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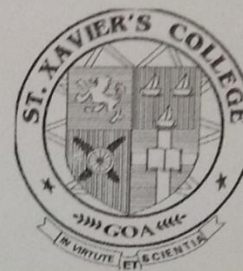
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A final look at interesting landscape matrix of Mopa plateau before the first flight arrives

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Abstract- The government of Goa is determined to move ahead with Mopa Greenfield International civil Airport (MOGICA). Geological survey of India had identified reach Bauxite deposits in Mopa spreading over 12 square kilometers. Ecologically, Mopa is a typical plateau similar to those found in western ghats and studied extensively by ecologists and biologists (Watve, 2013). We made an attempt to utilize the full potential of Google Earth satellite images and 3 D terrain views to study the entire landscape mosaic of Mopa plateau and surrounding areas. Analysis of major and minor landscape elements revealed ecologically and biologically interesting corridors, patches and edges, distinct microhabitats and wildlife niches which indicate that the rich ecosystem services offered by this plateau would be affected after the first flight arrives. The most important aspects of Mopa landscape are the - sharp windswept cliffs, the deep and shallow vegetated valleys which need to be conserved as much as possible. However MOGICA is currently being seen as a money and employment spinner for Pernem taluka without consideration of the invaluable life support systems freely available from the complex and ancient landscape mosaic.

Introduction

The Project Site (N 15°44'30", E 73°52'00") is located near the village of Mopa, Pernem Taluka in north-most Goa along the Maharashtra border. The site is comprised of property acquired from six villages viz., Varconda, Casarvomem, Amberem, Uguem, Mopa and Chandel. An area of 2271 acres is envisaged for the project development. Biological Environment: A total of 385 species of plants (wild, ornamental and cultivated) belonging to 88 plant families were identified in the study area. A total of 86 bird species, 33 butterfly species, 5 amphibian species, 12 reptile species, 11 mammal species are documented in the study area. Google Earth is growing rapidly in popularity as a way to visualise and share 3D environmental data. 3D modeling and visual communications techniques are used in my work. A lot of ecological studies (Fig. 1) on plateaus have been carried out. This work makes a strong case for an ecosystem based approach integrating and incorporating genuine concerns for conservation of existing Mopa landscape mosaic in sustainable design, construction, operation and management of MOGICA.

Mopa and Chandel. Field trips were conducted to make a survey of the type of soil deposits as well as to survey the flora and fauna available at the Mopa plateau. Google Earth satellite images and 3 D terrain views to study the entire landscape mosaic of Mopa plateau and surrounding areas. 3D modeling and visual communications techniques are used in the study.

Results and Discussion

Tropical plateaus are very ancient geological locations. Mopa plateau is a major rainwater catchment area. Our analysis of Google Earth images (Fig. 4) shows highly complex bauxite rich table lands which provide diverse ecosystem services such as retention of water and healthy growth of local flora and fauna. Eleven pristine scenic valleys of different dimensions and topography, many fully vegetated and indicating unbroken canopies. When we examined the transformation of originally intact identical environmental matrix of Mangaluru International airport the future of ecological and environmental transformation of Mopa plateau ecosystem becomes abundantly clear. We identified the area upto the edge of the Mopa plateau as the core zone followed by the area encompassed by valleys and cliffs as the zone of primary impacts and finally radial area of upto 5 kilometers from the edges of the valleys as zone of secondary environmental impacts. Any future environmental management plan would have to take into consideration the lessons learned from construction of Mangaluru International Airport and incorporate primitive and mitigative measures aimed at conservation of the natural landscape elements in primary and secondary zones of impacts. This study makes a strong case for community participation and involvement of local ecological stakeholders in ensuring sustainable environmental management after the first flight takes off from the Mopa Airport.

Analysis of major and minor landscape elements revealed ecologically and biologically interesting corridors, patches and edges, distinct microhabitats and wildlife niches which indicate that the rich ecosystem services offered by this plateau would be affected after the first flight arrives. The most important aspects of Mopa landscape are the - sharp windswept cliffs, the deep and shallow vegetated valleys which need to be conserved as much as possible. However MOGICA is currently being seen as a money and employment spinner for the people of Pernem taluka, without consideration of the invaluable life support systems readily available from the complex and ancient landscape mosaic. This work calls for an ecosystem based approach integrating and incorporating genuine concerns for conservation of existing Mopa landscape mosaic in sustainable design, construction, operation and management of MOGICA. Some aspects of field work are also presented and discussed.

into destruction of existing flora displacements of animals and humans. The 11 valleys are absolutely essential to ensure ecological security and water security of more than 100 square kilometers area surrounding the plateau. We hope that this concerns would be built in every stage of development of the proposed site of MOGICA.

