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Full Length Research Paper

Geomorphology of Mysore city

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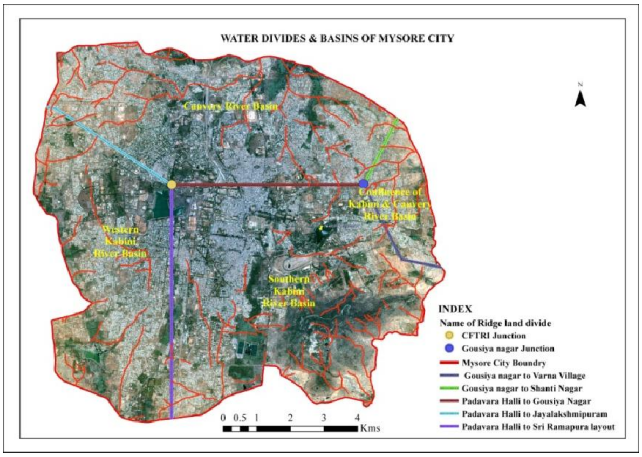
Abstract
The existing land use planning of Mysore city reveals an alarming land use related issues which are going to be stumbling block in the future years. Mysore developed as a plan city by the initiation taken by the then Mysore king Krishna Deva raja Wodayer. At present the planning of Mysore is heading towards derailed planning. Mysore city Improvement Trust Board was instituted in 1898 next only to Mumbai. Increased growth of private land developers, private land cooperative societies and illegal land grabbing by the politically and religiously advantageous has thrown away the planning into mess due to land grabbing in mid and low land regions of Mysore fringe. This paper narrates the process through which a planning derailment has taken place.

Keywords: *Planning, illegal Land Grabbing, Land Developers, Private Land Cooperatives*

Introduction

The Landscape of Mysore City reflects a true well drained dendritic drainage formation. The Geological controlled structures have a greater impact on the terrain.(S. Arun Das, 1997).A west to east elongated ridge land divides the city into two broad slopes. The Northern slope and Southern slope (See Map.1). The junction of triangular ridge lays at west of Mysore city exactly over CFTRI palace. The North West ridge stretches through Padavara Halli, Jayalakshmipuram, and Vijayanagar third Stage through Hinkal and gets culminated on ring road. The north to south ridge begins from CFTRI palace stretches along District Collector Office (DC), Crawford Hall, Law Court, and Chamarajapuram, Jayanagar, Ashokapuram and Sri Ramapura layout, where as the North West ridges stretches up to ring road. The north to south ridge passes through Sri Ramapura and ring road junction. This also forms Western Kabini River Basin dividing ridge. The West to East Ridge passes through CFTRI palace, Mysore city Railway Station, Tilak Nagar, Mandi Mohalla, and Police Parade Ground up to Gousiya Nagar. At Gousiya nagar this ridge spilt into two, one ridge stretching towards north eastern direction and another branch stretches towards south east direction. The north East Ridge from Gousiya nagar stretches through Kalyanagiri nagar, Shanti Nagar up to ring road. The another branch of ridge starting from Gousiya Nagar stretches in to south east direction passing through Sidarth Nagar, Lalitha Mahal Palace. Behind Lalitha Mahal palace the ridge turn further eastward and stretches through Varna Village up to ring road (See Map. 1). Based on the Water divide developed by the ridge, the entire Mysore city has been classified in to four basins. The western part of Mysore city drains towards western Kabini basin, the Southern part Mysore city towards southern Kabini Basin, Similarly the Northern part of the Mysore city drains towards the Cauvery Basin and eastern part of the city drains towards the confluence of Kabini and Cauvery River Basin.



