



सत्यमेव जयते

nsdi

National Spatial Data Infrastructure (NSDI)

National Data Registry (NDR)

A standards-based online catalogue for registration,
search and discovery of geospatial data



*Department of Science and Technology
Government of India*

Background

With standards-based map, feature and attribute data services getting increasingly accessible from geo-portals of various agencies in the country:

- 'Surveykshan' of Survey of India
- 'Bhuvan' of National Remote Sensing Centre
- 'National Data Portal' of the National Informatics Centre
- 'Bhukosh' of Geological Survey of India
- 'Bhoomi' of National Bureau of Soil Survey & Land Use Planning
- State/ UT Government Geo-portals of Karnataka, West Bengal, Odisha, Jharkhand, Uttarakhand, J&K & Delhi etc.,

identifying and keeping track of each of the services pose a challenge. These services should therefore be easily and efficiently searchable, discoverable, and identifiable but also accessed on-line and consumed in the development of GIS applications/ solutions.

Effective management and use of such services require appropriate registration, storage, maintenance and sharing so that those could be properly managed for maximizing their utilization.

Introduction

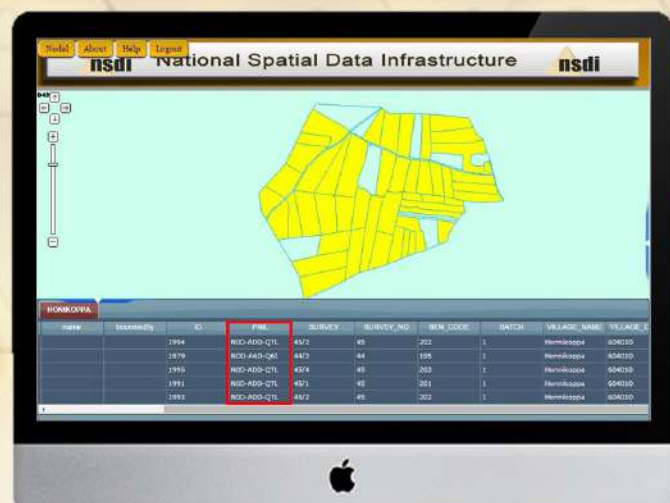
- Towards achieving the above goal of registering the data sets and services, the National Data Registry (NDR) is being developed.
- Besides the geospatial metadata already available with NSDI, this requires capturing definition/description of each data item, making each item persistently and uniquely identifiable over the web by assigning them unique identifiers, organizing/maintaining the associated classification systems for the attributes/features for reference by all.
- Establishing and adopting a procedure for the management of the registered information in the framework of a registry for access and use by the stakeholders is an important element of the NDR.

Register and Registry

Register : Set of files containing identifiers assigned to items with descriptions of the associated items.

Registry : Information system on which a register is maintained.

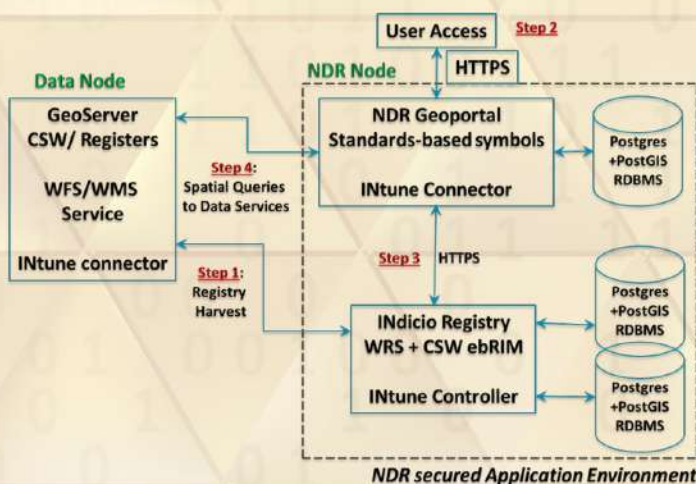
(Source : ISO 19135: Geographic information-Procedures for items registration)



Unique-Id (Property Natural Identifier - Lot)
assigned to each plot boundary
of Honnikoppa village, Karnataka

NDR Operation

- The NDR Node at NSDI creates and maintains the registers established through a standard set of procedures.
- Registers store information on various geospatial data items pertaining to their definitions/ descriptions, unique identifiers, associated classification systems for the attributes/ features for reference by all.
- The Data Nodes of the NSDI partnering agencies/ State SDIs provide their Data Services (Web Map/Feature Services - WMS/WFS) and maintain their local registers of a select set of metadata to facilitate automatic harvesting at regular intervals by the NDR node (See step 1 in Figure).



NDR Workflow

locates the required data items/ services through its registers (Step 3) and sends the spatial queries to the data services of the Data Nodes (Step 4) for the provision of suitable response.

