



International Journal of Allied Practice, Research and Review

Website: www.ijaprr.com (ISSN 2350-1294)

Landscape of the Kas plateau, Maharashtra

Dr. Suchitra Pardeshi

**Department of Geography, Annasaheb Magar College,
Hadapsar, Pune, India.**

Abstract - Western Ghats is known for its unique biodiversity and Kas Plateau is the most important biodiverse ecosystem. Kas plateau has important ecological as well as tourism value. In the rainy season particularly in August and September, the whole plateau gets covered with colorful flowers and attracts tourists, scientists and nature lovers. This diverse ecological significance of Kas Plateau has impressed the United Nations Educational Scientific and Cultural Organization (UNESCO) to declared it as World Natural Heritage Site in 2012. In this view, to sustain this area geomorphological study of Kas plateau is carried out. With the help of this study it is observed that the Kas plateau is covered laterite rock. Laterite are of two type Primary laterite and secondary laterite. Kas plateau surface is mainly covered with primary laterite and patches of secondary laterite observed along the drainage line. Huge laterite blocks are found detached from the massive laterite mass either in situ or rolled down on the slope and rests on the leveled surface. In some areas lower down the massive laterite the laterite boulders and fragments have been re-cemented and formation of secondary laterite is observed. Boulder field, overburden and depression are also observed on the plateau Surface.

Keywords: - Resources, Kas Plateau, Biodiversity, laterite.

I. Introduction

Natural resources Support in the development of various ecosystem. Survival of human being and the economy is depending on the ecosystem. Natural environment provides biodiversity in the form of various ecosystems and life forms. In Maharashtra State, Western Ghats is known for its unique biodiversity and Kas Plateau is the most important diverse ecosystem. Kas plateau has important ecological as well as tourism value. In the rainy season particularly in August and September, the entire Kas plateau bloom with colorful flowers and attract tourists, scientists and nature lovers. This diverse ecological significance of Kas Plateau has forced United Nations Educational Scientific and Cultural Organization (UNESCO) to declared it as World Natural Heritage Site in 2012. In this view to sustain this area as it is the geomorphological study of Kas plateau is carried out. With the help of this study it is observed that the Kas plateau is covered with laterite rock. Laterite are of two type Primary laterite and secondary laterite. Kas plateau surface is

mainly covered with primary laterite and patches of secondary laterite observed along the drainage line. Huge laterite blocks are found detached from the massive laterite mass either in situ or rolled down on the slope and rests on the leveled surface. In some areas lower down the massive laterite the laterite boulders and fragments have been re-cemented and formation of secondary laterite is observed. Boulder field, overburden and depression are also observed on the plateau surface. In Maharashtra laterite crust is observed at two levels one is high level laterite that is observed above 1000m ASL on the plateau top and the other is low level laterite observed in coastal areas of Konkan and parts of Deccan peninsula (Maignien, 1966). Foote (1876), Medlicott and Blanford (1879) Fermor (1909), and Fox (1923) gave detail reference to many individual occurrences of laterite plateaus (Widdowson, 2001).

II. Study Area

Kas Plateau is the study area situated on the northern part of the lateritic plateau in Satara District of Maharashtra. The plateau extends from Venna valley in the north to E-W segment of Koyana valley in the south. The westward limit of the plateau is bounded by N-S segment of Koyana valley. The altitude in the area ranges from 700 m to 1200 m above sea level (Figure 1).

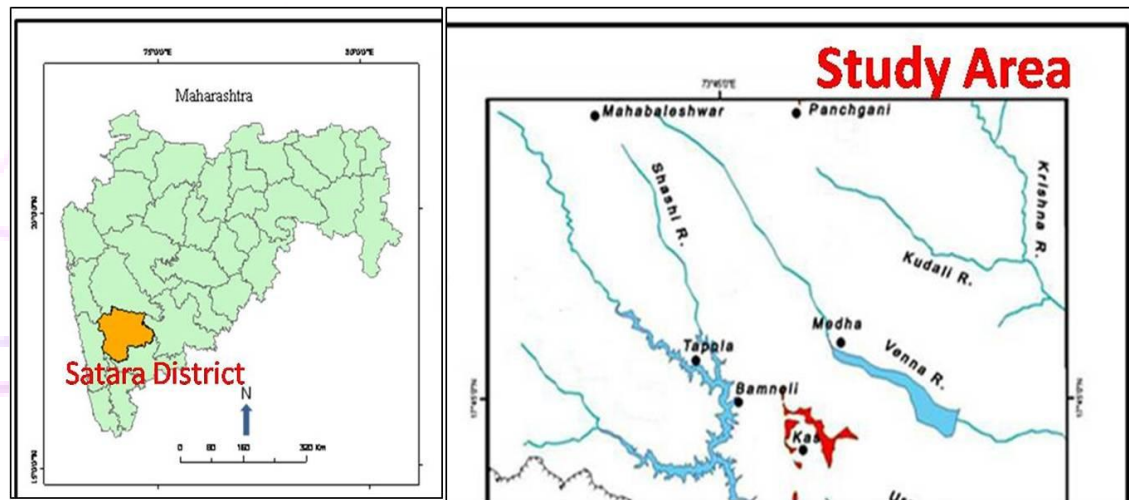


Figure 1. Study area

III. Methodology

To study the various aspects of the study area following methodology is adopted (Figure 2).

