Journal of Advanced Zoology
ISSN: 0253-7214
Volume 44 Issue S8 Year 2023 Page 399-402

"Evaluation of The Public's Recognition, Approval, And Perspectives On Renewable Energy In Panvel"

V. N. Pawar[1], A. K. Chaudhary[2], V. S. Kamble[3], P. S. Thakur[4], N. K. Patil[5], S. S. Kamble[6*]

[1]*Department of Physics, Siddharth College of Arts, Science and Commerce, Fort-Mumbai.*
[2]*Department of Physics, Royal College of Arts, Science and Commerce, Mira Road, Mumbai.*
[3]*Department of Chemistry, Changu Kana Thakur Arts, Commerce and Science College, New Panvel, Navi Mumbai.*
[4]*Department of Physics, Ramsheth Thakur College of Commerce and Science, Kharghar, Navi Mumbai.*
[5]*Department of Mathematics, JVM's Mehta Degree College, Airoli, Navi Mumbai.*
[6*]*Department of Physics, Changu Kana Thakur Arts, Commerce and Science College, New Panvel, Navi Mumbai.*

***Corresponding Author:** S. S. Kamble*
**Department of Physics, Changu Kana Thakur Arts, Commerce and Science College New Panvel, Navi Mumbai, 410206, India. (satyajitkamble2@gmail.com)*

Abstract

This study addresses the critical role of public sentiment in shaping energy portfolios and policies, with a focus on the often-neglected grassroots perspectives in developing nations. Conducted in Panvel, the research surveyed 1000 respondents from urban and rural areas, revealing strong approval (73%) for renewable energy technologies and a widespread belief (91%) in their potential to reduce electricity costs. Emphasizing the need for a more inclusive energy policy approach, the study highlights a high level of awareness (69.5%) among Panvel residents. The findings underscore the importance of understanding public attitudes to inform effective and democratic energy policy formulation, shedding light on the significance of a holistic approach that considers both urban and rural perspectives.

Keywords: Renewable energy, Awareness, Acceptance

1. Introduction:

Many countries are under pressure to examine their energy portfolios in search of dependable and cleaner sources of energy due to worries about climate change and rising energy demand [1]. Global citizens must alter their patterns of energy consumption and promote the development of renewable energy sources in order to combat the harmful effects of climate change. Citizens play an active role in the formation and feasibility of energy policy and market development; therefore, both techniques necessitate public participation. As a result, public perception of various energy sources is crucial for future energy portfolio planning [2]. As major stakeholders, the public has the ability to influence decision-making at both the national and local levels. Public opinion can help overcome issues caused by the unequal distribution of advantages and liabilities that are frequently linked with energy growth. As a result, it is of the utmost importance to develop and harness public knowledge about energy challenges [3]. Global studies have been undertaken to determine the level of public awareness, acceptance, and attitude towards various types of energy technologies [4-9]. Due to the growth of cultures where scientific knowledge is more widely available to the general public, public acceptance issues

are becoming more relevant. Additionally, as the majority of cutting-edge sustainable energy technologies are supported by public funds, their viewpoint is still crucial for the effective implementation of energy development [10]. Increased social acceptance and better consumer energy behaviour can result from increased public understanding of renewable energy sources [11]. According to Assali et al., there is a significant correlation between the use of renewable energy sources and public perception, policy design, and market analysis [12]. Studies on public perception and awareness of energy-related issues frequently help stakeholders and policymakers pursue effective measures to address public concerns. However, studies focusing on the relationships between awareness, acceptability, and attitudes are scarce, particularly in developing countries [13-14]. To achieve the aims of access to clean and inexpensive energy, it is necessary to perform survey analyses to help obtain information on awareness, acceptance, and attitudes towards these technologies. This research represents one of the initial efforts to examine the recognition, approval, and perspectives regarding renewable energy in Panvel, alongside an exploration of various socio-demographic factors.

