

Advanced applications in geospatial science for sustainable development and the CGIAR Consortium for Spatial Information (CGIAR-CSI): Current perspectives and future opportunities¹

Robert Zomer
Global Coordinator - CGIAR-CSI / Senior Landscape Ecologist
World Agroforestry Center, Nairobi, Kenya

Geospatial science and spatial information technologies are at the forefront of advances in information science, and now play an important and fundamental role in a broad array of scientific disciplines and sustainable development efforts. Within the CGIAR, scientists across the globe apply geospatial approaches to a wide variety of research, within the framework of the CGIAR mandates of food security, environmental conservation and poverty alleviation. The CGIAR Centers have advanced the application of Geographic Information Systems (GIS) and satellite remote sensing (RS) for sustainable agricultural development for more than a decade. In May 1999, they formed the Consortium for Spatial Information (CGIAR-CSI) which links the all of the CGIAR's GIS/RS laboratories, and the many geospatial scientists and researchers within the CGIAR system, with scientists and institutions from around the world. Together, these laboratories, scientists and researchers constitute a formidable assemblage of technical ingenuity, scientific expertise, and practical experience in geospatial analysis. They have developed important collections of data on population, poverty, climate, soils, crops, livestock, transportation, biodiversity and other geospatial Global Public Goods. CGIAR scientists, using geospatial approaches across a variety of disciplines, are continuing to break new ground in the prediction of climate change impacts on food security, and in the integration of biophysical and socio-economic data to better adapt and target agricultural technologies to farmers' needs.

These powerful spatial technologies have become an integral part of interdisciplinary research within the CGIAR. Through linking geo-referenced data to digital maps, a whole new range of opportunities for integrating and presenting diverse information has opened to a diverse set of users to harness these technologies. Users can more readily see and understand interrelationships between, for example, urban growth and biodiversity loss, markets and crop production, or deforestation, soil erosion and floods. They can develop more realistic models, and identify and monitor change more accurately. Ultimately, the improved understanding of the landscape strengthens strategies and activities in natural resource management, agricultural development, biodiversity conservation, and adaptation to environmental change. In its mission to promote and advance geospatial applications within the CGIAR and its partner organizations, ranging from national institutions to the global research and development community, CGIAR-CSI facilitates and creates mechanisms for inter-Center collaboration, for the sharing of spatial data and methodologies, and for the wide dissemination of CGIAR spatial information products. The Consortium also serves as a platform for joint efforts in GIS-/RS-based agricultural research at global, regional, and local levels.

¹ Presented at the Science Forum, CGIAR Annual General Meeting in Beijing, China on Dec. 4, 2007.