



CRITICAL GAPS IN AWARENESS & PRACTICES FOR ECO-FRIENDLY DIWALI CELEBRATIONS: A CALL FOR COMPREHENSIVE INITIATIVES

A study on People's
Perception of
Green Crackers by
SwitchON Foundation

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ABSTRACT

This report delves into challenges surrounding eco-friendly Diwali celebrations, specifically focusing on green crackers. Despite regulatory efforts and innovations by CSIR-NEERI, traditional firecrackers persist, indicating a significant lack of public awareness. The SwitchON Foundation's study in Kolkata, Ranchi, and Bhubaneswar reveals insights emphasizing deficiencies in understanding green cracker identification, regulations against traditional firecrackers, and the optimal timings for bursting crackers.

Respondents expressed concerns about the affordability of premium-priced green crackers. Recommendations include simplifying identification, intensifying awareness campaigns, strategic market placement, and ensuring competitive pricing. The conclusion emphasizes the urgent need for enhanced public education, stringent regulations, and accessible eco-friendly alternatives for sustainable and mindful festive celebrations.

KEYWORDS

Diwali, Green crackers, Air pollution, CSIR-NEERI, SwitchON Foundation, Public awareness, Regulatory measures, Eco-friendly practices, Festive celebrations, Sustainable alternatives



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INTRODUCTION

Diwali, a widely celebrated Hindu festival globally, witnesses vibrant traditions of home decoration, rangoli art, and the longstanding practice of bursting firecrackers. However, the associated air pollution, particularly during the onset of winter, poses a significant threat to millions. Despite regulatory efforts and the introduction of eco-friendly "**green crackers**" by CSIR-NEERI, public awareness remains a critical concern, evident in the continued enthusiasm for traditional firecrackers during Diwali. The Central Pollution Control Board's standards aim to reduce particulate matter, sulfur dioxide, and nitrogen dioxide emissions by 30%, 20%, and an additional 10%, respectively, compared to conventional fireworks.

SwitchON Foundation, an influential NGO focusing on environmental initiatives in eastern India, conducted a study to gauge public perceptions of a green Diwali. This paper revolves around the insights derived from their research, shedding light on the challenges and opportunities in promoting environment-friendly fireworks alternatives.

