

**GeoApproach : Geomatics-based Application for Planning Rural Road Connectivity to
Habitations under PMGSY**

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Abstract

Electronic governance includes all aspects of physical planning, management of social and physical infrastructure, and enhancement/restructuring of existing facilities, facility management and land use planning. In all these areas, there is a special emphasis on spatial dimensions. In the present age of emerging technologies, Geomatics, which is the synergy of multiple disciplines, has evolved as a separate discipline dealing with spatial and non-spatial information, its method of acquisition, organization, classification, analysis, management, display and dissemination. It provides not only the answers for macro-level planning but also state-of-the-art models to the government in the context of decentralized planning for sustainable development in rural areas.

Rural roads are the lifeline of rural development. Rural road connectivity is not only a key component of rural development by promoting access to economic and social services and thereby generating increased agricultural incomes and productive employment opportunities in India, it is also a key ingredient in ensuring poverty reduction. India has essentially a rural-oriented economy with 74 % of its population living in its village. In the year 2000, it was estimated that about 330,000 out of 825,000 villages and habitations (40 %) in the country are still not connected by all-weather roads. Even the already constructed roads are of poor quality. A majority of the poorly connected rural communities lie in ten states and Madhya Pradesh is one of them.

It was against this background of poor connectivity, GoI launched a massive rural roads programme – Pradhan Mantri Gram Sadak Yojna (**PMGSY**) in the year 2000 to provide all-weather access to unconnected habitations. Under **Bharat Nirman**, the Ministry of Rural Development, GoI has the responsibility of ensuring that every habitation over 1000 population is connected with an all-weather road by 2009. To achieve the targets of Bharat Nirman, the work which is being undertaken under PMGSY since 2000, has been modified to address the above goals within the stipulated time-frame. In this connection, application of modern ICT tools is being increasingly recognized to provide efficient and effective means towards the planning, preparation & implementation of appropriate development plans.

This paper describes the development of **GeoApproach** - Geomatics-based Application for Planning Rural Road Connectivity to Habitations under Pradhan Mantri Gram Sadk Yojna (PMGSY) based on pilot requirement studies undertaken for M.P. Rural Road Development Authority (MPRRDA) in the State of Madhya Pradesh, India. Development of GeoApproach involved digitization of various Block road base maps for creation of spatial data of core network, generation of thematic maps, determination of optimal road link for connecting habitations as per PMGSY norms.

Several special features characterizing GeoApproach include built-in traverse-aid, distance computation, details & display of the nearest road from a selected habitation and computation of Utility Value for each habitation & Road Index for each unconnected habitation. It also determines optimal road link for connecting habitations as per PMGSY norms GeoApproach could help achieve not only the desired transparency and easiness in planning process but also facilitates efficient & effective tool for planning rural road connectivity to habitations. It enables a faster response to the changing ground realities in the development planning, owing to its in-built scientific approach and open-ended design. GeoApproach demonstrates that Geomatics approach provides efficient & effective solutions for rural road development under PMGSY & Bharat Nirman.

**[Paper presented in International Conference on Geo-informatics (ICORG 2006) Hyderabad,
India held in June'2006]**