

Agricultural Monitoring to Support Food Security Decision Making in Nepal

SERVIR HIMALAYA



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Using Geospatial Technologies for Informed Decision Making on Food Security in Nepal

Agriculture is one of the primary livelihood sectors in the HKH region. It generates a substantial proportion of rural income and provides employment opportunities to over 210 million people in the region. In Nepal, two-thirds of the total population depends on agriculture for their livelihoods and more than one-third of gross domestic product (GDP) comes from the agriculture sector. However, across the country, effective agriculture production remains a serious challenge due to various factors, such as a high degree of spatial and temporal climate variability, and farmers' fragile social and economic fabric.

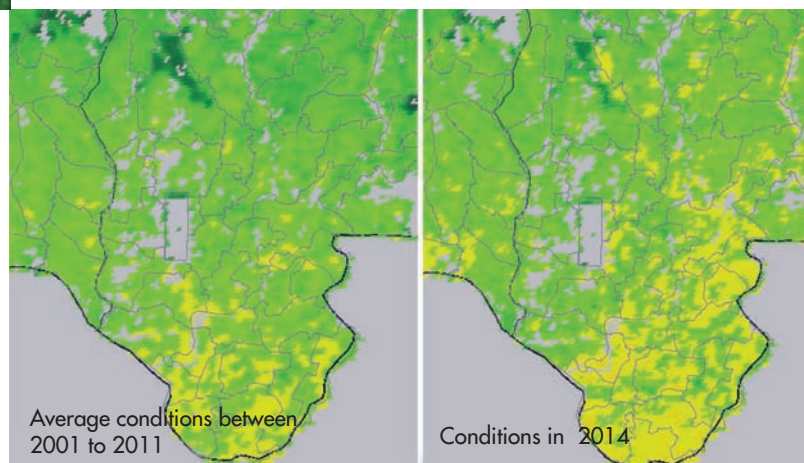
SERVIR is a regional visualization and monitoring system that integrates Earth observations, such as satellite imagery and forecast models, with in situ data and other information to support timely decision making. SERVIR is a joint initiative of USAID (United States Agency for International Development) and NASA (National Aeronautics and Space Administration). SERVIR-Himalaya is implemented in partnership with ICIMOD with an aim to bridge the gap between scientific knowledge and decision making through applications of Earth observation information in the Hindu Kush Himalayan region. Driven by the motto 'Connecting Space to Village', SERVIR-Himalaya works as a regional resource centre by developing relevant geospatial applications and creating enabling environments for their use.



