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## Preparation of Papers – Potential Alternate Energy Resources for Sustainability: A Must Need for a top Pilgrimage City

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### Abstract

India is developing fast in the lines of some of the greatest cities of the world. Graph from the last 20-25 years show that India has majorly borne a paradigm shift in development icons as such Its cities have surpassed even double to its initial infrastructure during this period. Most of these infrastructural icons have a lot to do with the IT industry boom in the country as such most of these cities (e.g. Delhi, Bombay, Bangalore, Hyderabad etc.) are further burdened with employable youth, who require transit accommodation in the same city as well. There are some other cities too who used to enjoy the tourist or the pilgrims' inflow by virtue of some kind of religious, natural or heritage resource attached to it. But, as evident in History, India and the Indians are known to be cultural driven, Pilgrimage friendly people. As such, these Blessings to such cities are continuously turning out to be the sufferings in the light of the number of pilgrims/tourists (floating population) these cities bear on daily basis. Most of these cities lack the sustainable infrastructure to uphold these burdens and to meet the energy demands for the well-being of people and city. These infrastructural additions must contemplate the Energy demands of the built form, people and their activities. One of such vulnerable town due to Paradigm shift in its development priorities is KATRA town, which is continuously getting burdened with more and more buildings, people & loss of Rural Greens as such contemplation of energy requirements is the need of the hour.

Katra town is world famous for the rich religious history attached to it as it forms the base town (Camp) of Trikuta Hills upon which (12 kms away from base town) the Holy Shrine of Goddess Maa Vaishno Devi is located. Every year millions of Pilgrims from around the globe visit the shrine & the Katra Town. The Katra town is the major contributor of J&K (Jammu & Kashmir State) economy & India at Large. Pertinently, its being projected as one of the smart cities of India in next few years in the lines of leading smart cities of the world.

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## 1. Introduction

HOLY Shrine of Shri Mata Vaishno Devi, considered as one of the holiest pilgrimages of India, is located in the folds of Trikuta hills – Shivalik range of Himalayas. Katra town is the base camp for the pilgrims to Shri Mata Vaishno Devi Shrine. Katra town is located in the foothills of Shivalik range, a sub Himalayan range at an altitude of 914.4 M (3000 ft.) above MSL. It is connected by road, railways and by air. It is 50 Km away from Jammu and 635 Km from New Delhi. The town lies at latitude 32°-59' N and longitude 74°-55'E. Average annual rainfall in Katra town varies from 1200 mm to 1800 mm and maximum rainfall is during the period from July to September and January to early March [15]. During winter season the average day temperature varies from 20 to 25° C and the lowest night temperature is 3o C. During summer the day temperature varies from 30 to 40o C. Sacred Banganga flows on the North – North West side and Bhoomika nallah runs on South – South West of Katra. The western and the north – western sides are covered with forests / dense vegetation.

Katra was a small village covering an area of 1.62 Km<sup>2</sup> around 50 years ago and presently it is spread over an area of 4.0 Km<sup>2</sup>. Up to 1961 A. D., the growth of Katra Town was slow and limited to the sides of the path towards the Shrine. After 1961 A. D. the town started spreading along Katra – Domail road and along Katra – Panthal road which was followed by its extension to nearby villages. The growth was totally unplanned till Katra town was brought under the Town Planning Act, in the year 1975. Seven wards in 2001 have now increased to thirteen. The growth of population of Katra is shown in Table 1 below.

Table 1. POPULATION GROWTH OF KATRA – EXISTING NOTIFIED MASTER PLAN KATRA, 2021 A.D. [4]  
Source : Census 2001 and Katra Municipal Committee

Census year	Population	Decadal Growth (No.)	Decadal Growth %age
1911	828		
1921	868	40	4.83
1931	950	82	9.44
1941	1005	55	5.78
1951	1267	262	26.06
1961	1529	262	20.67
1971	3315	1786	116.8
1981	4573	1258	38
2001	8083	3510	81.56
2011	8152	69	8.78

Besides the increase in residential population, the floating population has also increased manifold particularly after the constitution of Shri Mata Vaishno Devi Shrine Board (SMVDSB) in 1986. Floating population comprising of Ponywalas, Pithoowalas and Palkhiwalas was 7302, 6469 and 5096 respectively (total = 18867) in 2011. In addition there is migrated population or work force population who come to Katra for employment. The number of Pilgrims to Holy Shri Mata Vaishno Devi Shrine has increased from 13.86 Lac in 1986 to nearly 105 Lac in 2012. This all amounts to the increase in demand for electric energy. Many private businesses are opting for 100 percent backups with the help of generators. Energy is required for lighting, cooking and transportation of the locals and pilgrims. Increase of pilgrims since 1986 and variation in their numbers during the year 2015-16 is shown in Fig. 1 and Fig. 2 respectively.

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