SPATIAL DISTRIBUTION OF WINDMILLS IN SATARA DISTRICT: MAHARASHTRA

Prof. (Dr.) Suresh K. Pawar
Professor, Department of Geography, Shivaji University Kolhapur-416 004

Mayur N. Yelmar
Research Scholar, Department of Geography, Shivaji University Kolhapur-416 004

ABSTRACT

In this essay, an effort has been made to analyze the physical attributes and locational characteristics of windmills in Satara District, a region of eastern and western Maharashtra. Not just in the present but also the coming generations, wind energy is becoming increasingly important. Its area is 4,050 square miles, and its 3,003,741 (2011) inhabitants are dispersed across 1719 settlements. 1891 wind turbines provide 175.15 Mega Wafts of electricity. All these windmills are installed at certain heights, and these windmills are installed in the forest, mountains, and barren land. The windmills installed have somewhat reduced the amount of woodland and agricultural land. Still, due to this electricity generation, the development of the Satara district has been seen to a large extent.

Key Words: Agricultural Land, Wind Energy.

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INTRODUCTION

The 21 Century is a century of difficulties. Thus it is vital to use it or risk being left behind. It also goes beyond simply meeting societal needs. Alternative energy comes from various sources, with wind energy being one of them. The shortage of conventional energy, which is a result of human activity and environmental difficulties in many parts of the world, has led to the expansion of wind power, a fossil fuel, renewable, major, natural, and sustainable energy source. The world has become more complicated due to several variables, such as migration, liberalization, monetization, privatization, industrialization, globalization, urbanization, and computerization. The advancement of science and technology, computer technology, and space technology has sparked a flurry of economic activity and created job possibilities throughout the globe's many physical and cultural environments. Both conventional and unconventional energy has been used to complete all kinds of tasks. The phenomenal increase in population and the strain it has placed on a given area has made it possible to raise the standards of living for society's citizens. Because of this, all kinds of activities have strongly focused on energy and participated in numerous processes.

As a result, energy plays a crucial role in determining how the various geographical areas of the world will evolve overall. As a result, alternative energy is becoming increasingly important worldwide, not only in India. In addition to being one of the 83 nations, India ranks fifth in the world in total installed wind power capacity, after China, which has more than 19.1 GW. For the United States, Germany, and Spain, the primary challenge is their products' manufacture and distribution. India now effectively uses its identity as a result. As a result, alternative energy can produce energy while taking up less space, emitting no greenhouse gases while operating, and being less bothersome. Direct access to wind energy is not possible. Therefore, an appropriate machine known as a windmill is needed to harvest the energy from the wind. It is a device that transforms wind energy's kinetic energy into mechanical energy, which is then converted into electrical energy.

Study Area

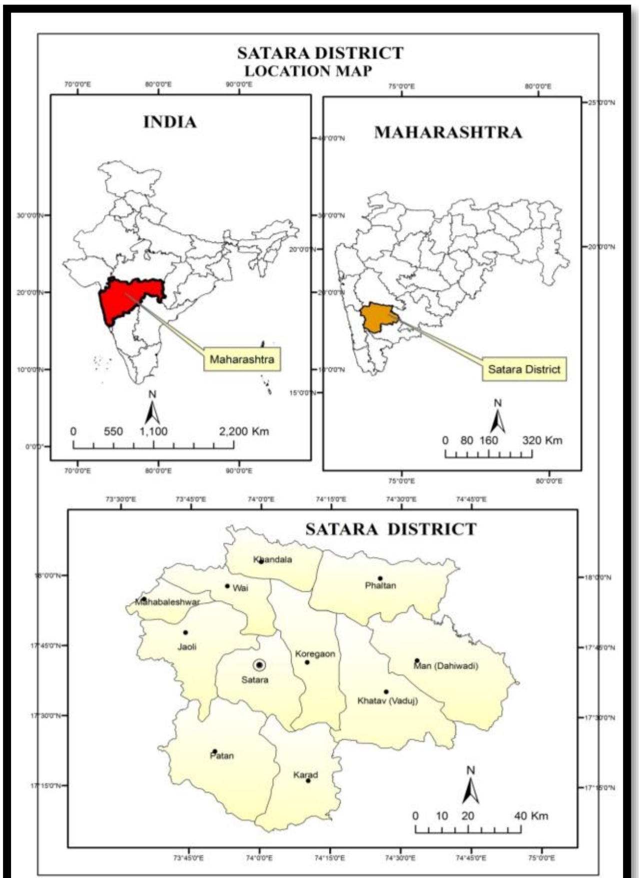

Fig. 1.1

Satara district is situated in the western part of Maharashtra and lies between north latitudes17° 05' and 18° 11' and east longitude of 73 ° 33' and 74° 54'. The geographical area of the district is 10480 sq. km.

