Enhancing Capacities for G-Governance

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Infrastructure typically refers to the technical structures that support a society, such as roads, bridges, water supply, sewers, electrical grids, telecommunications, and so forth, and can be defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions.

World wide urban population is increasing very rapidly day by day. This growth of population does not match with the delivery of land , housing, services, utilities and infrastructure required for sustain a reasonable quality of life.

Informal settlement

Increase in congestion

Air and Water pollution

Poor infrastructure

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Advantage of GIS Technology:

Securely store, manage and share vast amounts of spatial information.

Propagate data changes among multiple data source and improve maintenance through condition surveys.

Safety management through access to accident information and associated data (such as road conditions, weather, traffic)

Ensure data integrity, consistency, and credibility.

Integrate real-time tracking of features and events leads to congestion management.

Integrate Spatial and Non-Spatial Informations with various application Platform for decission makers.

Provide cost effective evaluation parameters at the time of planning.

Environment Management

Infrastructure Development

Efficient Use of Resource

Geospatial & Utilities

Enhancing Capacities for G-Governance

Natural Resource Management

Improved Citizen Service

Future Cities

Smarter Life

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A **Resource** is a source or supply from which benefit is produced. Typically resources are materials, energy, services, staff, knowledge, or other assets that are transformed to produce benefit.

Economic resources

Biological resources

Computer resources

Land or natural resources

Labor or human resources

Capital or infrastructure

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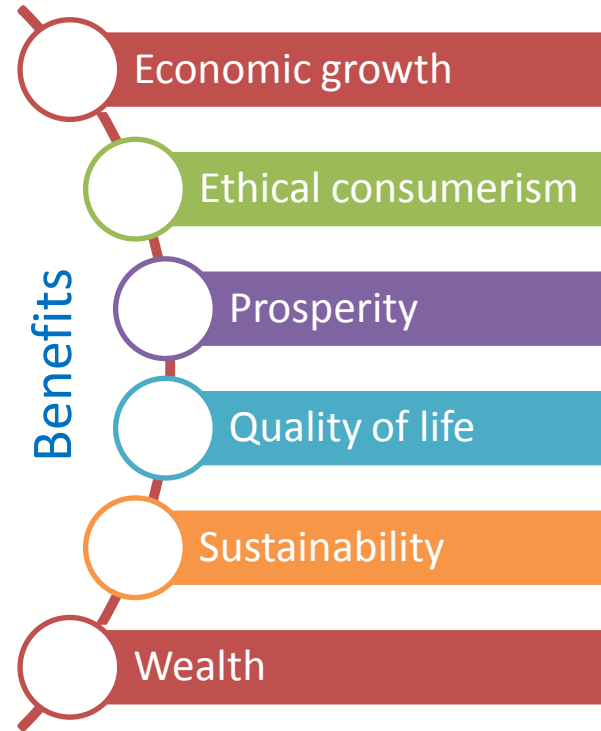
Efficient use of Resource

- Reducing the materials and energy used in various activities

- Reusing Resources

- Recycling waste generated

- Replacing Resources and energy sources with less constrained or more sustainable Sources

Benefits

- Economic growth
- Ethical consumerism
- Prosperity
- Quality of life
- Sustainability
- Wealth

Advantage of GIS Technology

* • Useful to find out Water Resource in various locations.

* • Soil Mapping and Surveys to find out various Energy sources like Oil, Mineral etc.

* • Analyse and decide Suitable to locations for hydro electricity locations.

* • Finding out of Renewable energy resources.

* • Even distribution of Asset and Manpower.

* • Infrastructure distribution for sustainable development

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Service Provided to citizen and enjoy other basic facilities like Education, Health care, Water and Electricity, Telecommunications, Postal Service, Public Transportation, Security and fire services, Various Identity services like Passport, ID Cards etc., Emergency Services, Engagement and Social Services.

Improved Citizen Service

Empower citizens to avail paperless services

Provide superior citizen service and faster resolution of issues

Build the ability to provide round-the-clock – 24/7/365 services

Provide accurate and real-time availability of information

Streamline internal processes and workflows

Advantage of GIS Technology:

Citizen tracking system using GPS (Integrated with cell phones or vehicles) can be developed to track each and every citizen at the time of emergencies like flood, cyclone etc.

