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Research Topic:

Commonfolks' Attitudes Toward Renewable Energy Adoption in Dhaka and Thakurgaon: A Convergent Parallel Design Approach

Introduction:

Sustaining Renewable Energy (RE) is the 7th vision of Sustainable Development Goals (SDG), yet its acceptability varies across different socio-economic and demographic groups, especially in developing countries like Bangladesh. The difference is extensive when we compare the most developed urban areas like Dhaka with underdeveloped rural regions such as Thakurgaon. The common folks are targeted for the research because they represent diverse socio-economic groups who will ultimately be the end-users of RE. The study looks forward to exploring the attitudes of 1,100 people in these two contrasting areas on how demographic, socio-economic and cultural factors influence their willingness to adopt RE solutions. The keywords of the proposal are 'Renewable Energy', 'adoption', 'socio-economy', 'demography' etc.

Using a convergent parallel design, with the combination of both quantitative surveys and qualitative interviews, the study will provide a comprehensive understanding of different groups of people and their attitudes towards RE. The research looks to answer the following questions:

1) What factors motivate or discourage common folks in adopting RE in two socio-economically and demographically different areas like Dhaka and Thakurgaon?
2) How do government policies or incentives influence the willingness of common folks in Dhaka and Tahurgaon to adopt RE?

Literature Review:

Renewable Energy (RE) attitudes in Bangladesh are influenced by regional and socioeconomic factors, with significant disparities observed between urban and rural areas. In Dhaka, residents hold more positive attitudes for better awareness and availability of renewable benefits, which make RE usage more feasible [1]. Conversely, in rural areas like Thakurgaon, residents view RE with caution due to financial limitations, prioritizing their daily costs over long-term benefits [2]. Research on other regions in Bangladesh similarly finds that socio-economic constraints significantly affect the attitudes towards RE [3]. On top of that, the Bangladeshi Government targets to generate 4,100 MW (Mega Watt) from renewable sources by 2030, including solar, hydropower and wind energy [4].

Despite government efforts to familiarize RE, particularly in rural Bangladesh, there is a notable lack of research focusing on the attitudes and reactions of common folks towards RE in two socio-economically diverse areas. Besides, previous studies on RE attitudes in Bangladesh rely mostly on quantitative survey methods which overlook personal motivations and socio-cultural nuance influencing attitudes. These studies narrowly focus on either urban or rural populations without comparative analysis and lack mixed methods to explore attitudes in depth [1][2]. The study aims to address these gaps by examining the barriers and motivation factors for using RE in Dhaka and Thakurgaon through the convergent parallel design, a mixture of both qualitative and quantitative approaches. Taking regional differences into account, the research aims to identify practical strategies observed in urban areas that will also support increased RE adoption in rural contexts.

Methodology:

Quantitative Method (*Likert-Scale Survey*): To assess the attitudes, awareness and adoption potential of Renewable Energy (RE) in Dhaka and Thakurgaon, a Likert-scale survey will be conducted to gather data on awareness of RE acceptability, predicted benefits, and social and

economic factors influencing RE adoption. The respondents will be asked to rate statements on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Statements:

- "I believe renewable energy is essential for reducing environmental harm."
- "I am aware of government incentives or subsidies for renewable energy use."
- "The financial cost of adopting renewable energy is too high for me."

Random sampling will be used to ensure a balanced combination of lower-income groups in both Dhaka and Thakurgaon, targeting 500 participants from each region to collect a range of attitudes. The survey data will be analysed using inferential statistics (*chi-square tests*) to compare differences between Dhaka and Thakurgaon respondents and identify statistically significant factors.

Qualitative Method (*Semi-Structured Interview***):** In addition to the survey, semi-structured interviews will be conducted to get to know the common folks' personal views on renewable energy in more depth. The qualitative approach will provide insights into the underlying motivations, barriers and socio-economic factors which affect RE adoption.

Interview Questions:

- "Why do/don't you use renewable energy ?"
- "Have you got any government incentives to set up renewable energy sources?"
- "What challenges do you face in adopting renewable energy in your household?"

Purposive sampling will be used to select 50 individuals from each region, ensuring diverse participation based on age, income, gender and education. Interview records will be scrutinized using thematic analysis to identify key themes, patterns, and insights that will explain the attitudes towards RE, and provide a better understanding of the influencing factors in RE adoption.