Acknowledgements This work was supported by UGC-SAP Phase II. We thank DSTE, GOA for EIA report on MOGICA.

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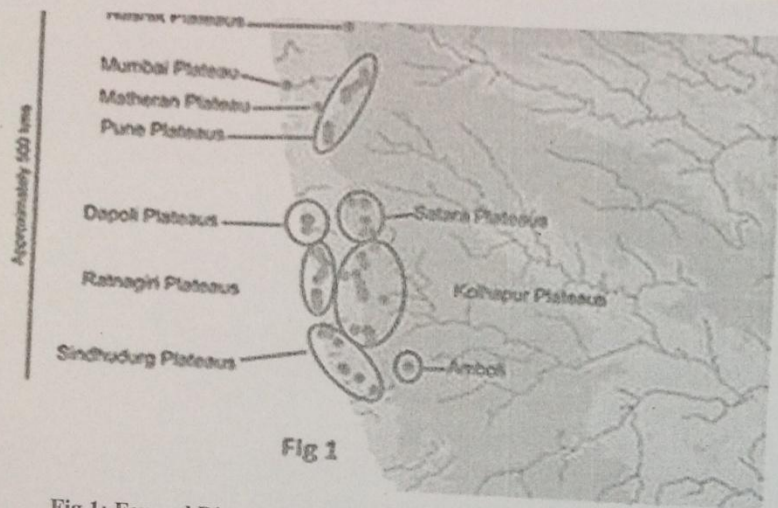


Fig 1

Fig 1: General Distributions of Rocky Plateaus in Maharashtra.

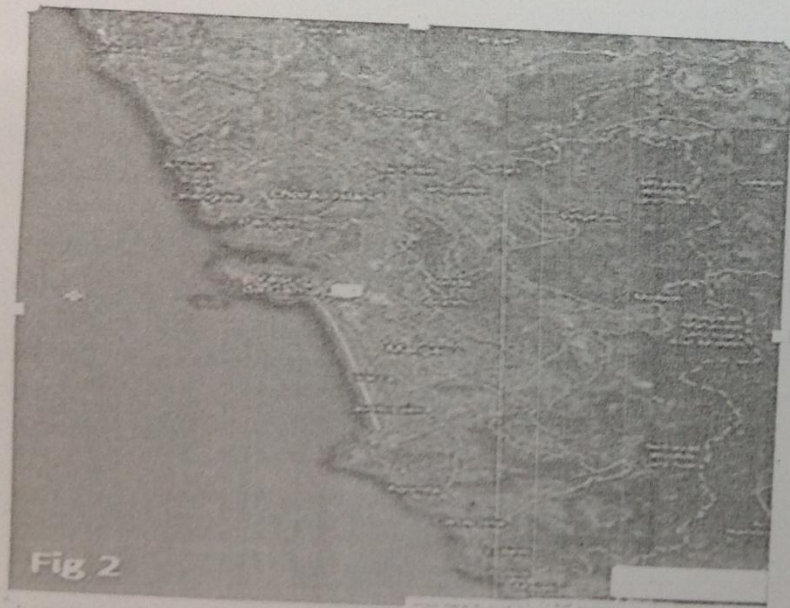


Fig 2

Fig 2: Map of Goa Showing Mopa Plateau encircled with red colour.

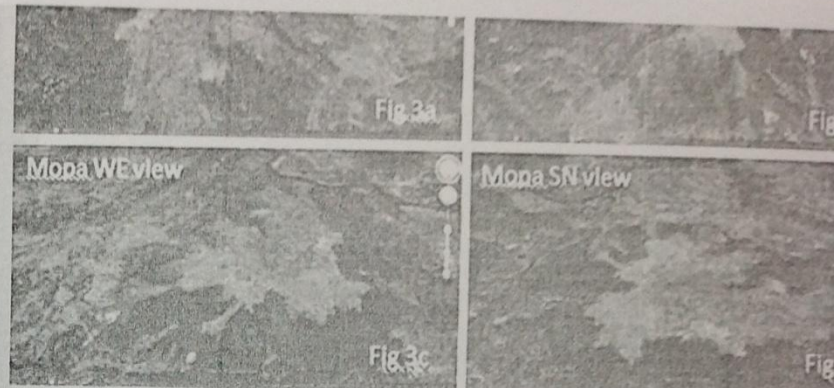


Fig 3: Showing Mopa Plateau in all directions i.e (3a) East-West view, (3b) North-South view, (3c) West-East View, (3d) South-North view.

