Submission for: IITB-ISRO-AICTE MAPATHON – Map Description and Analysis

Introduction: This is an exercise in mapping of natural resources / man-made features [Specifically, mapping of various man-made structures (building locations) and ground water replenishment structures (i.e. cement bunds & KT Weirs) undertaken in the watershed area of the Nidhal village (Tal. Khatav, Dist. Satara, MS)].

The **Nidhal village (Tal. Khatav, Dist. Satara, MS),** under the leadership of **Shri Chandrakant Dalvi, Ex IAS and Ex Divisional Commissioner, Pune Division (MS) (& Chairman, SATV Foundation, Pune. Mb. 09822221600)**, has become self dependent and self sufficient in terms of natural water resources in the time-span of 35 years. This success is achieved by: (i) making judicious use of funds from all the related government and other schemes, as well as, (ii) from the financial contribution and participation of the villagers of Nidhal.

This unique village development model of Nidhal has been principally designed, developed & established by Shri Chandrakant Dalvi, Ex IAS, (& Chairman, SATV Foundation, Pune, Website - http://satvfoundation.org/), and, this village development plan has been successfully implemented in Nidhal under his able leadership. He has organized people in the village who have migrated from the village for their livelihood e.g. service, trade & profession. Nidhal Nokarvarga and Vyavsaik Sanghatana, Mumbai (NNAVSM) was formed in the year 1983, and, through this organization the villagers decided to develop the village through community action, participation and contribution. The Model Village Nidhal has received various state level and national level accolades for its efforts & success.

ISRO data used:

- Theme & Product data from https://bhuvan-app3.nrsc.gov.in/data/download/index.php#, (Tiles E43O and E43P), Road connectivity data from https://www.naturalearthdata.com/
- **Lat. & Long. of Nidhal**: 17.7010994 **E**, 74.4071603 **N**

Specific steps in GIS:

- **Downloaded data from ISRO resources** https://www.naturalearthdata.com/ and from https://bhuvan-app3.nrsc.gov.in/data/download/index.php# for depicting the land terrain and road connectivity in and around Nidhal Village (Tal. Khatav, Dist. Satara, MS).
- Used the **Add New Shapefile Layer** feature in QGIS 3.10 for the following -
    - o POINTS - to identify the points of location of the man-made structures (e. g. buildings, temples, bunds, KT weirs) in the Nidhal village and the surrounding area.
    - o POLYGONS - to draw polygon to demarcate the boundary of the Nidhal Gavthan, Nidhal Watershed and Contour Bunding Area.
    - o LINES - to draw lines to depict the latest approach roads in the Nidhal village & surrounding area.
- Used the **New Print Layout** option in QGIS 3.10 to capture the map of Nidhal Village on the canvas, to show North arrow, Legend, and Scale in the printable version of the map. Included the source of data and the details of the Mapathon participant in the map.

Benefits and uses of similar ISRO Data based mapping activity for village level micro watersheds using QGIS 3.10:

- Awareness creation regarding the importance of and the potential of watershed development amongst the stakeholders for village development. This includes capacity building of the persons interested in developing their local map making skills.
- Identify the locations in and around micro watersheds in villages to erect structures for ground water replenishment, like cement bunds and KT weirs.
- Help in the monitoring and assessment of output and impact of the watershed development projects at micro watersheds in villages.

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