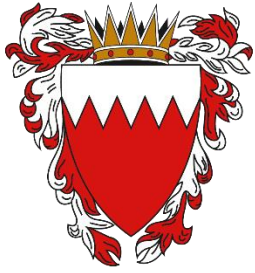




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KINGDOM OF BAHRAIN
Information & eGovernment
Authority

Kingdom of Bahrain Geospatial Data Journey

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Director, Geographic Information Systems

16th May 2024

« Geo-Enabling Government & Society »

Why do we exist?

The GIS Directorate was established in 2003 (functioning as a GIS Center) to cater to the increasing needs of Geographic Information (GI) in the Kingdom and to support decision making and other government processes and operations.

The Directorate maintains and administrates, a National Geospatial Database and layers such as street centerlines, addresses, electricity & water transmission and distribution, telecommunications, Gas & Oil pipelines, sewerage & drainage, and the Satellite Image of Bahrain. All of these geospatial layers are retained in the Bahrain Spatial Data Infrastructure Portal (BSDI).

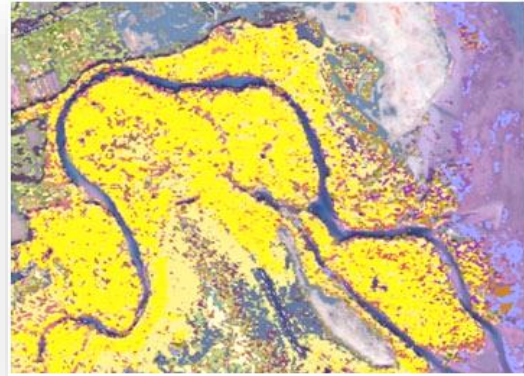
Services rendered are:

-  Remote Sensing Services
-  GIS Applications Development
-  GIS Capacity Building
-  Providing Geospatial Data to Public & Private Sectors
-  GIS Processes analysis and re-engineering
-  Consultancy Services
-  GIS Technical Support

Stakeholders:

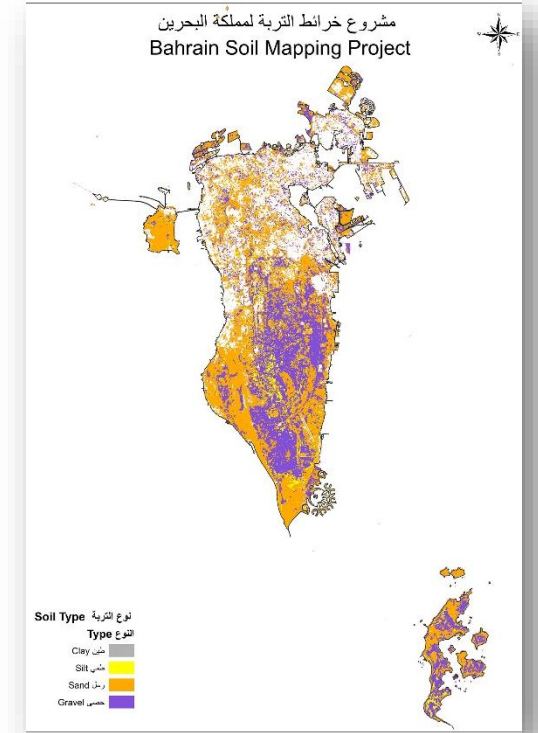
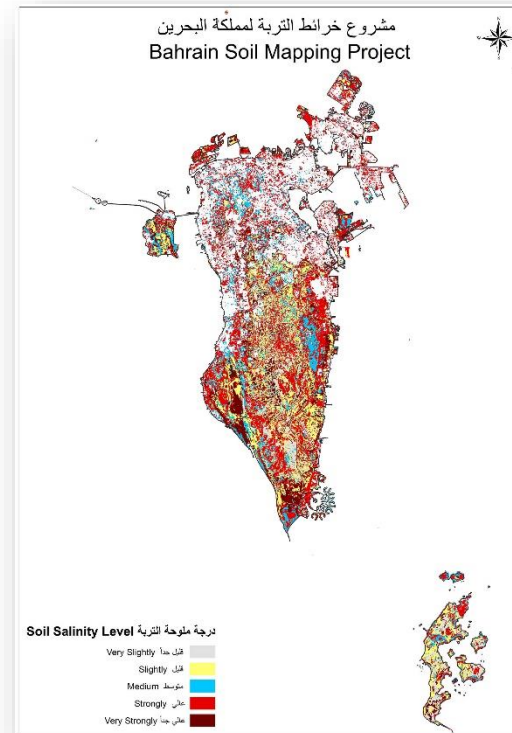