Real time tracking system can provide updated traffic and climatic Condition.

Graphical Representation of Land Record for an accurate inventory of real property, analyse the value of land and associated improvements,

Quick Solution to Water and Electricity and other Utility issues.

Better asset management, Planning and development

Better Fire and Security Service and Emergency Management.

Smarter Life is Sharp, Quick , Fast and in other way Intelligent life lived by a human being in comparison to day to day traditional life.

Traditional Life

Unnecessary spending time to reach destination due to traffic congestions, Road Blockage .

Fails or waste time to find address information or missing.

Spends lots of time In queue for various work.

Unavailable and slow GPRS and Mobile connectivity.

Unreachable or slow public services.

Use to traditional sources for various work.

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Smarter Life

Fast and quick transport medium by real time traffic or other updating.

Pizza & Parcels can be delivered by small GPS enabled UAVs.

Real time updations of Parking allocation in public places.

Sharing of location information using GPS.

GPS Citizen service can trace missing citizens at emergency situations.

Even distributin of telecom towers for better connectivity.

Fast and Quick public services like fire, safety or any emergency situation .

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Future City can be defined as a digital technology embedded City With smart governance, smart energy, smart building, smart mobility, smart infrastructure, smart technology, smart healthcare and smart citizen which brings together Technology, Government and Society.

Characteristic of Future City:

- Safe and Fast moving Public transportation like railway and Road Network.

- Clean, Hygenic, Healthy enviornmental conditions.

- GPRS and Broadband connectivity for each part of the City.

- Fast and Superior Public Services using modern techniques.

- Streamline Planning and Development and will be transparent for public..

- Public awareness With updated climatic disturbance, Traffic Congestions & emergency situation.

- Public awareness for the optimal use of Resources.

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Advantage of GIS Technology:

Centralized information system based on GIS provides an IT framework which integrates every aspect of a future city starting from conceptualization, planning, and development to maintenance

Real-time GPS Tracker can update about the traffic congestion, Road blockage etc. Can be useful in solving Parking Problem by putting digital Automated Screens at the Parking Entrance.

Automatic tracking and solution of Water Pipeline System and Electrical Networking disturbance.

Better Analysis of land use and Land Distribution.

Illegal constructions, encroachment can be tracked with a easy method.

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A **Natural Resource** is anything that people can use which comes from nature. People do not make natural resources, but gather them from the earth.

Water

Air

Coal

Iron

Hydro Energy

Wind Energy

Oil

Wood
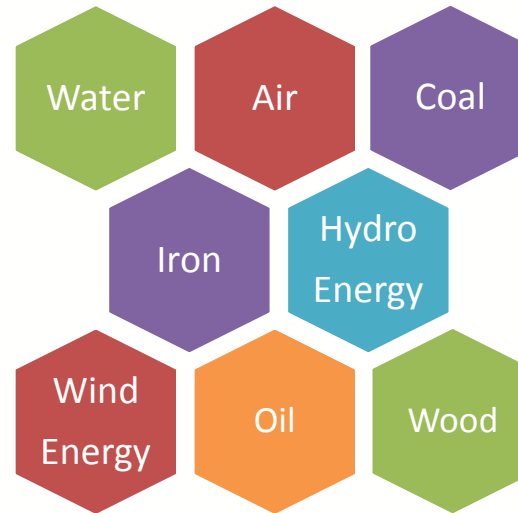
Natural resource management deals with managing the way in which people and Natural landscapes interact. It brings together land use planning, water management, biodiversity conservation, and the future sustainability of industries like agriculture, mining, tourism and fisheries. It recognises that people and their livelihoods rely on the health and productivity of our landscapes, and their actions as stewards of the land play a critical role in maintaining this health and productivity.

Advantage of GIS Technology

Decision Makers

* • It enable users to overlay various data to delineate and predict the future of our resources, land, ocean, plant life, and wildlife.

* • Helps to gain a deeper understanding of the challenges and accurate information and less guesswork to the table.

