

# Planting Knowledge, Growing Futures: GIS Literacy in Rural Communities

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## SUMMARY

The global discourse on sustainability and resilience increasingly emphasizes the transformative role of geospatial intelligence in shaping equitable futures. Yet, in many rural and remote communities, farmers remain excluded from the digital revolution that underpins the achievement of the Sustainable Development Goals (SDGs) and beyond. This paper explores the critical importance of GIS literacy among smallholder and rural farmers as a pathway to building resilient communities, advancing food security, and ensuring economic empowerment.

Despite being custodians of land and food production, farmers in marginalized areas often lack access to technological tools, training, and geospatial data necessary to make informed decisions about crop planning, soil management, and climate adaptation. The absence of these capacities perpetuates cycles of poverty, vulnerability to climate shocks, and economic inequality. By contrast, when farmers acquire GIS literacy, they are empowered to harness location-based data for improved productivity, resource optimization, and market access, while also contributing to global knowledge networks on food systems and environmental stewardship.

The presentation argues that bridging the digital divide in geospatial technologies is not merely a technical challenge but a moral imperative for inclusive development. It will highlight case studies and pilot initiatives where GIS training for farmers has enhanced decision-making, reduced risks, and improved livelihoods. It will further examine models for integrating farmer-focused GIS capacity-building into national land governance frameworks and agricultural extension programs.

Importantly, the paper situates farmers as equal stakeholders in the global technological ecosystem. Equipping rural communities with GIS skills does more than improve food production; it positions them at the forefront of climate resilience, biodiversity protection, and sustainable resource

management. This ensures that the future of geospatial intelligence is not concentrated in urban, corporate, or academic spaces alone but shared with those who directly sustain humanity through food systems.

By demonstrating practical pathways for advancing GIS literacy among farmers, this presentation contributes to the congress theme “The Future We Want – The SDGs and Beyond.” It argues that empowering farmers with geospatial skills is central to achieving sustainable and equitable growth beyond 2030—ensuring that no community is left behind in the pursuit of resilience, innovation, and global impact.

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