Agricultural Survey Project (2010)



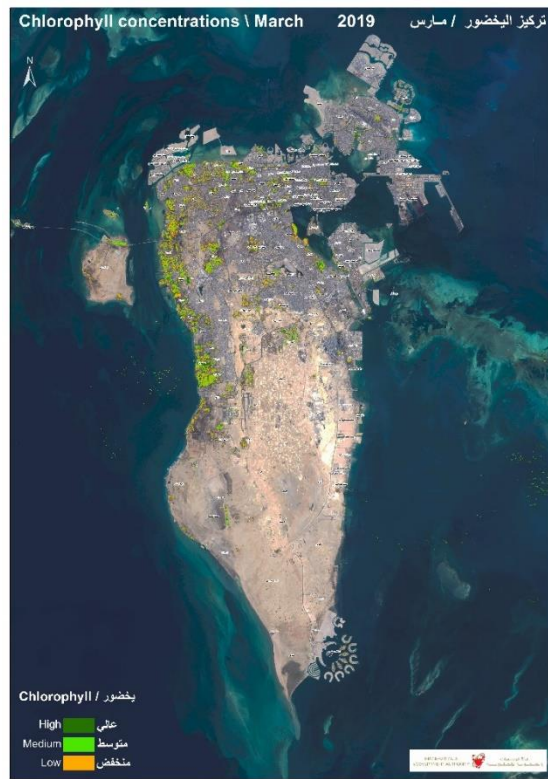
هكتار	كيلومتر مربع	دونم	المساحة
6121.625	61.216	61216.250	المساحات النباتية الكلية
01092.23	10.922	10922.365	المساحات الخاصة بالمحاصيل الزراعية

Soil mapping project for the Kingdom of Bahrain (2019)

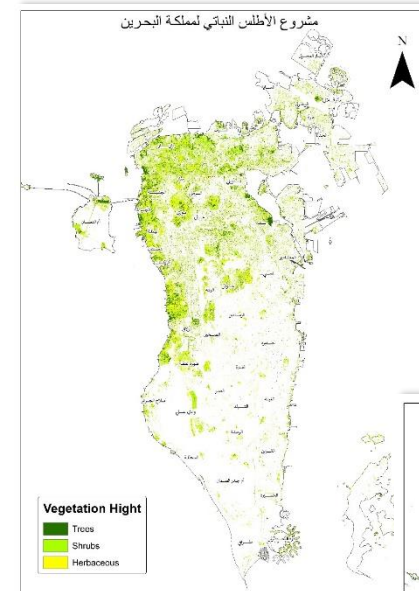


Identification of mangrove areas and general vegetation health

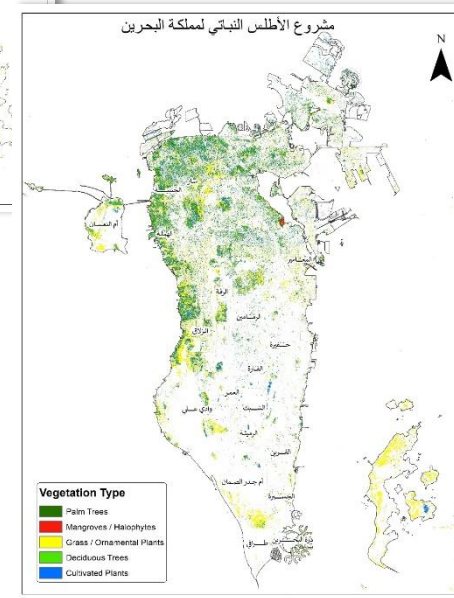
Plant Biomarkers Project (2020)