I. Literature Survey –Literature survey was carried out to understand the set-up of the study area.

II. Fieldwork work: A number of field visits were carried out in order to get the feel of the area and understand the study area. The features were identified in the field through the base map prepared with the help of SOI topographic maps and marked with the help GPS.

III. Laboratory work: The data collected from the field and obtained from various source were further processed and analyzed. The field data has been basically analyzed for preparation of the detail map of the study area.

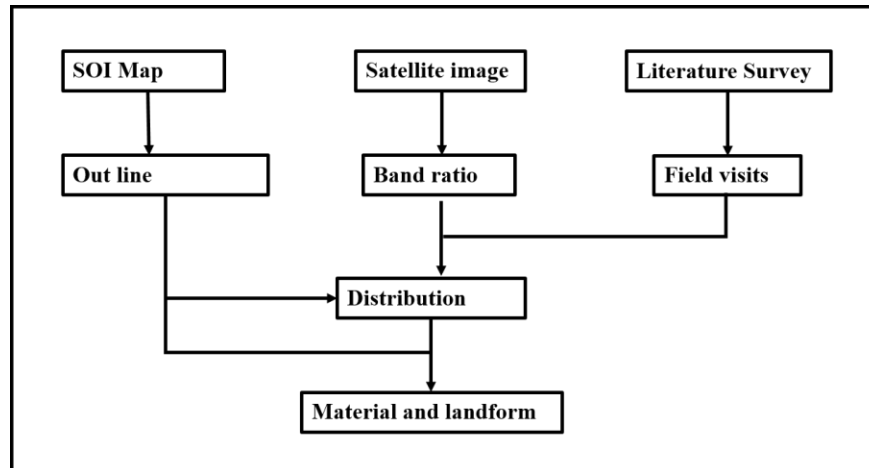


Figure: 2 Methodology adopted

The term laterite: -

The term laterite originated about two hundred years ago when laterite was first described from southern India (Angadippuram, Kerala) by Buchanan (1807). Buchanan's (1807) original definition included some inaccuracies (Ollier and Rajaguru 1989). Later workers sometimes used the term for concretionary iron rich material, or for a whole profile that was assumed to have formed together (the laterite or Walther profile), and sometimes even for a red soil that may or may not have iron-rich concretions or the 'typical' laterite profile. Schellmann (1981, 1982) defined laterite as "Laterites are products of intense subaerial weathering whose Fe and/or Al content is higher and Si content is lower than in merely kaolinized parent rock. They consist predominantly of mineral assemblages of Goethite, Hematite, Al Hydroxides, Kaolinite minerals, and Quartz."

Laterite distribution on Kas plateau: -

Lateritic plateaus or plateaux (locally known as sadas) are a distinct geomorphic features on the offshoots of western Ghats in Maharashtra. Based on altitude, the laterite surface of Maharashtra, can be categorized into two types: i) low altitude lateritic surface (below 100 m) commonly found in Konkan region and ii) high altitude lateritic surface (above 800 m) mainly concentrated in the Western Ghats of Satara, Kolhapur and Ratnagiri districts. These flat-topped landscapes have been variously termed as duricrusts, ferricretes, laterites or table-lands. Duricrust is a general term for a hard crust formed at or near the ground surface, irrespective of the composition (Ollier & Sheth, 2008). The base rock basalt has weathered to laterite on top, but the cover of laterite has eroded in most places and remains only as caps on the summits of the Western Ghats escarpment, especially in the areas of south of 18° 20' N (Widdowson and Cox, 1996). Laterite surface is typically with wide and flat to gently sloping plateau-like tops and sharp escarpments marking the edges.

Kas plateau surface is covered with the continuous cover of laterite rock and hence generally known as lateritic plateau. Laterite on Kas plateau surface is known as high-level laterites (Widdowson & Cox 1996). On this laterite plateau surface patches of more than 2m. thick, loose material are observed. These patches of loose material are known as overburden. These Over burden patches support stunted vegetation growth. These are green areas observed throughout the year otherwise on the plateau, on the thin soil cover areas, seasonal flowering plants are observed. On exposed rock areas of plateau, vegetation is absent because the laterite rock does not support good vegetation growth. High lateritic plateaus are therefore barren and devoid of any luxuriant vegetation.

Details of land cover in the study area: -

The total area considered for the study is the plateau region as well as the area along the margins of the plateau where lateritic material is spread. The plateau land cover includes exposed rock, overburden, natural vegetation, depressions and water bodies.