Map. 1. Water Divide & Basins of Mysore City. (*Source: Shuttle Radar Topography Mission Image)*

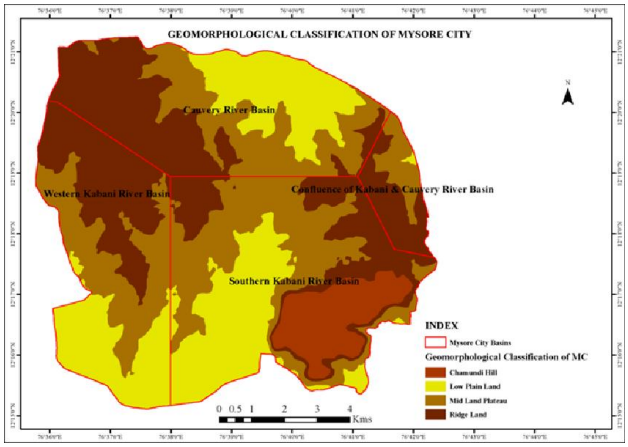
Methodology

Realizing the importance of the relationship existing between land and human activity, the existing activities of Mysore has been surveyed. As an initial task of understating the geomorphology of Mysore city, the Mysore Urban Development Authority (MUDA) boundary limit was selected as study limit.

The SRTM data was downloaded and clipped to the study area boundary. Based on the Arc GIS hydrological tool, sub basins were generated. The entire city was classified into four basins such as Western Kabini River Basin, Cauvery River Basin, Southern Kabini River Basin and the confluence of Cauvery River and Kabini river basin. Based on the elevation data, contours were generated at an interval of 20 meters. Three types of geomorphological classification has been done such as ridge land (760 - 780 meter elevation), mid Land Plateau (740 -760 meter elevation) and Low plain land (720 -740 meter elevation). With the help of Global Positioning System (GPS) various amenities were mapped. As per the geomorphological classification the amenities were clipped and data was generated. With the help of generated data the following existing amenities location, were classified on the grounds of geomorphological landscape and were analyzed.

Background of geomorphological classification

Broadly, Geomorphology of Mysore City is classified in to two major groups, Cauvery river basin geomorphology and Kabini River basin geomorphology (See Map.2). The Cauvery River Basin occupies the northern part of Mysore City covering 30.01 Percent of the Mysore city area. The major portion of Mysore city drains towards Kabini River Basin which accounts to 70 Percent. For further classification the geomorphology of Kabini River and Cauvery River has been classified in to four, based on the elevation and slope parameters. The land towards Cauvery River Basin having steeper slope, has been classified as Upper Ridge Steep Slope Land, Mid Steep Slope Land and Valley Land. Since the Kabini River drainage Basin covers larger area it has been further demarcated by ridge, such as Western Kabini River Basin and Southern Kabini River Basin. Within these two basins further classification has been derived based on the elevation, such as Ridge Land Zone, Mid Land Zone and Low Land Zone. Towards the eastern side of the Mysore city the drainage networks are seen drained towards Cauvery and Kabini confluence section. Based on this classification, the detailed interpretation has been provided in the forthcoming paragraphs.



Map .2 Geomorphological Classification of Mysore city (*Source: Shuttle Radar Topography Mission Image)*

Table 1: Areaof Geomorphological Basins

Sl .No	Geomorphological Basins	Percent
1	Cauvery River	30.01
2	Western Kabani River	25.29
3	Confluence of Kabani & Cauvery	5.17
4	Southern Kabani River	39.53

