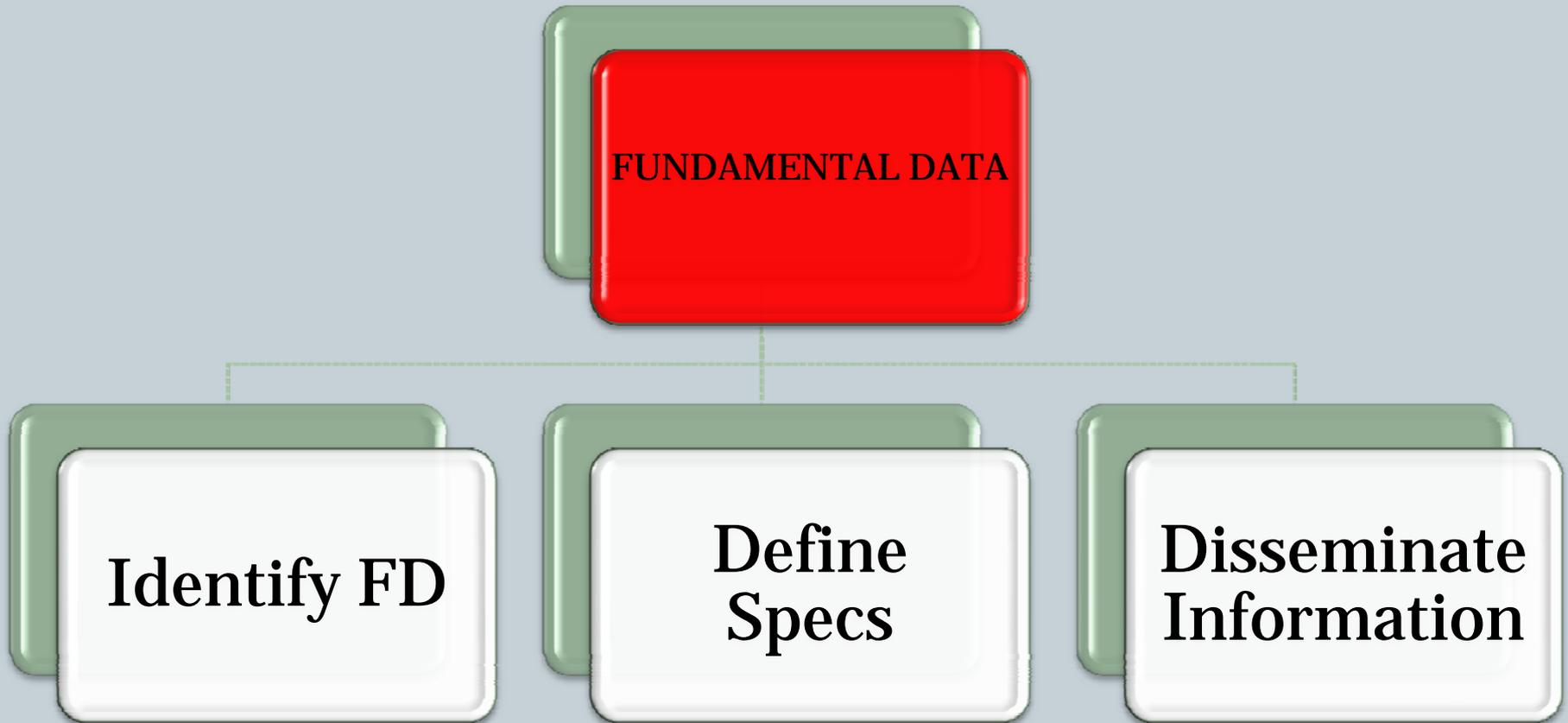
Current status

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- **Working group mandates, meetings**
- **GIS activities in certain government departments**
 - IGIS - National Mapping Agency
 - NIGIS- Ministry of Energy and water Affairs
 - Town planning portal- Ministry of Lands
 - TLIMS- Ministry of Lands
 - SLIMS- Ministry of Lands
 - ESP/EIMS- Ministry of Environment
 - Utility companies