The results form the quantitative surveys and qualitative interviews will be merged to get a holistic view of attitudes towards RE adoption in Dhaka and Thakurgaon. In that case, survey data will show the level of awareness in each region, while interviews will uncover the role of government incentives and local perceptions in shaping those attitudes. The integrated approach will eventually give a comprehensive analysis of the driving factors of RE adoption in both urban and rural settings and will also address key issues faced by general people from underdeveloped backgrounds.

Practicalities: Below are the ins and outs of how the research will be implemented with its timeline, budgets and risk management.

Timeline

Phase	Timespan	Description
Preparation	1 Month	Manage research instruments like Likert-scale survey and semi-structured interview guides, processing the cultural and linguistic contexts of Dhaka and Thakurgaon.

Manpower Recruitment	15-20 Days	Recruit 2 field researchers in each region, 1 research assistant for data entry and organisation, and 1 supervisor per region and survey and interview volunteers from each region to better reach out to local people.
Literature Review	1 Month	Check what papers or journal articles related to the research topic are available within reach and take beginning knowledge on the execution and review process from the papers and keep them to cite in the paper for later.
Data Collection	3 Months	Conduct fieldwork in both Dhaka and Thakurgaon. They will be trained to ensure consistency.
Data Analysis	1 Months	Process quantitative data using statistical software and analyse interview data with thematic analysis.
Ethical Approval	10-15 Days	Collect individuals' or organisational permission to cite or use their names or works in the report.
Report Writing	1 Months	Draft the final report including data interpretations and recommendations.
	Total: 6-7 Months	

Budget List

Where to invest	**Need to Hire / Buy**	**Unit**	**Costs per Month / Unit (BDT)**	**Costs (BDT)**	**Total (BDT)**
Personnel	Field Researchers	4	20,000	80,000	1,25,000
	Research Assistant	1	15,000	15,000	
	Superviser	1	30,000	30,000	
Data Collection Materials	Printing and Supplies	500	10	5,000	20,000
	Interview Recorder	2	5,000	10,000	
	Transcription Costs	50	100	5,000	
Participants Incentives	Survey Participants	500	50	25,000	30,000

	Interview Participants	50	100	5,000	
Travel and Transportation	Within Dhaka	–	–	5,000	20,000
	To and Within Thakurgain	–	–	15,000	
Data Analysis Software and Equipment	SPSS License	1	7,000	7,000	27,000
	NVivo Lincence	1	10,000	10,000	
	Laptop Rentals	2	5,000	10,000	
Food and Miscellaneous	Foods	–	–	5,000	10,000
	Miscellaneous	–	–	5,000	
					Total: 2,32,000 Taka

Risk Management

Risk	Impact	Likelihood	Mitigation Strategy
Incomplete or Biased Responses	High	Medium	Ensure anonymity and conduct a pilot test.
Delays in Approval Process	High	Medium	Submit easily, allow time for revisions and proofread papers before submitting.
Data Entry Errors	Medium	Low	Double-check data entries and use error-checking software.
Low Participants Engagement	High	Medium	Offer incentives and build good relations with the participants.
Travel and Accessibility issues	High	High	Schedule extra travel days and work with local people for logistics.
Equipment Failure	Low	Low	Carry backup devices and regularly back up data.

Conclusion: With the aim to provide insights for improved methods to fulfil the seventh SDG goal, this research aims to precisely explore how demographic, socioeconomic, and cultural distinctions share RE attitudes within two backgrounds of privileged and marginalized people in Bangladesh. It is anticipated that the study's conclusions will explain regional differences in RE awareness and acceptance, highlighting the effects of community perspectives, monetary limitations, and local government incentives on public opinion. In spite of supporting sustainable energy initiatives in Bangladesh, the study's focus on the urban-rural split provides insightful information for developing areas with similar socioeconomic disparities.

References:

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[3]M. Masukujjaman, S. S. Alam, C. Siwar, and S. A. Halim, “Purchase intention of renewable energy technology in rural areas in Bangladesh: Empirical evidence,” *Renewable Energy*, vol. 170, pp. 639–651, Jun. 2021, doi: https://doi.org/10.1016/j.renene.2021.01.125.

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