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# Ecological sensitive areas of Western Ghats- Role of Open source geospatial technologies

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## INTRODUCTION

The Western Ghats, along with Sri Lanka is one of the global biodiversity hotspots and is home for a large number of plants, amphibians, birds, reptiles and mammals. It has, been, a major centre of exploitation for Water, Energy, timber, mineral resources. This process has leaf frogged by several folds, in recent times with a consequent impacts on long term viability of biodiversity, sustainability and livelihoods of a large number of human population. This has resulted in demands for designating Ecological Sensitive Areas. (ESAs) (Gadgil et al 2011). ESAs are fragile ecosystems where the conservation or preservation of the natural environment is under threat by several anthropogenic factors and needs immediate protection.

Therefore, in order to demarcate potential ESAs, one needs to arrive at a comprehensive decision making ,based on scientific data and information backed up with actual stakeholders' perception. The Open source geospatial tools exploiting desktop, web and hand held platforms hold tremendous possibility. This presentation dwells on how open source geospatial tools hold a tremendous opportunity for all stakeholders including students and public.

**1. What is SDI?** A **spatial data infrastructure** (**SDI**) is a data infrastructure implementing a framework of geographic data, metadata, users and tools that are interactively connected in order to use spatial data in an efficient and flexible way. Another definition is *the technology, policies, standards, human resources, and related activities necessary to acquire, process, distribute, use, maintain, and preserve spatial data*. An SDI is a coordinated series of agreements on technology standards, institutional arrangements, and policies that enable the discovery and use of geospatial information by users and for purposes other than those it was created for.

**2. What is Biodiversity Spatial data Infrastructure (BSDI)?** The Biodiversity Spatial data Infrastructure(BSDI), following the general definition of SDI, would mean  organization and implementation  a whole  hierarchy of  biodiversity related spatial data on species, ecosystems, and habitats .In addition, this would also encompass management systems to plan, implement and monitor biodiversity spatial data including its value addition, updation, use and involvement of multiple stakeholders and   crowd sourcing.

**3. Software components:** A SDI should enable the discovery and delivery of spatial data from a data repository, via a spatial service provider, to a user. As mentioned earlier it is often wished that the data provider is able to update spatial data stored in a repository. Hence, the basic software components of an SDI are:

i.   a software client - to display, query, and analyze spatial data (this could be a browser or a Desktop GIS),

ii.  a catalogue service - for the discovery, browsing, and querying of metadata or spatial services, spatial datasets and other resources,

iii. a spatial data service - allowing the delivery of the data via the Internet,

iv.  processing services - such as datum and projection transformations,

v.   a (spatial) data repository - to store data, e.g. a Spatial database,

vi.  GIS software (client or desktop) - to create and update spatial data.

**4. Strategy for deployment of desktop, web and mobile platforms for Biodiversity SDI (BSDI):** The open source geospatial platforms are eminently suitable and doable medium to advance formulation of BSDI. While the rapidly evolving mobile GIS tools enable field data collection efficiently, the desktop GIS enables extensive analyses whic can be be effectively made accessible by deploying the web GIS using open ssource spatial databases.

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