VARIOUS FACTORS LEADING TO CLIMATE CHANGE

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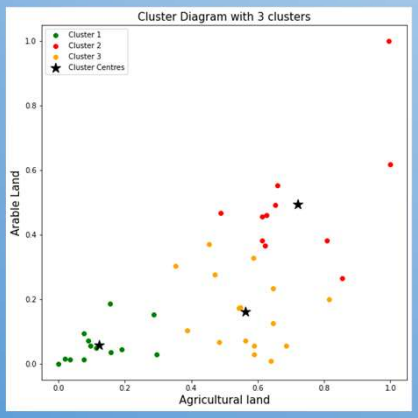
ABSTRACT

This poster shows the various indicators related to Climate Change happening in several parts of the world. The data is chosen from the World Bank. Cluster analysis and fitting curve of a particular country is depicted. The main objective of this study is to give the readers a warning that several climate changes happening in our planet are due to these and are required to find the solutions for the same so that the future generations are in safe hands.

INTRODUCTION

In various parts of the world, with the increase in urbanization, industries, and human activities, Climate change has now become a serious issue for our planet. As with the increase in human population, several developments in several parts of the world are happening but becoming worse day by day. A small change in the natural resources causes difficulties in our ecosystem and that is leading to climate change. This issue has now become a talk to several people as many places get natural calamities and people die and suffer due to these. With the increase of several factors of Climate change, we shall choose several indicators to analyse various issues and predict using cluster analysis and fitting curve.

CLUSTER PLOTS, FIG:1

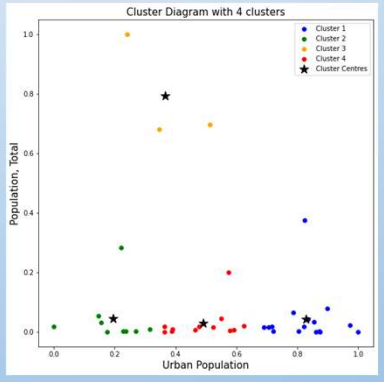


Taking fewer data from two Indicators, Agricultural Land and Arable Land, a scatter plot is shown with the clustering results. In this, the x-axis is chosen as “Agricultural Land” and the y-axis is chosen as “Arable Land”. Each data point is given colours according to its assigned cluster label. Cluster centres denoted in Black stars are plotted in the graphs, which are calculated as the average of all the data points assigned to that cluster. Three cluster centres are provided here and in this, High values, Intermediate values and lower values of both indicators are plotted.

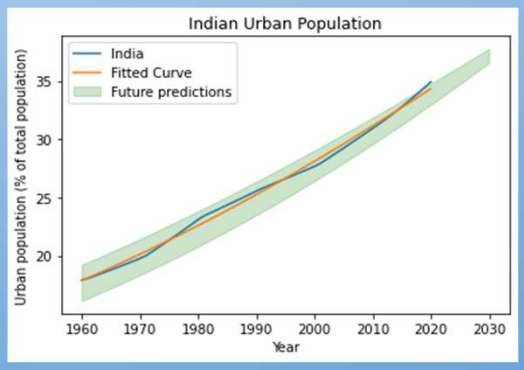
CLUSTER PLOTS, FIG:2

This is a scatter plot of the indicators “Urban Population” and “Population, Total.” Each of these indicators are plotted on x and y axis respectively. Data points are plotted here and are visualized in different colours. Four clusters (cluster centres) are chosen from this scatter plot and are represented in the graph using black stars.

These are calculated as the average of all the data points assigned to that cluster. The four clusters are well-separated and there is minimal overlap between them. These clusters are characterized by low values of both "Urban Population" and "Population, Total", low values of "Urban Population" but high values of "Population, Total", high values of both variables and intermediate values of both variables respectively. Simultaneously, four scatter plots with different colors are plotted.



FITTING CURVE



The figure shows a fitting curve for the urban population percentage of India from the year 1960 to 2020, along with the predicted values for the years beyond 2020. From this plot, the blue line indicates the actual urban population percentage of India since 1960. The orange line is the fitted curve that is generated using the logistic function, providing best fit to the data. The green-shaded region in the plot represents the future predictions till the year 2030. The fitted curve captures the trend of urbanization in India, which starts with a slow increase in urbanization in the early years, followed by a rapid increase in urbanization until a saturation point is reached.

CONCLUSION

To conclude, the plots of clustering shows the various patterns, insights and relationships among the data which helps for classification. Fitting on the other hand, plots a curve based on mathematical calculations so that it predicts the future values based on the dataset.