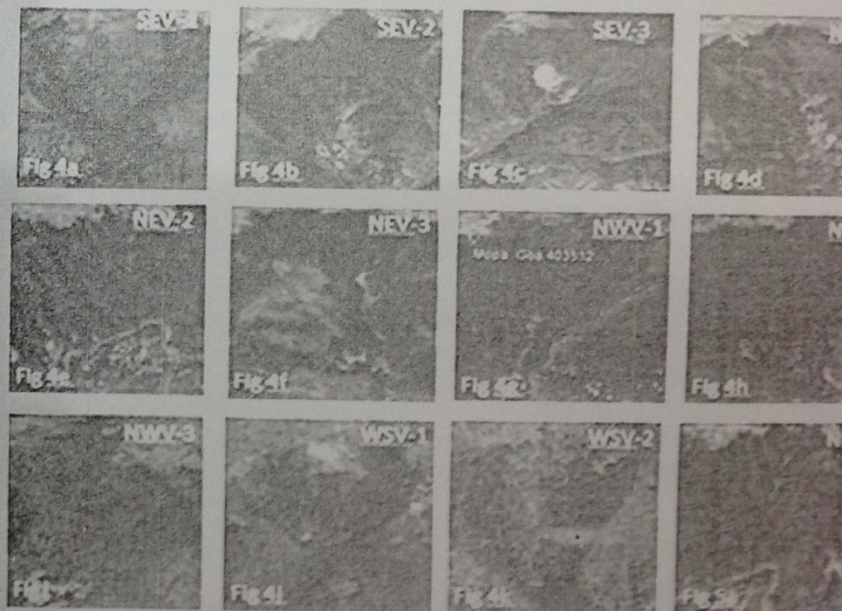


Fig 4a: Y shaped valley with dense vegetation, Fig 4b: Valley with human settlement, Fig 4c: Valley with dense vegetation and quarry, Fig 4d: Valley with intact vegetation with human corridors, Fig 4e: Valley with dense vegetation, Fig 4f: Large valley with criss-cross road, Fig 4g: Valley with human settlement, Fig 4h: Deep valley with dense vegetation, Fig 4i: S shaped valley with human settlement, Fig 4j: Y shaped valley, Fig 4k: V shaped valley, Fig 4l: Cliff with quarry and vegetation.

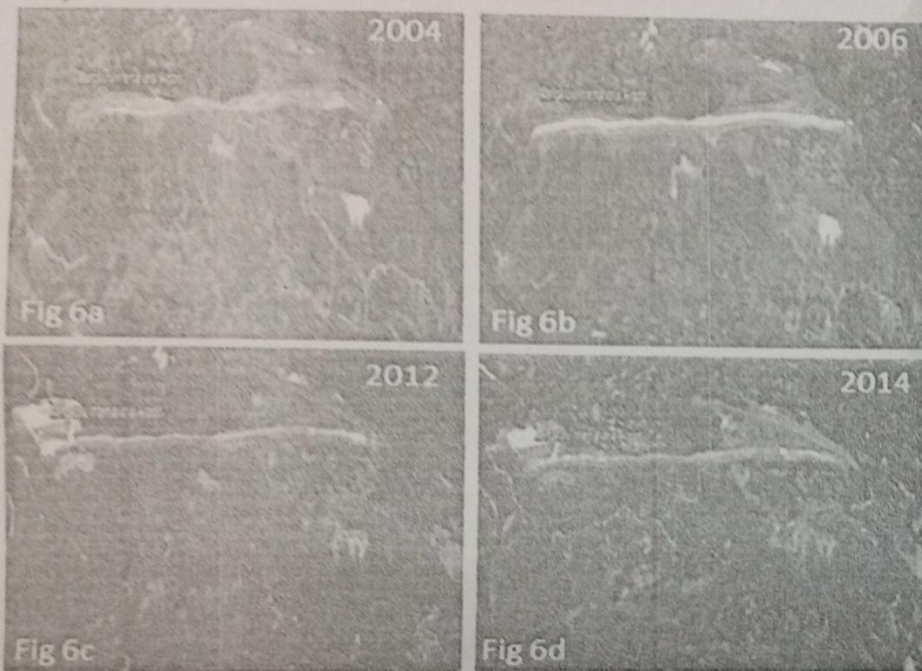


Fig 6: Mangaluru International Airport; Fig 6 (a&b) Showing valleys and cliffs; ans in fig 6 (c&d) all the valleys and cliffs are destroyed.