* • Helps farmers to increase production, reduce costs, and manage their land more efficiently by analyze and visualize agricultural environments and workflows.

* • Provides comprehensive, interoperable technology for mining to compile, process, display, analyze, and archive volumes of interdisciplinary data to operate mines responsibly and at optimum efficiency.

* • Provides Powerful tool for developing solutions for water resources such as assessing water quality and managing water resources on a local or regional scale

Environmental Regulators

Biologists & Botanists

Ecologists

Hydrologists

Planners & Miners

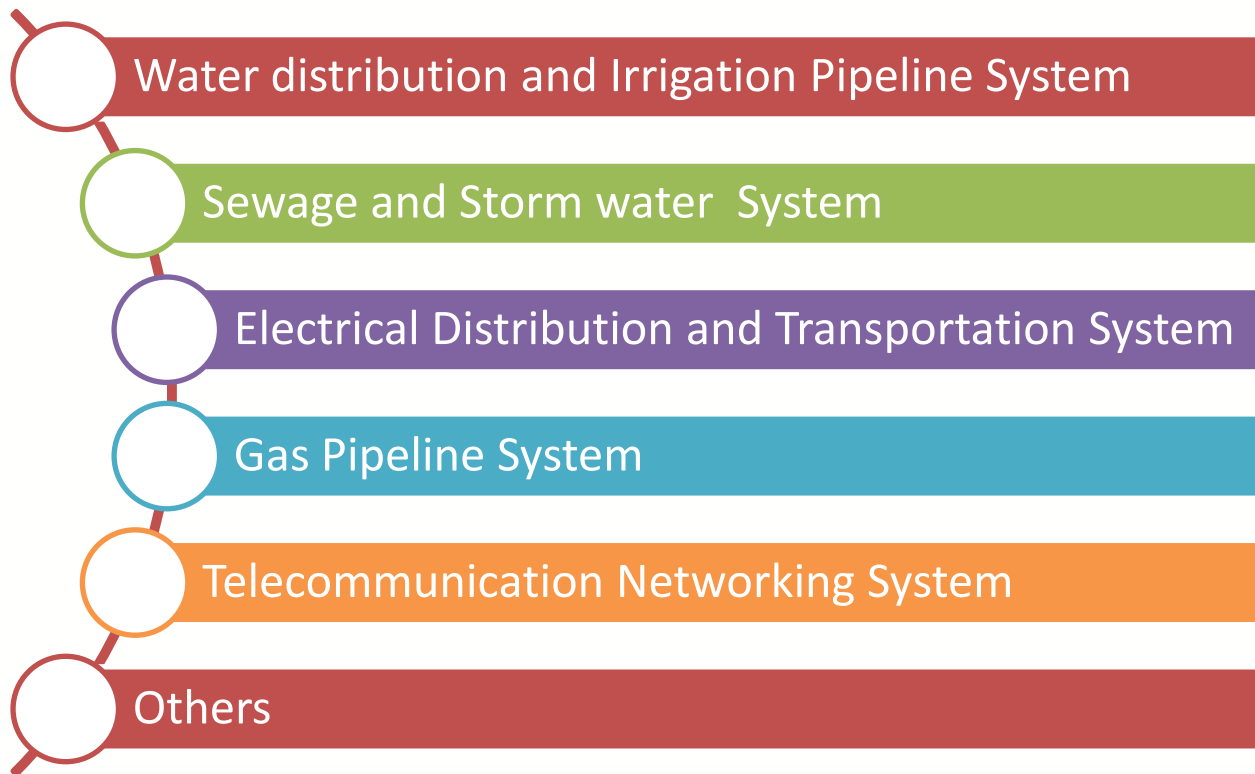Petroleum engineers

foresters & farmers

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Utility is something comes under the basic need of a human being. It will start from water to Telephone etc, and without these basic needs there bound to be disturbances and survival will be impossible. For a Sustainable survival all these Utility System should be operated without any disturbance.