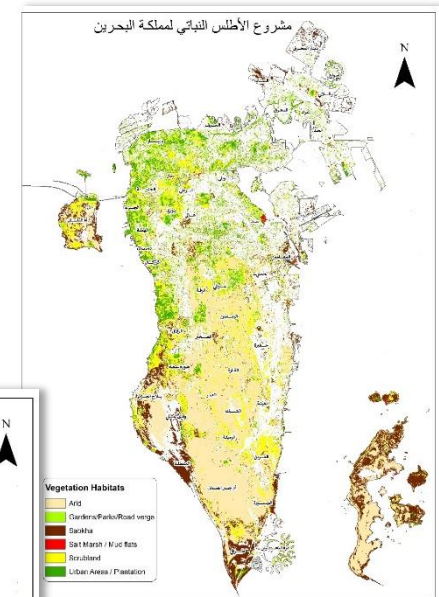
Vegetation Atlas Project (2023)



Classification of plants according to their type

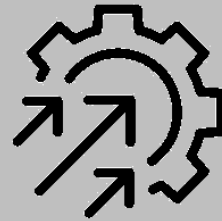


Classification of plants according to height



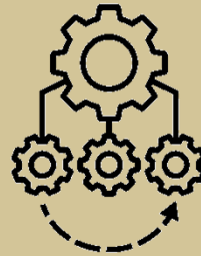
Classification of plant habitats

The Government Sector to become more productive and accountable for delivering quality services via learner organization.



The GIS directorate aims at achieving this vision by providing access to a quality, up-to date, and accurate, reliable information source for the public. The Web GIS Applications developed by the Directorate are assets to this end.

To develop world-class infrastructure links to Bahrain Global Economy.



The GIS Directorate has answered this aim by implementing the National Spatial Data Infrastructure (NSDI) and also seeking affiliation with Global Spatial Data Infrastructure (GSDI).

Bahrain's residents enjoy a safe attractive living environment characterized by benefits from useful data realized by the economy and society by large.



GIS Directorate contributes to this aim by generating a Geospatial Database and providing vital information such as maps, Points of Interest (POI) and Addresses.

The government realized the importance of a centralized GIS data hub, Accordingly

'GIS Directorate, established in 2003'

National GIS Committee (N-GIS-C) was established in compliance to the government decree, dated January 24, 2004 – vide resolution No. (3)

GIS Directorate, to coordinate the effort ...

National GIS Committee Objectives

- Make GIS available to improve the efficiency of ministries and public and private organizations.
- Create a spatial data clearinghouse with a centralized data repository.
- Direct and support the development of integrated GIS systems.
- Define the priorities in the development of GIS databases and study and evaluate GIS development proposals.
- Propose strategies and standards for GIS data exchange.

National GIS Steering Committee (NGISSC) - Achievements

- Bahrain Spatial Data Infrastructure (BSDI) – Portal Fundamentally about facilitation & coordination of the exchange and sharing of spatial a data among stakeholders.
- Data Exchanging Policy for Bahrain Spatial Data Infrastructure (BSDI) and Better exchange of fundamental data needed by the nation.
- Data Standards for Bahrain Spatial Data Infrastructure (BSDI).
- Ensure effective sharing and dissemination of conformable data resulting in user satisfaction amongst the stakeholders.
- Curtailing Duplication of Spatial Data.
- Enterprise License of satellite Image .
- Ensure cost , time and effort affectivity.
- Building awareness

2004 - 2006

- SDI Formalization
- Master Plan Development
- Entity Engagement, Raising Awareness
- Build Initial Support for the initiative at multiple levels

2007 – 2008

- Develop Institutional Framework – Policy & Regulatory
- Data Coordination Development
- Institutionalize Data Maintenance & Dissemination

2009 - 2011

- Develop Technical Framework – Hardware & Facilities
- Infrastructure Development – BSDI Portal
- Operations & Outreach
- Improve Effectiveness of BSDI Central Node

2012 – 2017

- Spatially Enable E-Government Services
- Enhance Communication & Outreach Activities.
- Help Strengthen GIS capacity of Stakeholder Enterprises
- Tasareeh System