Exposed rock: -

Kas plateau area is mainly covered with exposed rocks. Exposed rocks are observed in the form of crust which is without any type of covers like vegetation, soil or water. This covers the maximum area of the plateau surface. It includes the areas of exposed rocky surface, boulder fields and subsided areas of plateau margins.

Natural vegetation: -

Kas plateau is biodiversity rich area. Natural Vegetation cover in study area is divided in two parts, one, that is observed on the plateau top and second, is observed on plateau margins. From the satellite image interpretation and field observations it is clear that, on the plateau top forest cover is generally observed on middle parts of overburdens, depressions, along the cracks and flow line. Vegetation associated with flow lines or cracks are more or less in linear form. Vegetation along these linear forms has much less density and stunted growth. The vegetation growing along the cracks and flow line as well as margins of depressions are due to the availability of some amount of moisture at such locations. In case of thicker overburdens growth of plants is good. There are number of patches with woody vegetal growth and trees with the height of 3 to 4 meters and girth of 1 to 1.5 meters. Besides the thick vegetation, overburden margins and overburdens with shallow soil cover are supporting scanty stands and bushes where the grass cover is also observed. Grass covers are mainly observed on the peripheral part of the overburdens. These are also present on the plateau wherever thin soil cover is present. The grass growing on the plateau is short grass which indicates the control on the growth. This grass cover is mainly used for the grazing activity. During summers these grasses dried up and in rainy season these grass areas get covered with variety of small flowers. It seems that the plateau surface is covered with full of colourful flowers, some of these plants are insectivorous plants.

Water bodies: -

It includes natural depressions with seasonal water storage and small manmade reservoirs on the plateau top. These water bodies are made perennial with human efforts. By using rainwater harvesting measures, natural depressions are also converted to small water bodies by local people. For this the surface shapes are well used and the out flow of the depressions are blocked.

Soil cover: -

Kas plateau have a thick layer of deposition in the form of patches with a good vegetation growth. These patches are to be seen in the entire study area. The depositions are varying in thickness. These patches are also showing variation in the constituent material. The material is of varying in size from coarse sand to fine sand. Generally, it is observed that in the central part of these patches thickness of the material is more than 2 meters. It is also observed that the thickness of the material is decreasing from the central parts towards the peripheral parts. This is resembled in the growth of vegetation also. In the central part of the patches vegetation is reasonably thick and tall whereas it goes on thinning towards periphery.

The material is washed from the plateau surfaces are accumulated in the depressions and lakes. Thickness of the material is around 60 to 70 centimetres. The material observed in the depression is of clayey type. Most of these depression and lakes are surrounded by thorny bushes or scrubs and at some lakes it is found that there is good growth of trees.

IV. Conclusions

With the help of this study, it is found that the maximum plateau surface area is covered with laterite rock (duricrust). Remaining part of the plateau surface is covered with overburden, natural vegetation, depressions and water bodies. Stripped surfaces, boulder fields, drainage lines and secondary laterite along drainage lines are also observed on the plateau surface although the area covered by all these are relatively very small.

V. References

1. Buchanan, F (1807) A Journey from Madras through the Countries of Mysore, Kanara and Malabar (3 vols.) East India Co., London.
2. Fermor, L. L. (1909) The manganese ore of India, Mem. geol. Surv. India, 37, pp.370-389 cf.
3. Foote, (1876) The geological features of the South Maharatta country and adjacent districts, Mem. geol. Surv. India, 12, pt. 1, 209-223. cf. Maignien, R. (1966), Review of Research on Laterite, UNESCO, Natural Resource Series 4, Paris.
4. Fox, C. S. (1923) The bauxite and aluminous laterite occurrences of India, Mem. geol. Surv. India, 49, pt. 1, 1-46. cf. Maignien, R. (1966), Review of Research on Laterite, UNESCO, Natural Resource Series 4, Paris.
5. Maignien, R. (1966) Review of Research on Laterite. UNESCO, Natural Resource Series 4, Paris.
6. Medlicott, H. B. and Blanford, W. T. (1879) A Manual of the Geology of India. Geol. Surv. India, pp. 348-370. cf. Maignien, R. (1966), Review of Research on Laterite, UNESCO, Natural Resource Series 4, Paris.
7. Ollier, C D and Rajaguru, S N (1989) Laterite of Kerala (India); Geogr. Fis. Din. Quat. 12 27-33.
8. Ollier, C.D., Sheth, H.C. (2008) The High Deccan duricrusts of India and their significance for the 'laterite' issue. J Earth Syst Sci 117, 537.
9. Schellman, W. (1981) Considerations on the definition and classification of laterites. p. 1-10. Proc. Int. Sem. Laterization Processes,
10. Schellman, W. (1982) Ein neue Lateritdefinition. Geol. Jb. 58:31-47.
11. Widdowson, M. & K.G. Cox (1996) Uplift and erosional history of the Deccan traps India: Evidence from laterites and drainage patterns of the Western Ghats and Konkan coast. Earth and Planetary Science Letters 137: 57-69.