Chapter 7
Revolutionizing Rural Development:
Mobile–GIS and Cognitive Intelligence Systems – A Case Study of Chhattisgarh

Anand Tamrakar
https://orcid.org/0009-0001-9213-7404
MATS University, India

K. P. Yadav
MATS University, India

ABSTRACT

The integration of artificial intelligence (AI) with Mobile-GIS is revolutionizing rural development in Chhattisgarh by providing innovative solutions across agriculture, healthcare, education, and resource management sectors. Predictive analytics for smarter agriculture, environmental sustainability, and better decision-making are just some of the ways in which AI-powered cognitive systems are making a difference. The companies have been offering technology such as Mobile-GIS, accurate mapping, real-time monitoring to deploy effective resource allocation and disaster management. These technologies, used in unison, can give rural communities data-driven insights and tools to enhance livelihoods and quality of life. Early implementations in Chhattisgarh show promise, with greater agricultural productivity and public service delivery streamlined if data is shared freely. Combining AI and GIS can help Chhattisgarh evolve into a model of future-ready, inclusive, efficient, sustainable rural development.

DOI: 10.4018/979-8-3693-9410-6.ch007

1. INTRODUCTION

Affairs Evaluation Artificial Intelligence Artificial Intelligence In Rural Development GIS GIS In (in) India (in) India The rural development landscape in India is going through a paradigm shift owing to the fast-paced advancements within the area of Artificial Intelligence (AI) and Geographic Information Systems (GIS). With an abundance of natural resources and predominantly rural demography, Chhattisgarh one of the states in India experiences opportunities and challenges in the implementation of these technologies for Sustainable Development which are specific to the state's socio-economical and geographical context. In addition, cognitive intelligence elements of AI and Mobile-GIS technologies are helping the state to solve systemic issues of agriculture, healthcare, education and resource management, which is essential for state's socio-economic development. From its ability to make real-time analysis accessible in even the most far-flung corners of the globe to its potential for delivering tailored applications that mirror surgical precision, these technologies will undoubtedly become a game-changer in rural development and help bridge the rural-urban divide for holistic living (Griffin et al., 2024).

But rural Chhattisgarh, with its vast agricultural base and forested regions, is a microcosm of the problems that confront rural India. The scarcity of infrastructure, low levels of literacy, inadequate availability of medical services and lack of efficient management of natural resources continue to inhibit growth. The heavy in-farm dominated population almost entirely depends on traditional harvest methods, the outcome of which is often likely to be bent by erratic weather and price distortions in the market. Additionally, environmental capacity, with regard to access to vital services, education, health care, and modern technology is hindered due to the isolation of many villages. It emphasizes challenges such as the crucial need for transformative solutions addressing the symptoms and root drivers of underdevelopment.

Sticking to Artificial Intelligence comes with a unique potential that is precisely capable of addressing these challenges. For instance, AI powered cognitive systems are able to digest large sets of data process them using analytics and derive insights to make better decisions. For instance, in agriculture, predictive analytics can be used to forecast crop yields, facilitate optimal irrigation times or provide alerts for pest conflicts in advance. These types of applications fuel improvements in agricultural productivity, and thus food security and sustainable resource utilization. AI-powered applications have, thus, enabled better allocation of resources in health care and education, making it feasible to deliver vital services to underserved rural communities. Supply chain efficiency and AI, through automatic data collection, real-time data processing, smart routing, and predictive analytics, has greatly improved supply chain operations across the globe.

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