

24th session of ICC on RESAP
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Space Applications for Sustainable Development in Nepal



Significance of space applications for Nepal

- Nepal consists 83 percent of its terrain mountains and hills
- Recent restructuring of country- Federal, province and Local level and all level of governments are interested on Geospatial based planning
- Climate vulnerability in mountain region is increasing and management of natural resources based on geospatial information is in high demand
- Infrastructure like Irrigation, drinking water, road construction etc. are threatened with disasters which demands proper planning with space applications
- Our hills and mountains are suffering with either too little or too much water- space application can contribute a lot for its proper planning

The status of implementation of Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018-2030) in Nepal

❑ Disaster risk reduction and resilience:

- ❑ Early Warning System of Heavy rainfall, Flood, (Landcover, DHM, App)
- ❑ Real time information of Forest Fire (DoFSC, ICIMOD)
- ❑ Land Slide Risk Assessment (Potential Land Slide Area Mapping)

We have limited flood early warning system in major rivers. We use old Digital Elevation Model of 30m resolution which is really not adequate to get reliable data for flood related early warning system. It is necessary to develop some real time app on weather forecast.

We are monitoring real time information on forest fire. However, they are based on MODIS global data sets with very low resolution. The information is sometime not reach at the particular point of real fire accidents.

We are planning on mapping potential land slide areas too.

❑ Management of natural resources

- ❑ National Land cover Monitoring System (Map)
- ❑ Forest Cover Change Monitoring (Map)
- ❑ Forest Degradation (Map)
- ❑ Protected Area Management (Wildlife real time monitoring (GPS))
- ❑ Scientific Forest Management
- ❑ Community-based Forest Management
- ❑ Ecosystem Based Approach Management
- ❑ Ecosystem Mapping along with Forest Type

Land Cover and its change dynamics is the first starting geospatial layer to achieve sustainable development goals.

We are in the final stage of Land Cover change dynamics analysis using Landsat time series data from 2000 to 2019.

- In the natural resource management sector we have just established National Land Cover Monitoring System (NLCMS).
- We are practicing forest cover mapping since last six decades. Now, we are focusing on forest degradation mapping and monitoring.
- We have well established protected area management system and practicing wild animal monitoring system.
- We are starting stem mapping for preparing management plan to implement silviculture system based forest management to maintain Sustainable forest.
- In Community as well we are introducing spatial information based forest management plan.
- We are planning for ecosystem and forest type mapping and monitoring this year based on our recently developed Land cover map.

❑ Connectivity for the 2030 Agenda for Sustainable Development

- ❑ Land Cover HKH region
- ❑ Capacity development, technology exchange (SERVIR, SilvaCarbon)

We are the part of Hindu Kush Himalaya(HKH) regional program from developing land cover to climate change analysis. Working with ICIMOD for its development and monitoring

We are working with SERVIR team for NLMS establishment for land cover mapping. SilvaCarbon is supporting our capacity building in space application.

❑ Social development

- ❑ Well Being Ranking (DBMS: GIS Mapping)
- ❑ Vulnerable group mapping (Chepang etc..)

We are using the spatial information for well being ranking and vulnerable group mapping.

❑ Energy

- ❑ Potential hydropower sites mapping
- ❑ potential solar energy sites mapping

We are using the space technology to mapping the potential sites for hydropower and solar power

❑ Climate change

❑ Initiatives on GHG inventory has been started

❑ Vulnerability and Adaptation to Climate Change (Mapping)

- We are implementing REDD+ program for which we need Green House Gas inventory. It has two component one is activity data and another is emission data.
- All those activity data are obtained using space technology.
- Climate change vulnerability maps are available in small scale, we have to upscale it at national level.

Limitations and Constraints

- ❑ Limited Resources in different sectors especially the technical capacity
- ❑ Data and data Consistency
- ❑ Database Management System (DBMS)
- ❑ Access to high resolution satellite imageries.
- ❑ Web based Data Management System

Good practices in combating covid-19 and lessons learnt

We are practicing

- ❑ Trend Analysis
- ❑ Working from home
- ❑ Virtual training and meeting

Policies and issues

Collaboration on data sharing is observable among Government and other partner organizations, NGOs and private sectors

Need

- ❑ Spatial Data Infrastructure Policy
- ❑ Government Integrated Data Center
- ❑ Server Base WFS (Web Base Feature Service), WMS (Web Based Map service)

THANK YOU

Megh Nath Kafle

megh.kafle@nepal.gov.np