2. Methodology:

2.1 Survey Design

The survey comprised three sections. In the initial segment, there was a concise overview of the survey, background details on renewable energy, and government policies aimed at promoting renewable energy, providing respondents with a clear understanding of the survey's objective. The second part included queries gauging the respondent's awareness, acceptance, and attitudes toward renewable energy. The final section gathered socioeconomic details about the respondent, encompassing gender, age, education, household income, household size, and access to electricity. In this questionnaire, participants responded to three questions regarding their awareness, acceptance of renewable energy, and their attitudes toward renewable energy. The variable under scrutiny (Attitude) was evaluated through a questionnaire utilizing a five-point Likert scale, categorizing respondents' attitudes as very negative, negative, neutral, positive, and very positive. To enhance analytical clarity, we aggregated the rankings into three primary outcome categories (negative, neutral, and positive) since certain options had limited respondent representation. Awareness was divided into two classifications, with a scaling from 1 to 6. Any scores falling below 3 were designated as "Not Aware," while scores surpassing 3 were categorized as "Aware."

2.2 Sampling and data collection framework

In this research, we employed the random stratified sampling method, which arranges the sample in hierarchical geographic units within Panvel to achieve national representativeness. To ensure the random distribution of sample selection across significant population sub-groups, it was essential to consider administrative regions, such as Wards, as domains of interest. The survey was administered in person due to limitations in mail, telephone, and internet infrastructure, particularly in rural and peri-urban settlements. Data collection utilized the Kobo Collect mobile application for surveys, which automatically documented responses in a Microsoft Excel spreadsheet.

3. Results and Discussion

3.1 Socio-Demographic Characteristics.

Over the course of a month starting in August 2023, a sum of 1000 face-to-face interviews were carried out. Following the exclusion of incomplete and conflicting responses, 1000 valid responses (94.11%) remained for subsequent analysis. At a significance level of 5%, there was evidence supporting the rejection of the null hypothesis regarding the equality of means for just one socio-demographic variable. Specifically, the annual household income in the sample was significantly higher compared to the general population. However, in the remaining seven socio-demographic characteristics, no statistically significant differences were observed, affirming the representativeness of our sample relative to the population.

3.2 Survey answers pertaining to the recognition and approval of renewable energy.

Survey respondents were queried about their awareness and endorsement of renewable energy. The initial question focused on the participants' familiarity with specific terms linked to the renewable energy discourse. These terms encompass general concepts such as renewable energy, global warming, climate change, sustainable development, and carbon emissions. As per the survey findings, among Panvel respondents, the term "climate change" exhibited the highest awareness, with 92.5% indicating familiarity. This awareness was reported by 89% of respondents from rural areas and 96% from urban areas. Conversely, the term with the

lowest awareness among Panvel respondents was "sustainable development," with 51.5% indicating awareness. This awareness was reported by 41% of respondents from rural areas and 62% from urban areas, as illustrated in Figure 1. The mean awareness across all terms revealed that urban areas exhibited higher awareness levels (78%) compared to rural areas (61%). This difference can be partially ascribed to increased exposure to renewable energy technologies, higher levels of education, access to electricity, and exposure to a variety of media sources. In this context, the second inquiry centered on determining through which media channels respondents acquired knowledge or heard about terms related to renewable energy (Figure 2).

