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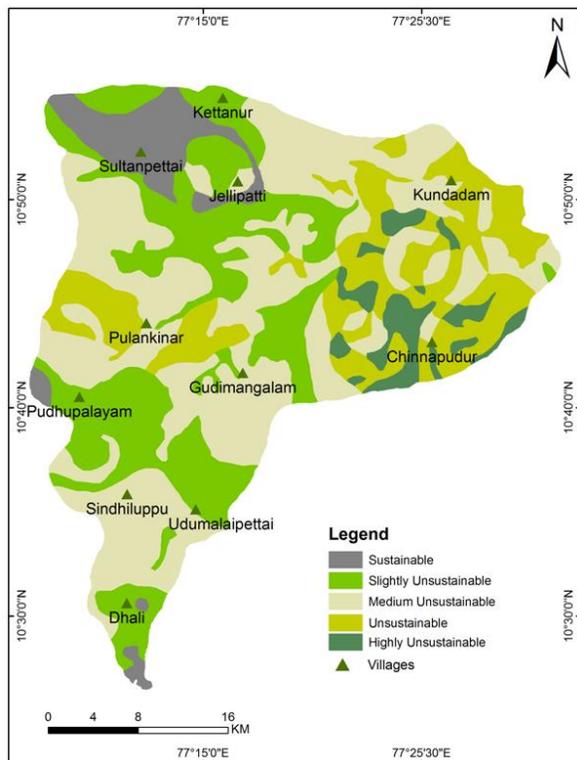
## Geoinformatics for Sustainable Groundwater Resource development

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Sustainable development is one of the prime factors focused in most of the countries in the world, irrespective of developed or developing countries (IMSD, 2002). The scientists, planners and decision makers are paying their attention towards sustainable development, a concept suggested by the World Commission on Environment and Development (WCED, 1983). The systematic planning of groundwater development using modern techniques is essential for proper utilization and management of such natural resource (Al Bakri & Chowdhury, 1999). The aquifer should be in sustainable status in terms of potential, quality and water table condition.

In the present research, an attempt has been made to assess the sustainability state of aquifers for sustainable groundwater resource planning in Uppar Odai sub-basin located in Southern part of India. The sub-basin area is mostly covered by Precambrian gneissic rocks. In this region, groundwater occurs in almost all geological formations at a depth of >10 m bgl. This is due to extensive mining of groundwater for agricultural practices. The average annual rainfall is 625 mm which is much lower than the state average (926 mm). The thematic maps on sustainable groundwater potential (SGWP), groundwater quality for drinking (GWQD), groundwater quality for irrigation (GWQI) and groundwater level (GWL) were generated through remote sensing and field hydro-geological investigations. The databases were integrated through geospatial modeling in GIS environment. For this purpose, the spatial themes were ranked as per importance. The results have shown that the aquifer condition in the sub-basin fall in the category of sustainable state to the highly unsustainable state (Belousova, 2000). The major portion in the sub-basin covered by slightly unsustainable to medium unsustainable aquifer zone, which requires immediate restriction of the current rate of groundwater exploitation and protect the aquifer through artificial recharge to maintain the aquifer in sustainable environment.



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Figure 1 Sustainable groundwater resource map

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