

CRIME MAP OF INDIA

IITB-ISRO-AICTE MAPATHON

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The main idea behind the submission of this topic was to prepare a few maps that can highlight a certain type of crime in India. Therefore, a total of 5 maps have been prepared including:

1. Number of Total Cognizable IPC Crimes In India - 2019
2. Number of Crimes Against Modesty of Women in India - 2019
3. Number of Crimes Relating to Cruelty Against Women in India - 2019
4. Number of Rape & Attempt to Rape Cases in India - 2019
5. Comprehensive Map For Crime Against Women In India - 2019

The spatial data required for preparing these maps included state and district boundaries of India which were provided by the event organizers. Other non-spatial data included several crimes being recorded all over the country at district-level. National Crime Records Bureau (NCRB) records all the crime-related data for the country and therefore, the latest data made available by the authority on their website was utilized. District-wise IPC Crimes – 2019 Report available on [Crime in India Additional Table Contents | National Crime Records Bureau \(ncrb.gov.in\)](https://www.ncrb.gov.in/ncrb/Additional-Table-Contents) was used.

Firstly, the data entering and cleaning was done in MS Excel for each district's criminal cases. Then, it was found that the latest districts enlisted by NCRB in the 2019 report did not match the number of districts in the shapefile because of the difference in the year of data. The shapefile might be older than 2019 and it might not include various changes like creation and merging of districts that have happened. Therefore, the 2019 crime data was added and merged to match the number of old districts given in the shapefile. Lastly, it was made sure that the name of the district in MS Excel matches the respective name in the shapefile so that the join attribute function in QGIS will not give errors and the data is matched correctly. After joining the data, the shapefile was exported and using this newly formed shapefile, the maps 1 to 4 were prepared using appropriate classification and symbology in the map layout of QGIS. Lastly, I intended to overlay the 3 maps of crime against women and prepare a final map showing intensities. To do this, each of the 3 maps was given weights between 1 to 4 in order to standardize the data. Then, they were converted into raster data format by using the 'Rasterize tool (Vector to Raster)' in QGIS based on the weight values assigned. Lastly, the 3 raster layers were overlaid with equal weightage by using Raster Calculator and a map with an intensity of all the 3 crimes altogether was received. It was reclassified into 3 classes – Low, Medium and High as per the need using 'Reclassify by table' tool. This map shows each district being categorized as having low or medium or high crime rate against women and 14 districts out of the whole of India were found to have high crime rate against women for the year 2019.