- Water distribution and Irrigation Pipeline System
- Sewage and Storm water System
- Electrical Distribution and Transportation System
- Gas Pipeline System
- Telecommunication Networking System
- Others

Advantage of GIS Technology

For better planning and maintenance

Easy and Updated Information to Surveyor and construction worker at site.
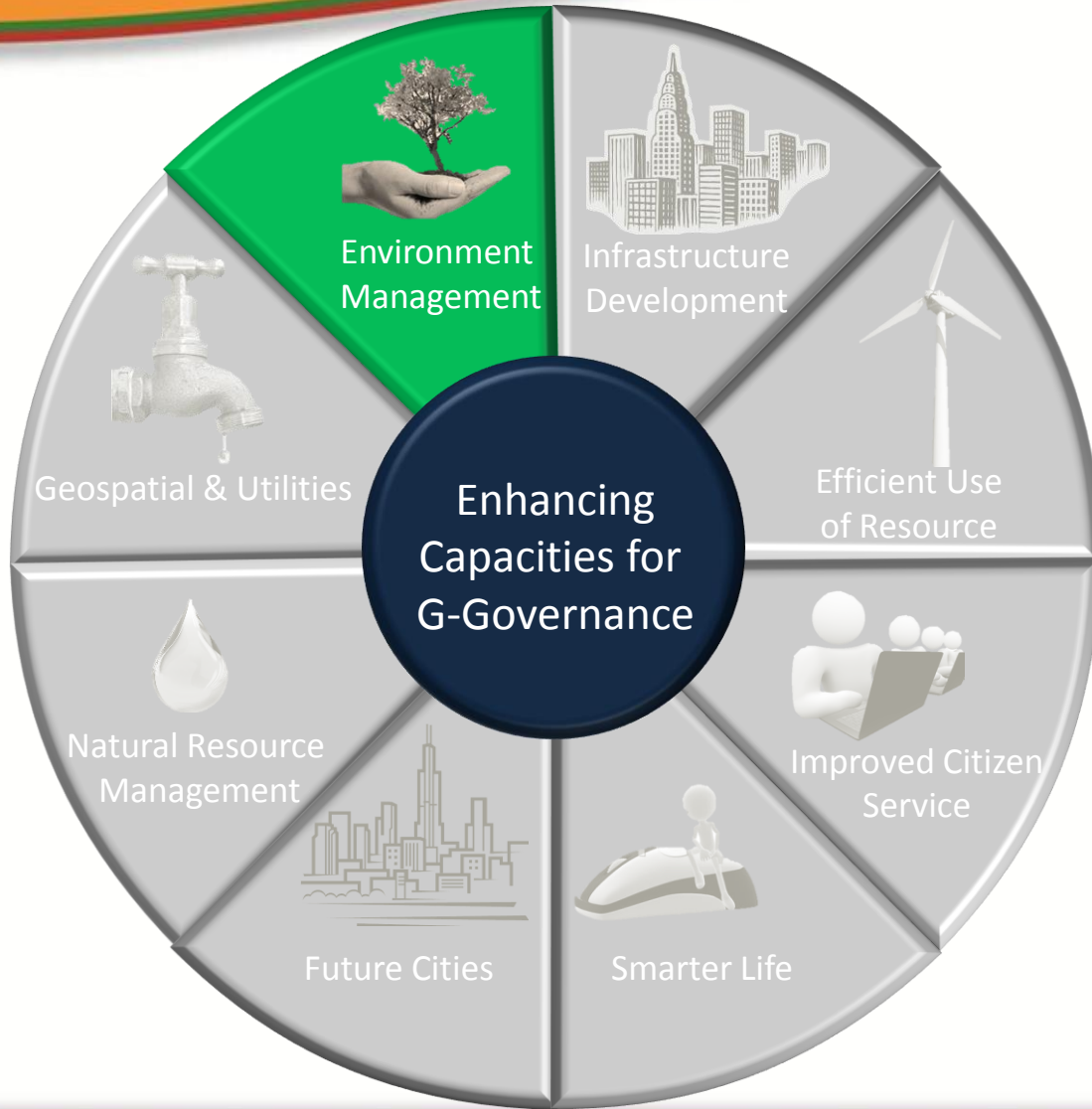
Multi layer access facility of different Utility Network Information

Quick and rapid solution to any kind of disturbance like leakage , Damage etc.