2018 – 2023

- Migration to AWS
- Upgraded the infrastructure to the latest version
- Benayat System
- Planning System
-

قاعدة المعلومات الجغرافية الوطنية Bahrain Spatial Data Infrastructure (BSDI)



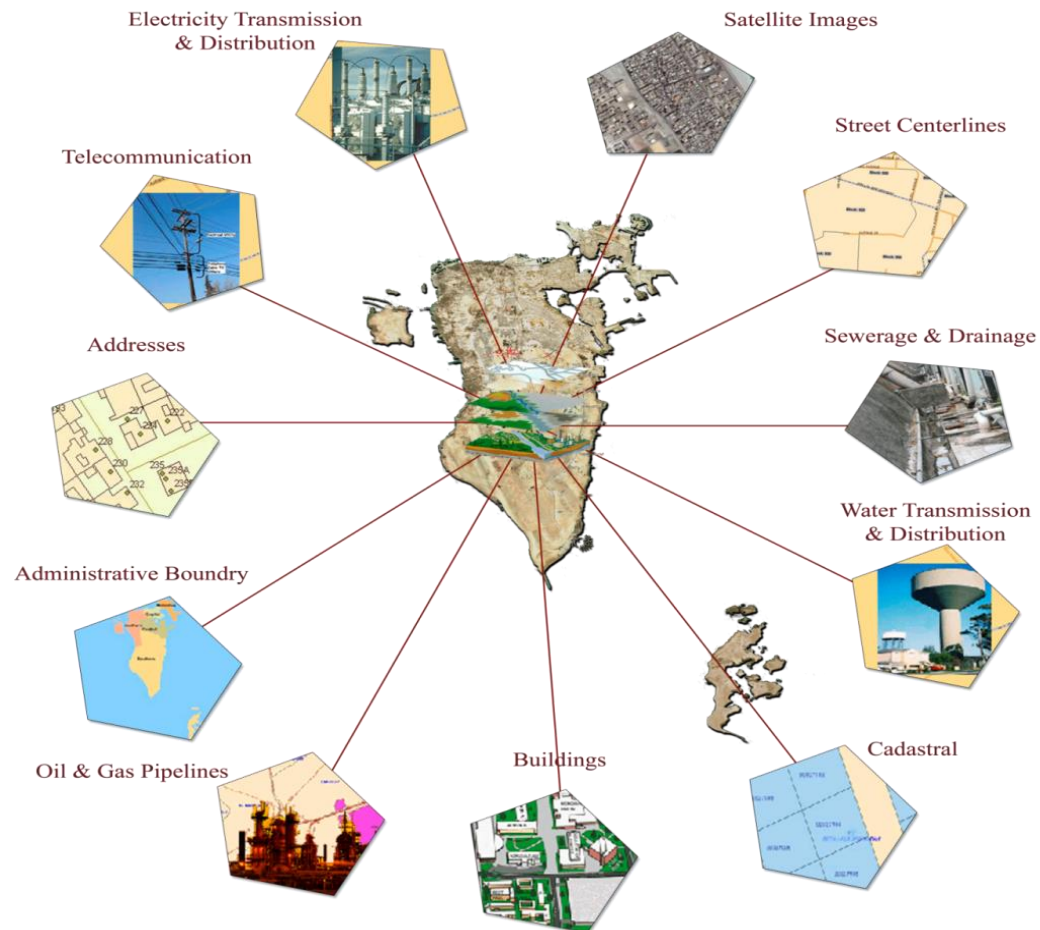
300+ Data layers



Daily Data update



2 Sec Data load time



30+ Government Entities



1000+ Users

Services delivery – initially 'BSDI' was no more than a data sharing framework. Demand for more diverse services for decision-making felt. Need to spatially enable e-Govt. Services.

'BSDI' – Paradigme shift

Data centric

- Facilitate access & share geospatial data.
- Technical standards.
- Institutional policies.
- Access network.
- Infrastructure framework.



Service oriented

- Service oriented apps.
- Linked services across organization, entities & discipline.
- More effective cross-organization & inter-agency decision-making in priority areas.

