

APPLICATION OF RS AND GIS IN SELECTING HABITABLE SITE WITHOUT IMBALANCING THE ECOSYSTEM IN THE HIMALAYAN REGION, INDIA

Dr. S. K. Sharma

*Head, Geography and Environmental Education Department
Carman Residential and Day School, Dehradun 248007, India
sks105@rediffmail.com
+91 135 2728076*

Abstract: India is one of the fastest growing economies in the world in past few years and is poised to grow further in coming years. Energy is bloodline of economic growth and poses challenges in the area of Green House Gases emissions. It is now well established that renewable energy resources can provide the basis for sustainable energy development on account of their inexhaustible nature and environment friendly features. Fortunately, India has vast unexploited hydropower. It is in this context that a 260m high Large Tehri Dam on one of the tributaries of the river Ganges in Central Himalayan Region is coming up very fast for the economic benefits of the local people of North India and the country at large to deliver 2200MW electricity when completed in few months from now. But these economic benefits to the country are full of miseries to the local residents comprising nearly hundred villages around Tehri Dam as their only source of livelihood the “irrigation land” is submerged under its vast water reservoir. In order to mitigate the environmental and socio-economic stresses of the upstream people whose lives have been drastically affected, if not made to migrate to nearby safer places, the Remote Sensing (RS) and Geographic Information System (GIS) data is used to find the alternate site for their rehabilitation with special reference to the availability of water. The published topographic cultural / physiographic map by the Survey of India at 1:50,000 scale is used to prepare the base map and the Land-set TM data obtained from the IRS LISS II of the November 2003 is being used as Remote Sensing output. The geological map of the area is digitized at original mapping scale 1:50,000 of the area and the misties have been solved using remote sensing data. On the basis of false color composite (FCC), has been generated from the digitized data of Dehradun and its surroundings covering an area of about 2500 Km² between the two major rivers, the Yamuna in the west and the Ganges in the east in order to demarcate various themes distinguishable from different colors. The red color covering an area of about 1500 Km² shows the forest envelope at higher altitudes P (more than 2300m above sea level) which is vital for men, plant and animals, fulfilling the basic needs of fuel fodder, manure, medicines and raw materials for industries. The plant area, the yellow color depicts the agricultural area of about 700 Km² where the soil is very fertile having moderate organic content. The green and orange colors together show the plantation of various kind covering an area of about 350 Km². The urban area is very less and the area covered by the water is about 20 Km² shown in blue color. Thus, the recently acquired satellite images on 1:50,000 scale have been used to prepare thematic maps depicting the vegetation, soil cover, geomorphological features, drainage pattern and water shed areas which helped when integrated with the Intergraph GIS system, in distinguishing the localities, in an otherwise, difficult and unapproachable terrain where the upstream people can be made to migrate without imbalancing the ecosystem.

Key Words: Outer Himalayas, Spatial Database, Remote Sensing, Geographic Information System, Thematic Maps