Geomorphological classification of Mysore city

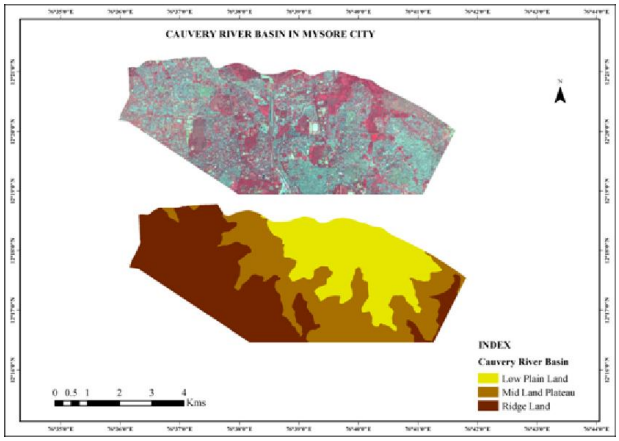
Cauvery River Basin

Cauvery River Basin stretches from North West of Mysore city to north east adjoins to Cauvery Kabini confluence Basin. The river Cauvery flows in the northern direction of Mysore city. The channel path of Cauvery River lays at an elevation of 680 meters. The water divide of the ridge is situated at an elevation of 800 meter to 760 meters. This ridge demarcates the basin between Cauvery and Kabini River. Only 30 Percent of Mysore city is drains towards Cauvery River. Between the water divide lines to the Cauvery river channel path 80meters elevation difference exist against the distance of 11 kilometers, this marks the steep gradient.

Geomorphologicaly, the steeper gradient land is not contusive for agriculture in a low rainfall region. Secondly it is not suitable for sports complex or recreational activities. The land towards northwestern section is suitable for residential and commercial

activities. Despite unfavorable condition for agriculture there are many coconut plantation exist along stream paths as a traditional agriculture.

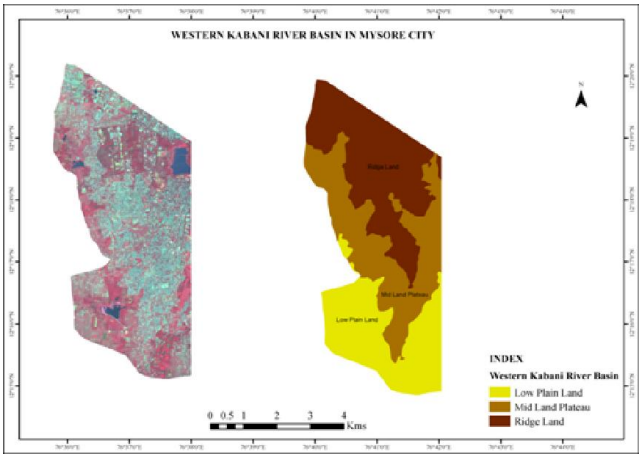
According to (Genito et al. 2002, Lenat & Crawford 1994, Wang et al. 1997) commonly reported that streams draining agricultural lands and also support species and draining forested catchments.



Map .3. Cauvery river basins in Mysore city. (*Source: Shuttle Radar Topography Mission Image)*

Western Kabani River Basin

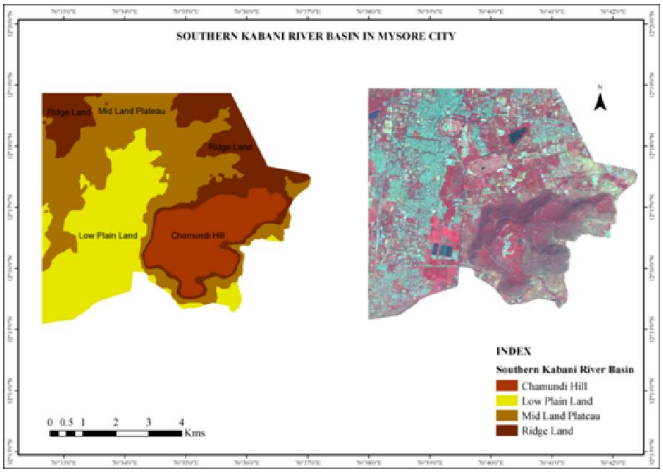
Towards the Western part of Mysore city, the western Kabini river basin is located. In this basin the ridge land dividing north western Kabini River and Cauvery River is located stretching from District Collector Office (DC) towards north western ring road junction. Another ridge land which divides the southern part of Kabini River Basin stretches from District Collector Office (DC) and passes through Sri Ramapura Layout. These segment of the Kabini River Basin Posses 25.3 Percent of the total Mysore City area. The distance between Kabini River course and Ridge demarcating Mysore city varies between 25 to 30 Kilometers. The channel path lays at 670 meters and the ridge land lays between 780 to 750 meters. As such there is a prolonged distance between the ridge and the channel of the river which has formed gentle slope with undulating terrain in the western Kabini basin. (See Map.4).