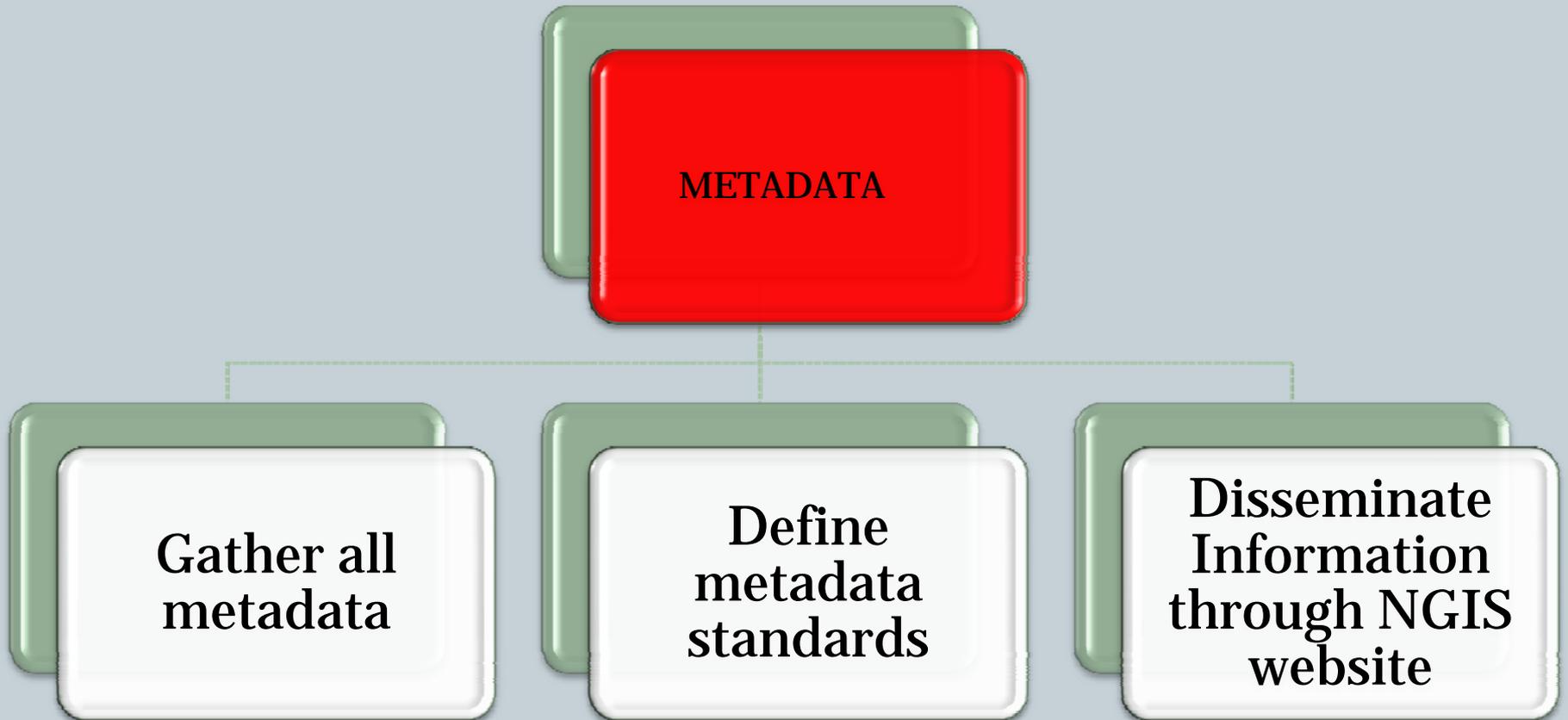
Fundamental data working group

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Metadata Working Group

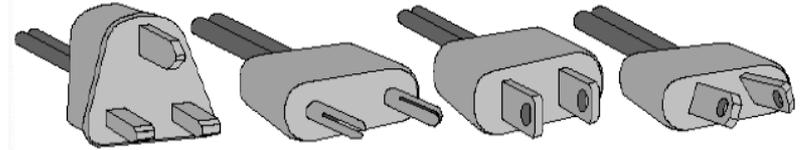
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Standards Working Group