Automatic notification about Network disturbance Issues

Easy tracing of Underground Manholes , Ducts for maintenance

Easy tracing of Source and Distribution connectivity

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Environment is the sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as of danger and damage.

Environmental Management is the management of an organization's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organizational structure, planning and resources for developing, implementing and maintaining policy for environmental protection.

Environment Management is required for protecting and restoring the natural environment. The interdependency of the earth's ecosystems and the human impact on the environment present complex challenges to governments and businesses as well as scientists and environmentalists in every discipline.

Advantage of GIS Technology:

Manage Multiple layers of Geospatial Data.

Improve decision making and Provide better data analysis and presentation option.

Increase productivity and streamlined work process.

Create predictive scenarios for environmental impact studies.

Model dynamic environmental phenomena.

Measure Change such as wildlife habitat encroachment.

Updated maps can be shared through Internet for public use

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NSA in G-Governance

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Technically Equipped	• Possess System Architecture, HW & SW, Provides standards for Geospatial activities, Skilled Manpower
Authorised Spatial Data Provider	• Hosts accurate and up-to-date Vector & Raster data at various scales in seamless ArcSDE managed Oracle Spatial Database
Complete Organisation	• Supports Military & Civilian data requests and creates Geospatial Technology knowledge & awareness through Institute of Topographic Sciences
International Representation	• Member of various International Geospatial organisations/committees like UNGEGN, UN-GGIM, GCC, FIG, IMIA etc. & have MoU with USA, UK for data sharing & exchange of Technology

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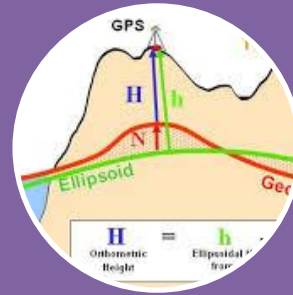National Survey Authority
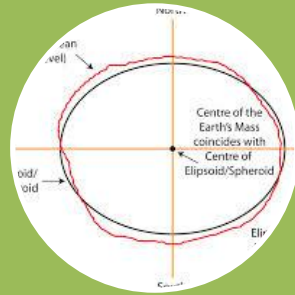
Geospatial Data at NSA

Maps

- Topographic Maps
- Tourist Maps
- Air Charts, Range Maps, Exercise Maps, Border Maps

Raster Data

- Satellite Images
- Aerial Photographs
- Orthophotos
- Digital Elevation Models

Vector Data

- 50K data in seamless ArcSDE managed Oracle Spatial
- 1.3 Milion
- Wilayat, Niyabat, Royal Camps, Control Points, Airfields, VoBs, GPNs

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Standards for Geospatial Activities at NSA

Data Model-	• Supplies ESRI data models based on DFDD codes at various scales such as 5K, 20K, 50K, 100K, 1.3M etc.
Data Capture Specifications -	• Supplies specifications based on international standards for data capture at 50K scale
Data Finishing Specifications-	• Supplies specifications based on International standards for map finishing covering aspects like color, pattern, symbols, generalisation etc.
Field Survey Operations-	• Possess manual based on international standards for field survey activities
Data Security & Vetting Procedure-	• Supports proper security of data

You are all invited at the NSA stand to know more about NSA, NSA activities and Future Initiatives..

You are also invited to listen NSA Speakers in the Plenary and Technical Sessions.

Rabeea Suleman Al-Aghbari	• NSA Support for NSDI
Bilal Al Busaidi	• Oman National CORS Network and Oman National Geoid Model
Ahmed Al Wardi	• SDI Initiative in Oman
Mahfoodh Juma Al Arami	• The use of Geospatial Data Utilities and the Role of NSA
Bibhudatta Swain	• SDI: Concept, Need and Implementation for Developing Countries
Amol Ganesh Deshmukh	• Use of GIS and Spatial Data for Optimum Route selection for a new Pipeline Laying Project
Rolta India Ltd	• The Production of 1:50,000 and 1:100,000 Scale Topographic Maps of the Sultanate of Oman
IIC Technologies	• Oman National GEOID Model Project- Field Implementation
Leica	• Oman National CORS Network

Thank You

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