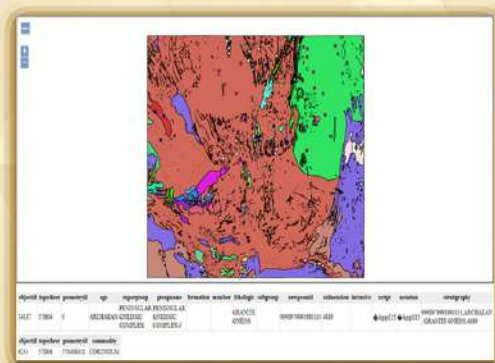
- Both the open source (PostgreSQL/ PostGIS, GeoServer) and proprietary software products (INdicio Registry/ INTune Controller/ Connector) have been used in the NDR implementation.

- For an application implementation, human/software user accesses the NDR geo-portal at NSDI (Step 2) either for the required map services with the help of a set of standards-based symbols or the feature services for processing of geospatial data sets subject to the provider's authorization, pricing Policy or the terms & conditions.

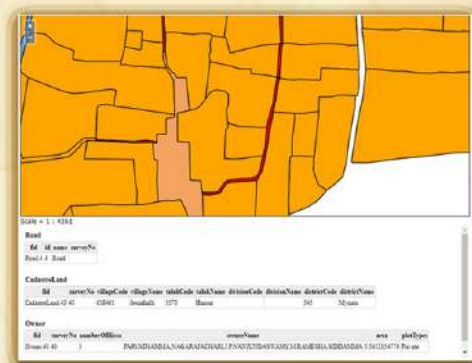
- On the receipt of the end user's query or request, the NDR geo-portal searches/ discovers/

International/National Standards used

In order to remain interoperable, the NDR products used in the implementation conform to relevant standards from ISO/ BIS/ OGC.



Surface Geology Data as WFS
(Source : GSI)



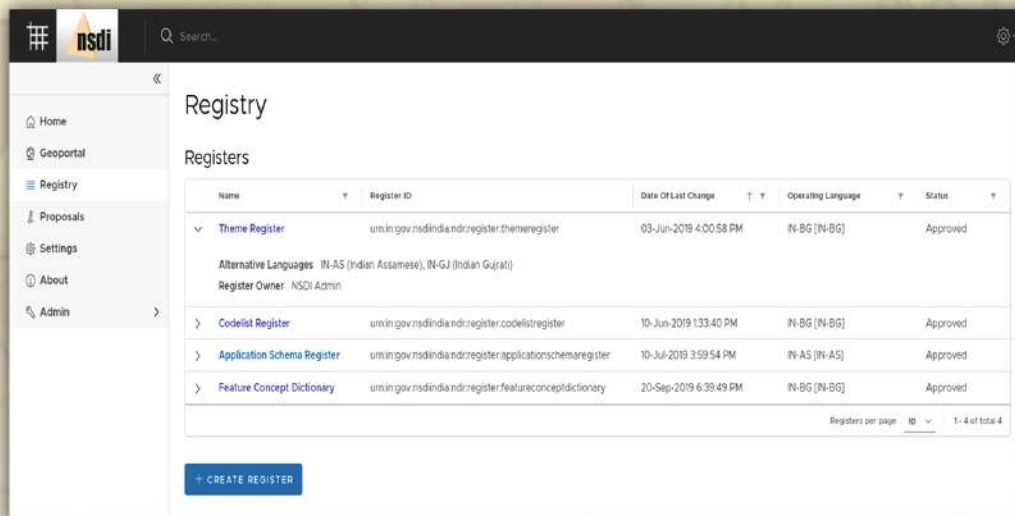
Plot Boundary Data as WFS
(Source : KSCST/KRSRAC/SSLR, GoK)

Participating National/State Level Agencies

Five national agencies and one state agency are currently participating in the development of the National Data Registry (NDR) in the country.

- Survey of India (SOI)
- Geological Survey of India (GSI)
- Forest Survey of India (FSI)
- National Bureau of Soil Survey & Land Use Planning (NBSS&LUP)
- Ministry of Statistics & Programme Implementation (MoSPI)
- Karnataka State Council for Science & Technology (KSCST), Govt. of Karnataka

In due course, all the National and State level implementing agencies will register their geospatial datasets in the NDR.



The Registry Browser

Present Progress

The NDR Node for NSDI and the respective Data Nodes of the six agencies have been operational for a select set of data sets for testing and validation.

Future

Registering, publishing and sharing the geospatial data sets through the NDR is proposed to be made mandatory. This will help in preventing duplication in data acquisition thereby minimizing the cost of infrastructure. All the communities of the stakeholders including providers and consumers are expected to benefit. Stakeholders may need to comply with a set of directives on registration, standardization and publication of geospatial data with the help of suitable legislation.

NSDI-NDR Partnering Agencies



Government of India
Ministry of Statistics and
Programme Implementation



National Spatial Data Infrastructure (NSDI)

Ministry of Science & Technology

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