Map .4. Western Kabani river basins in Mysore city. (*Source: Shuttle Radar Topography Mission Image)*

Southern Kabani River Basin

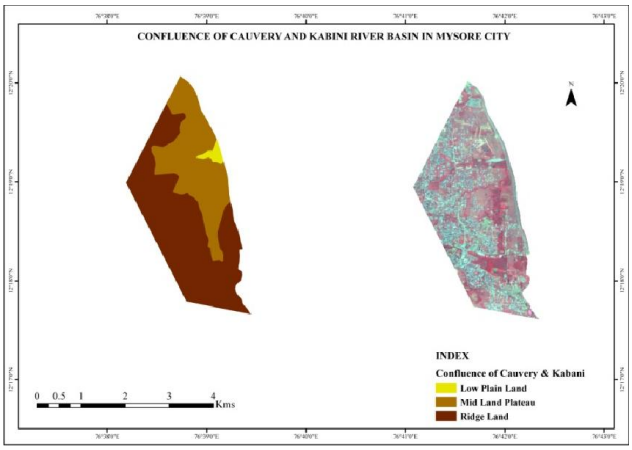
The major share of Mysore city drainage comes under the South Kabini River Basin, which accounts to 39.5 Percent. Within this basin the ridge land occupies 20 Percent, Mid Land Plateau occupies 34.8 Percent and Low Land occupies 28.7 Percent and another 16.6 Percent has been occupied by Chamundi Hills. The ridge land area which stretches through the western Kabini River Basin is seen on the north western corner of Kabini River Basin. Another patch of the ridge land is stretching from north east to east dividing the basin between confluence of Cauvery and Kabini River Basin. (See Map.5).



Map .5. Southern Kabani river basins in Mysore city. (*Source: Shuttle Radar Topography Mission Image)*

Confluence of Kabani and Cauvery River Basin Kabani River Basin

Towards the north eastern, eastern part of Mysore city the drainage networks flow towards Kabini and Cauvery confluence section. The general slope of this basin is seen towards north eastern direction. The ridge land which bifurcate the Cauvery basin and the Kabini basin passes from north east to south west direction. This basin covers 5.17 percent of the geographical area of Mysore city. In these basin only a small portion of low land plain 1.5percent is seen, other than in this terrain, the major part of the terrain is occupied by ridge land and mid land 9 percent topography. The ridge land occupies 61.72 percent and another 36.72 percent is covered by mid land plateau, remaining 1.5 percent is low land. (See Map.6.)



Map .6. Confluence of Cauvery and Kabani river basins in Mysore city. (*Source: Shuttle Radar Topography Mission Image)*

Findings

1. Mysore city is a true geomorphological based historic city located on the edges of river Cauvery and Kabini.
2. The elongated ridge running west to east and also from the north to south acts as a water divide line between northern Cauvery river and southern Kabini river basin.
3. One fourth of the existing Mysore city is drained by Cauvery river and three fourth of the city drained by river Kabini.
4. The ridge lands have being selected as the best site for monumental buildings of historical time such as Mysore palace, Lalitha Mahal Palace, Vasanth Mahal Palace, District Commissioner Office, Crawford Hall, Jayalakshmivilas palace, etc.
5. The existing land use of Mysore city is falling within the three types of Geomorphological land scapes such as low land, mid land and ridge land. Among the land 75 percent of built up area in Cauvery basin is in mid land , 72 percent in ridge land and 59 percent in low land .This clearly indicates that the older Mysore city has developed on the mid land and ridge land of the Cauvery river basin.

Conclusion

The overall scenario of Mysore city land use speaks that an inter mix of land use having no attention given to as far as landscape is concern. As the growth of Mysore city took place, the expansion of all the amenities and utilization of land for various purposes has been taken place within five kilometers radius.

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