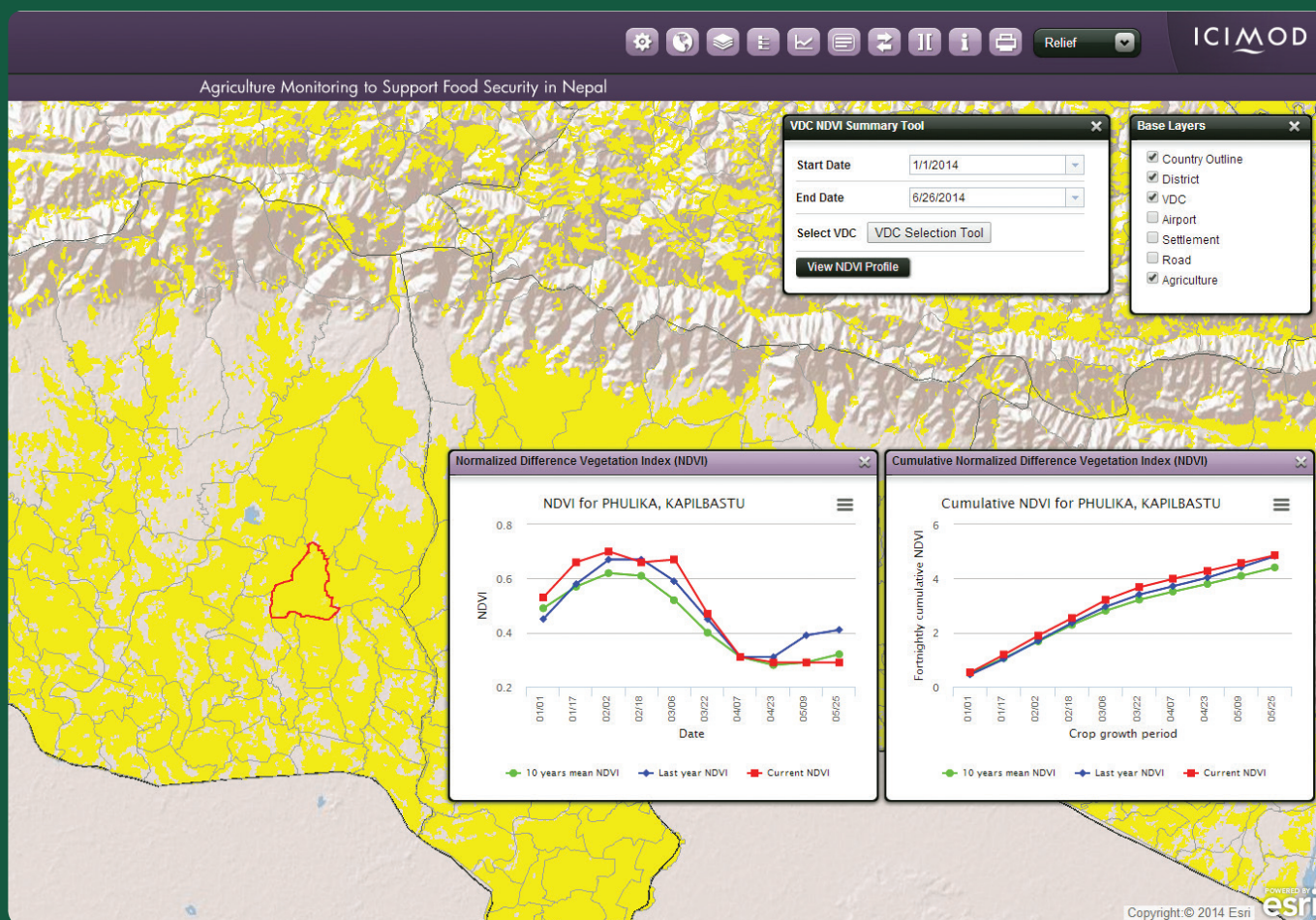
Remote Sensing-Based Agricultural Monitoring

One of the best ways to gauge food production at any given time is to monitor agriculture from space. By looking at the green coverage of a particular area, scientists are able to tell how much photosynthesis is occurring, thereby providing an indicator of how rewarding the harvest will be. An operational system has been developed that utilizes satellite-based Vegetation Index (VI) products for near real-time crop monitoring and reporting for the Terai region of Nepal. The system has three components: data collection and retrieval,

ICIMOD and the Ministry of Agricultural Development are currently working together to operationalize the use of remote sensing and GIS for agricultural monitoring. To provide comprehensive information on agricultural monitoring and food security, long-term, spatially explicit agricultural records are being compiled into a database, and user-friendly web applications are being developed to allow decision makers and researchers to easily put this research to use.



Comparison of recent crop conditions to average conditions from 25 May to 09 June in Rupandehi, Nepal



data processing and analysis, and data reporting and dissemination. It provides important and up-to-date information on agricultural conditions to relevant agencies.

Web Application

Agriculture monitoring datasets are made available online through a web application with query and visualization tools (<http://apps.geoportal.icimod.org/NepalAgriculture/>).

The web application allows users to compare recent vegetation conditions with long-term averages to determine anomalies and predict increases or shortfalls in production. Comparisons can be made both physically and in graphs and figures at the district and Village Developmental Committee levels. The existing system is now being expanded to provide remote sensing-based data on drought conditions in Nepal. Monitoring crops in such an integrated manner could significantly improve crop management.



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