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- Identification of standards
 - Metadata standards
 - Transfer standards
 - Quality standards
 - Web Mapping standards
 - Interoperable interface standards
- ISO TC211
- OGC

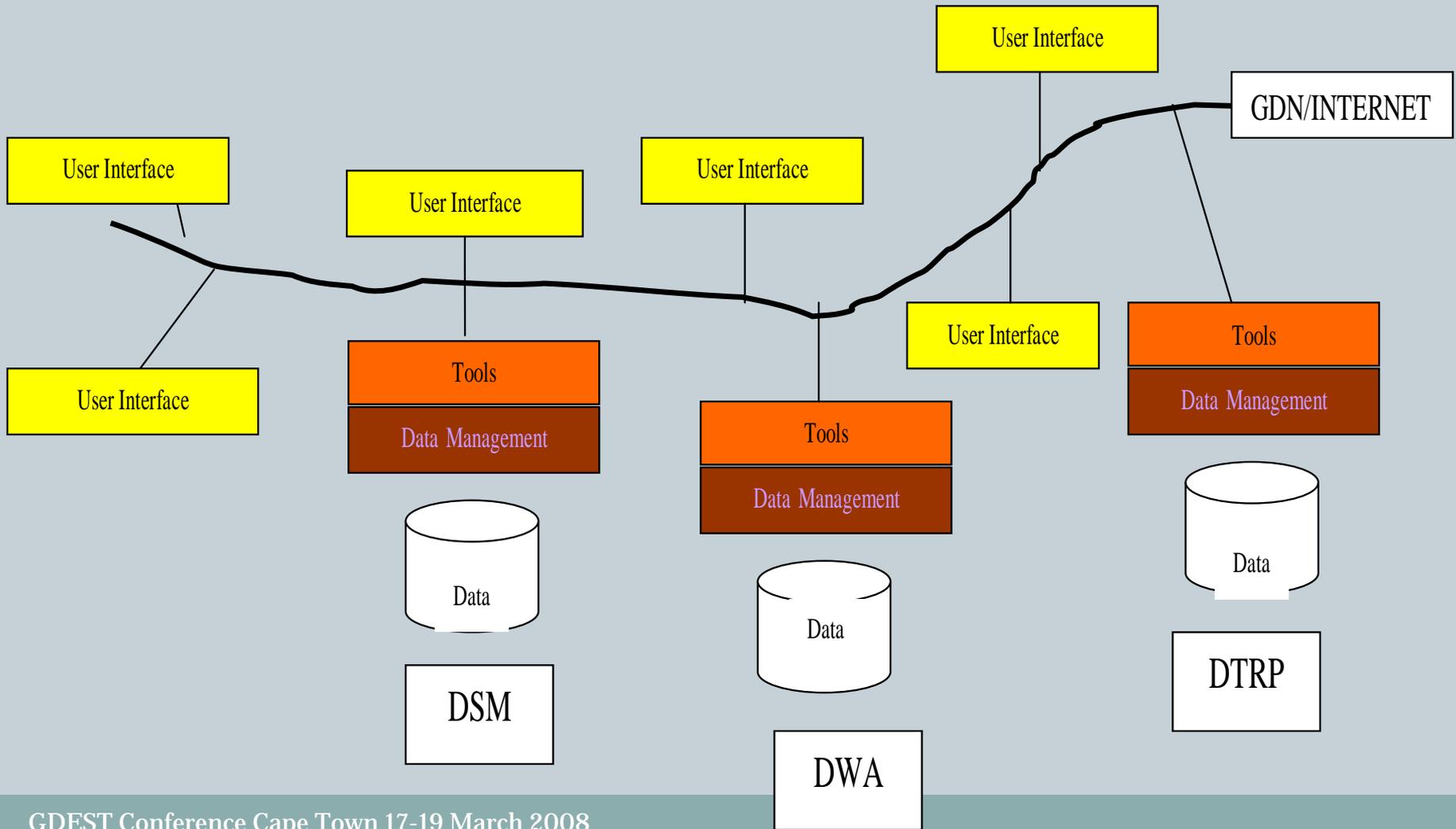


Lack of standards



Enterprise GIS solution

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Institutional Framework

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- **Establishment of best framework for an effective NSDI**
 - Legislation and policies
 - Establish secretariat for the maintenance and daily tasks of the NSDI
 - Set up agreements between government departments concerning data supply, pricing, custodianship

Education and HR

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Education & Training

**Identify Skill
gaps in GIS**

**Identify users
of GI data**

**Help develop
Edn & training
programmes**

Evaluation of current status

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- that there was need to strengthen the professional association representing the geospatial information professions.
- That there was need to propose an SDI policy and coordination mechanism. This was to be done by establishing a drafting team which would work with a consultant
- That government acquisition of GIS software tools be done through enterprise agreements to realize economies of scales
- That enhancement of GIS skills at school, institutional, and national levels was required to enable GIS penetration to all of society

Challenges of implementing NSDI

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NSDI ideals revolve on issues of coordination, technology, data and people.

- **Data:**

- reasonably well managed at institutional level but not easily discoverable- metadata issues
- little effort has been spent on transforming data into information for decision making

- **Coordination**

- there has been poor coordination of the NSDI effort.
- Poor coordination restricts more beneficial outcomes from existing GIS capacities

Challenges of implementing NSDI

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- **Technology**
- technology forms the backbone of all the activities in the SDI. The acquisition and maintenance of such technology has always been a challenge. It has been suggested that enterprise licensing arrangements be entered into between government and service providers so as to allow for economies of scale.
- **People**
- The greatest challenge in the successful implementation of any technology seems to be people. New solutions without investing in people skills leaves moribund solutions.
- Capacity building is necessary at all levels

Way Forward-the cookbook way

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- **Build a consensus process: build on common interests and create a common vision**
- **Clarify the scope and status of the SDI**
- **Exchange best practices locally, regionally and globally**
- **Consider the role of management in capacity development**
- **Consider funding and donor involvement**
- **Establish broad and pervasive partnerships across private and public sectors**
- **Develop clearinghouses and use open international standards for data and technology**