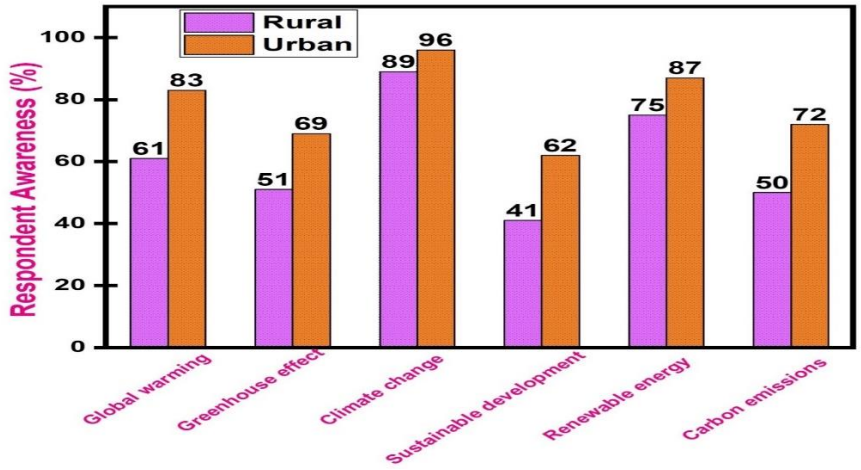

Fig. 1 awareness report

Based on our survey findings, respondents acquired information about terms related to renewable energy from various sources, including radio (68.5%), newspapers (62.5%), word of mouth (57%), television (58%), and the internet (45%) (Figure 2). Urban respondents exhibited distinct patterns compared to their rural counterparts, as they primarily heard these terms from television, followed by newspapers and the internet. Among rural respondents, the predominant source of awareness regarding renewable energy was radio, followed by word of mouth and newspapers. In contrast, television and the internet were less commonly utilized. This tendency can be attributed to the fact that a significant portion of rural respondents lacks access to electricity (73%), and many households do not possess typical electrical devices like televisions and computers. Consequently, individuals residing in rural areas primarily depend on radio and word of mouth as their main sources of information on renewable energy. The radio network extends to remote regions of the district, whereas television channels are predominantly limited to urban areas. Consequently, owning a television may not be as effective as a media source in rural areas.

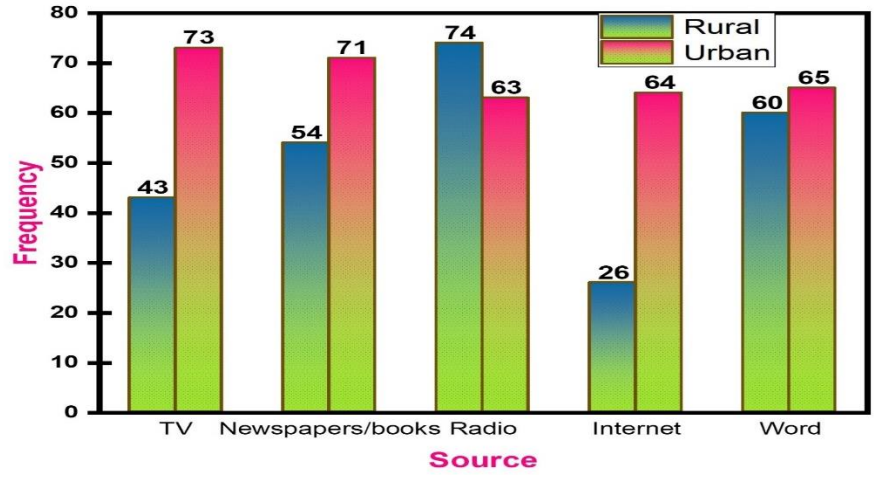

Fig. 2 Sources of awareness

In the third question, participants were inquired about their endorsement of renewable energy in their locality, aiming to gauge their acceptance of such energy sources. The prominent discovery was that 73% of respondents express strong approval for the advancement of renewable energy in their area, followed by 21% with slight approval, 4% neutral opinions, 2% slight resistance, and 0% strong resistance. The endorsement

can be ascribed to the widespread recognition of the environmentally friendly nature of these technologies. Additionally, when comparing the approval levels between urban and rural residents, it was found that 76% of rural residents strongly approved the development of renewable energy in their area, whereas urban residents showed a slightly lower rate at 67%.