OBJECTIVE

1. To study the distribution and geographic features of windmills.

DATABASE AND METHODOLOGY

The study's primary and secondary data sources include home schedules and the Maharashtra Energy Development Agency (MEDA). While this is happening, secondary information was gathered on the manufacturers, developers, and locations of wind turbines, their heights in meters, and ratings for how much energy they produce from wind in Kilowatts and total installed capacity in Megawatts. Tables and maps have been created using the gathered data. Using the analytical method, the data has been processed appropriately.

ANALYSIS

The state of Maharashtra's first-highest windmill installation is in the Satara district. In the 16 companies in Nine Talukas, 1891 windmills have been installed and operating since 1996. Significant alternative energy is produced in the research region annually at a rate of 15 Mw. Following Patan Taluka, which installed 413 windmills in 6 villages and generated 643.26 Mw of wind energy, comes Khatav Taluka, which has a capacity of 507.54 Mw of wind energy produced by the 338 wind turbines in 3 settlements. Jaoli Taluka installed 111 windmills in three towns, producing 161.51 Mw of power. Like this, Koregaon Taluka has 98 windmills built in 2 villages, producing 161.25 Mw. While just two windmills, each with a capacity of 97.94 Mw, are erected in Satara Taluka, which has the fewest windmills in the taluka 138 total, Satara Taluka also contributes to the generation of wind energy. Shows the 1891 windmills installed in the research area of the 1891 upcoming installations in the research area. These are located in rural, hilly, and forested regions. As a result, the research has considered converting agricultural land into non-agriculture as a severe issue and an impossibility in India due to environmental concerns: The Future and The Challenge. The data listed in the preceding table wholeheartedly supports the Icefall and environment point of view.

Table.1 Wind Energy Production Capacity in Village wise

Sr No	Taluka	Village	Total Wind Mills	Wind production Capacity in MW
1	Satara	Chalkewadi	40	16.94
		Thoseghar	44	31.00
		Vankusavade	76	50.00
2	Patan	Matrewadi	267	156.550
		Maloshi	128	90.26
		Kusavade	120	19.600
		Sadawaghpur	212	145.8
		Palsi	125	200.950
		Humbarne	112	30.00
3	Wai	Mohodekarwadi	29	22.04
		Chavaneshwar	22	18.04
4	Khatav	Ambheri	240	246.925
		Khokade	46	98.100
		Girijashankarwadi	52	162.800
5	Man	Agaswadi	91	91.100
		Bothe	47	37.61
6	Jaoli	Kas	20	27.30
		Vele	81	109.30
		Varsoli koli	10	25.15
7	Koregaon	Palashi	61	102.00
		Rautwadi	37	59.25
8	Karad	Kural	20	22.70
		Nagzari	09	10
9	Phaltan	Upalave	02	1.6
		Total	**1891**	**1775.15**

(Source; Based on Field Work, 2021.)

CONCLUSION

The study has found that the generation of wind energy is urgently needed to carry out daily and socio-economic activities. The energy shortage will be made up to fulfill the population's needs by producing alternative wind energy. As a result, the study area is a viable location for installing windmills and producing wind energy. Still, it is encouraging to note that converting agricultural land to nonagricultural use poses serious environmental concerns and should not be enabled in future study area installations.

REFERENCES

Dawn, S. T. (2019). Wind power: Existing status, achievements, and government's initiative towards renewable power dominating India. . *Energy Strategy Reviews, 23,*, 178-199.

Irfan, M. Z. (2019). Critical factors influencing wind power industry: A diamond model-based study of India. . *Energy Reports, 5,*, 1222-1235.

Kristinsson, K. &. (2008). Interactive learning or technology transfer as a way to catch up?

Analyzing the wind energy industry in Denmark and India. . *Drive and innovation, 15(3),* , 297-320.

Pawar, S. K. (2020). Spatio-Temporal Perspectives of Wind Power Energy Resource in Satara District. *Mukt Shabd Journal, ISSN NO : 2347-3150,Volume IX, Issue VI,* , 5671-5772.

Ramotra, K. C. (2010). Economics of wind power generation: a case study of Chalkewadi in Satara district of Maharashtra. , . *Indian Journal of Regional Science, 42(1)*, 136-144.

Sharma, A. S. (2012). Wind energy status in India: A short review. . *Renewable and sustainable energy reviews 16(2)*, 1157-1164.

Singh, U. R. (2022). Wind energy scenario, success, and initiatives towards renewable energy in India—. *A review. Energies, 15(6), 2291.*

Singh, U. R. (2022). Wind energy scenario, success, and initiatives towards renewable energy in India—A review. *Energies, 15(6), 2291.*

Sule, B. M. (2018). Non-Conventional Energy Sources: A Geo-Spatial Study of Site, Situation, Production, and Economy of Wind Farms in Satara District. . *Journal of the Geological Society of India, 92(1),* , 107-110.