- Steady growth of stakeholder entity participation in the program which currently has crossed 52.
- From the initial 40/50 data layers, there has been an expansion of data clearinghouse to over 300 data layers.
- In terms of information provided, BSDI has shifted from a 2D static system to 3D dynamic system. It is now more demand driven rather than being supply driven.
- With SDI available to wider user community outside the professional group and the demand for more diverse services for decision-making, the BSDI initiative 2012 onward underwent a paradigm shift from “data-centric” focus to “service-centric” mode.





Curtailed duplication of data creation and ensured cost, time and effort Affectivity among stakeholders.



75% Reduction in time-of-service delivery to end-users.



Data availability made planning much more efficient & effective.



Online real-time data availability made decision-makers analyze and predict situation much more accurately with enhanced confidence.



Increased integrity & transparency of government along with cost reduction.



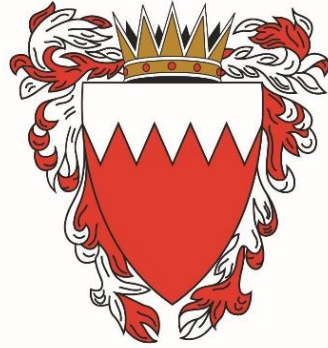
Decreased cost of ownership of spatial technology by government agencies.



Significant governance, partnerships and collaboration within and between agencies through efficiently sharing and easy access to geo-spatial information.

- 1) Encouraged the Stakeholders from Public and Private sectors to add their Geospatial data layers to the BSDI
- 2) Contributed effectively in increasing the quality and accuracy of the available Geospatial data
- 3) Contributed in automating the quality check of the available Geospatial data
- 4) Added a great value in auto validations, automating some approvals and speeding the approvals of Infrastructure permits

تخطيط
المنصة الإلكترونية لخدمات التخطيط العمراني
Planning
Urban Planning Services Portal



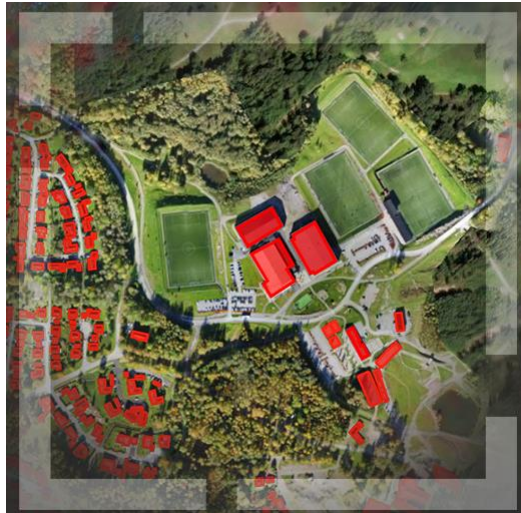
بنايات
BENAYAT
نظام إصدار رخص البناء
BUILDING PERMIT PORTAL



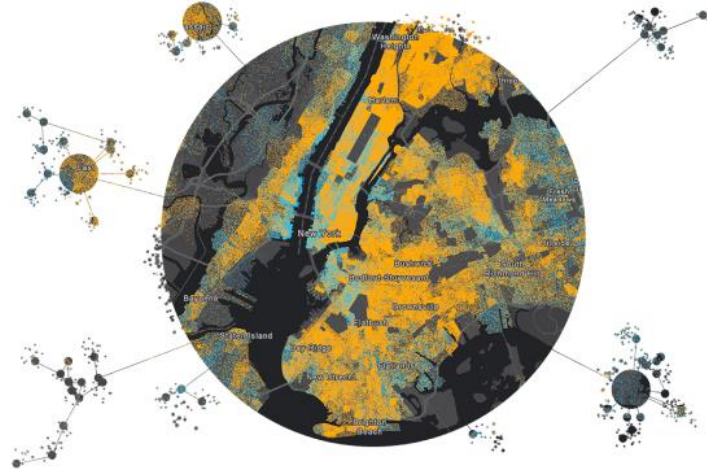
**BAHRAIN
DATA LAKE**

IGA is planning to strengthen the GIS infrastructure of BSDI to Geo-enable the government and support future Government initiatives in smart cities

Geo AI infrastructure



Advanced Geo Analytics



Geo BIM