4. Conclusion

In conclusion, our comprehensive survey in Panvel, encompassing responses from 1000 households, provides valuable insights into the acceptance, awareness, and attitudes of residents towards renewable energy. This pioneering study not only highlights the widespread awareness of renewable energy-related terms across diverse demographics but also identifies distinct information sources for rural and urban populations. Notably, both urban and rural respondents express robust approval (73%) for the advancement of renewable energy and share the optimistic belief that its adoption will lead to a reduction in electricity costs. The findings underscore the importance of tailoring communication strategies to different media preferences in diverse settings. Importantly, the study emphasizes the need to integrate public sentiments into the formulation of cohesive energy policies that safeguard environmental, social, and economic interests. Overall, this research serves as a foundational contribution to the understanding of public perspectives on renewable energy in Panvel and provides a template for similar studies in other regions.

References

1. Visschers V., Siegrist M., Find the differences and the similarities: Relating perceived benefits, perceived costs and protected values to acceptance of five energy technologies. J Environ Psychol. **2014**; 40:117-130. https://doi.org/10.1016/j.jenvp.2014.05.007
2. Keramitsoglou K., Exploring adolescents' knowledge, perceptions and attitudes towards Renewable Energy Sources: A colour choice approach. Renew. Sust. Energ. Rev. **2016**; 59:1159-1169. https://doi.org/10.1016/j.rser.2015.12.047
3. Bergmann A., Hanley N., Wright R., Valuing the attributes of renewable energy investments. Energy Policy. **2006**; 34:1004-1014. https://doi.org/10.1016/j.enpol.2004.08.035
4. Çelikler D., Awareness about renewable energy of pre-service science teachers in Turkey. Renew. Energ. **2013**; 60: 343-348. https://doi.org/10.1016/j.renene.2013.05.034
5. Moula M., Maula J., Hamdy M., Fang T., Jung N., Lahdelma R., Researching social acceptability of renewable energy technologies in Finland. Int. J. Sustain. Built Environ. **2013**; 2:89-98. https://doi.org/10.1016/j.ijsbe.2013.10.001
6. Zoellner J., Schweizer-Ries P., Wemheuer C., Public acceptance of renewable energies: Results from case studies in Germany. Energy Policy. **2008**; 36:4136-4141. https://doi.org/10.1016/j.enpol.2008.06.026
7. Zyadin A., Puhakka A., Ahponen P., Cronberg T., Pelkonen P., School students' knowledge, perceptions, and attitudes toward renewable energy in Jordan. Renew. Energ. **2012**; 45:78-85. https://doi.org/10.1016/j.renene.2012.02.002
8. O'Keeffe L., A choice experiment survey analysis of public preferences for renewable energy in the United States. Environ Resour Econ (Dordr). **2014**; 1:107.
9. Karatepe Y., Neşe S., Keçebaş A., Yumurtacı M., The levels of awareness about the renewable energy sources of university students in Turkey. Renew. Energ. **2012**; 44:174-179. https://doi.org/10.1016/j.renene.2012.01.099
10. Rijnsoever F., Farla J., Identifying and explaining public preferences for the attributes of energy technologies. Renew. Sust. Energ. Rev. **2014**; 31:71-82. https://doi.org/10.1016/j.rser.2013.11.048
11. Karytsas S., Theodoropoulou H., Socioeconomic and demographic factors that influence publics' awareness on the different forms of renewable energy sources. Renew. Energ. **2014**; 71:480-485. https://doi.org/10.1016/j.renene.2014.05.059
12. Assali A., Khatib T., Najjar A., Renewable energy awareness among future generation of Palestine. Renew. Energ. **2019**; 136:254-263. https://doi.org/10.1016/j.renene.2019.01.007
13. Dingding C., Cheng C., Urpelainen J., Support for renewable energy in China: A survey experiment with internet users. J. Clean. Prod. **2016**; 112:3750-3758. https://doi.org/10.1016/j.jclepro.2015.08.109
14. Ediger V., Kirkil G., Çelebi E., Ucal M., Kentmen-Çin C., Turkish public preferences for energy. Energy Policy. **2018**; 120:492-502. https://doi.org/10.1016/j.enpol.2018.05.043