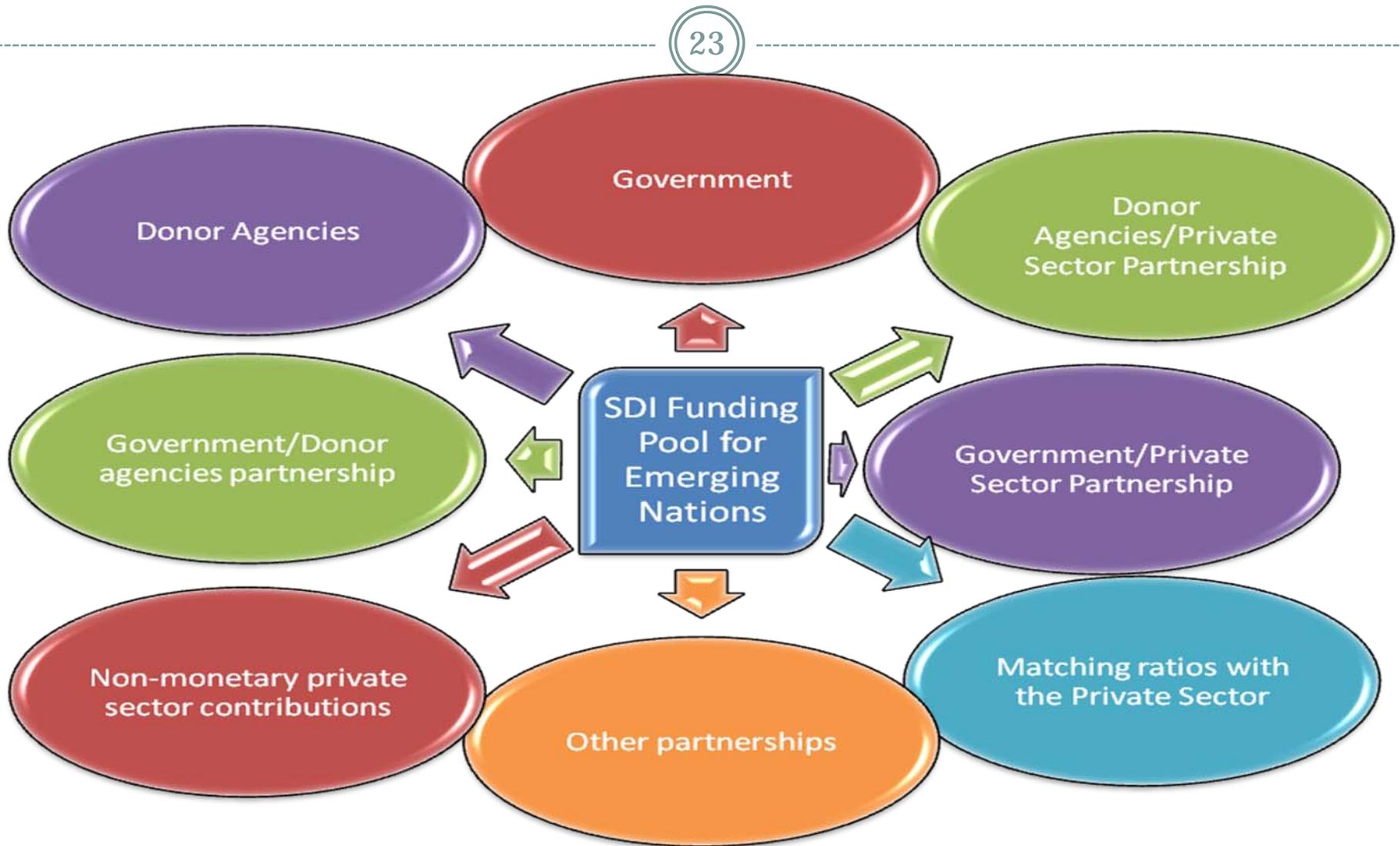
SDI and funding models

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1. **Government Funding (Funds derived from taxation);**
 2. **Private Sector Funding (Derived from fees charged to customers);**
 3. **Public Sector Funding (Derived from fees charged to customers); and**
 4. **The Indirect Method (Funds derived from advertising, sponsorship and other indirect methods).**
- **Botswana has 1) and 3)**

SDI funding models

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Usefulness of Emerging Technologies

- One of the millennium goals states that “*In cooperation with the private sector, make available the benefits of new technologies, especially information and communications*”.
- One sees the role of SDI as that of providing information services to the betterment of society.
- SDI must now move from the current teething problems of institutional arrangements to the actual solution provision in issues of poverty alleviation.
- Let us use these technologies to address the millennium development goals- that way politicians will take these technologies seriously!
- Example

SDI and MDG 1

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- Halving the population of the people who earn less than a dollar and suffer from hunger by the 2015-The contribution of SDIs.

Set up GI systems that inform the political process in terms of the number of people who are still earning less than a dollar a day in any particular jurisdiction.

- Collect data on and establish databases (poverty maps)
- Work with Donor agencies, Statistical Offices and Mapping Agencies and private sector geospatial organizations.
- The information so collected could then be used to plan mitigation measures and “hopefully” help halve the number of the poor by the targeted date.

I THANK YOU FOR LISTENING