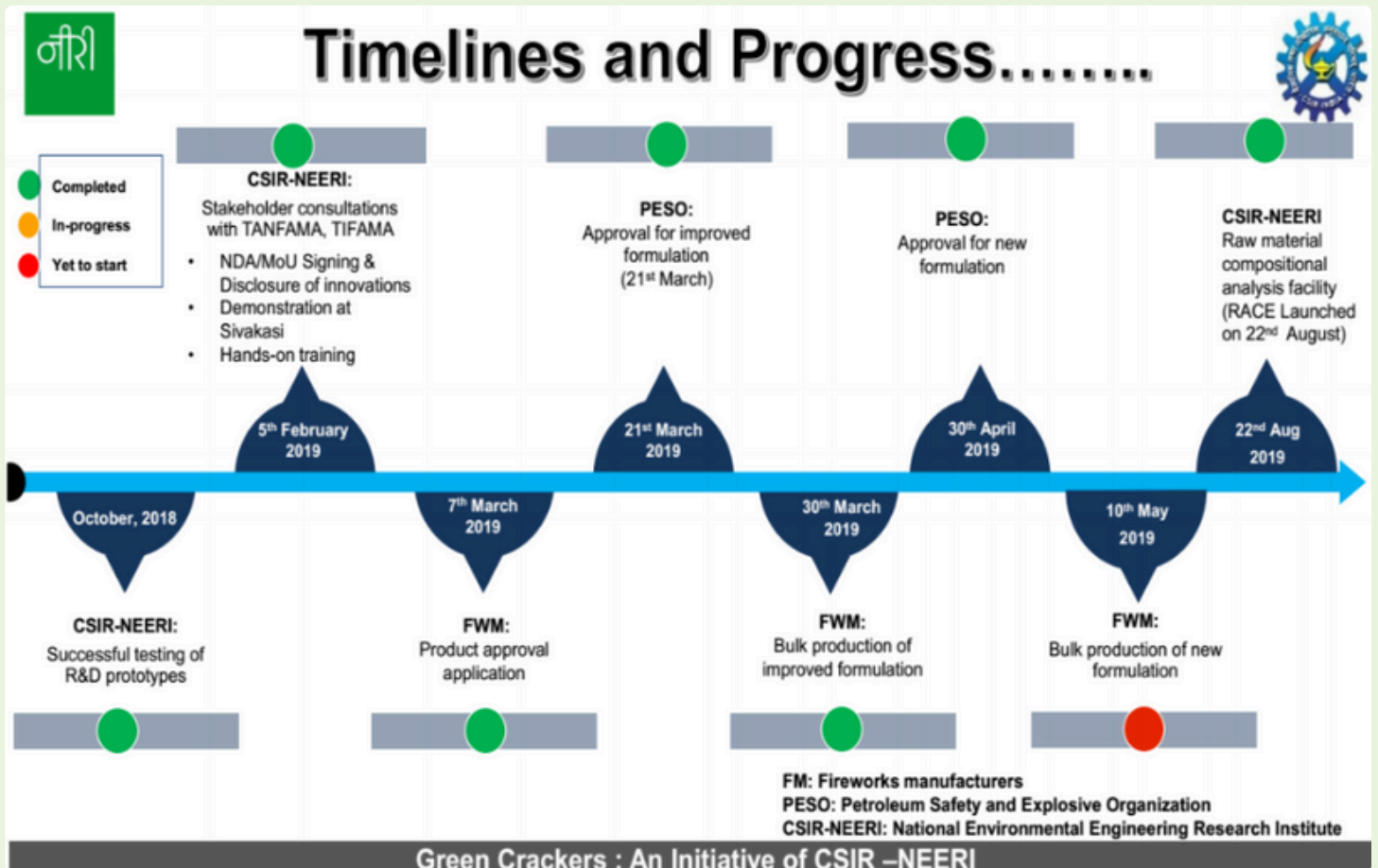


Image 1: Timeline and progress of green cracker Source: CSIR-NEERI Source: CSIR-NEERI

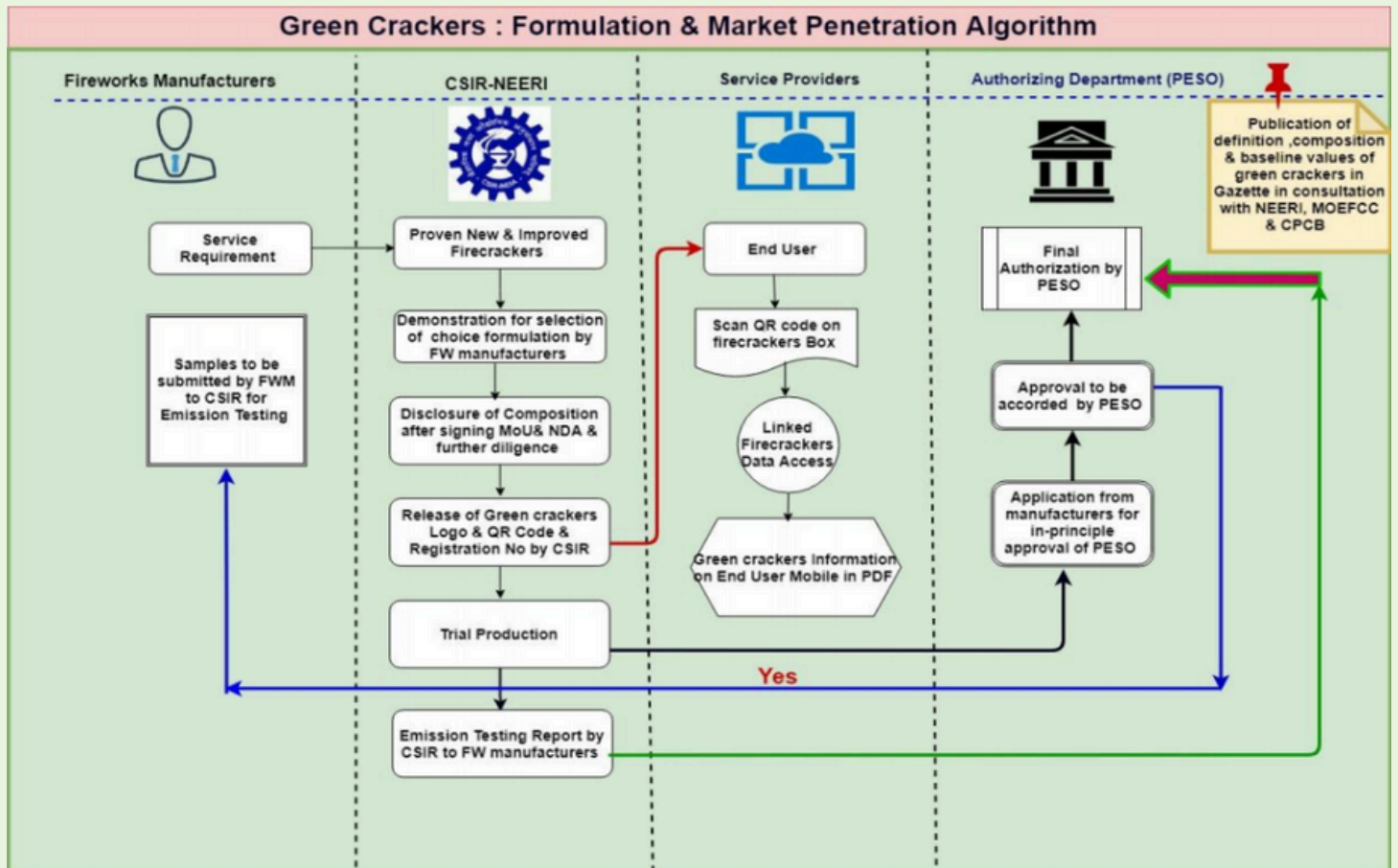


Image 2: Formulation & Market Penetration Algorithm of Green Cracker Source: [CSIR-NEERI](#)

OBJECTIVES

This study endeavours to explore public awareness regarding an eco-friendly Diwali. The set objectives include gauging people’s knowledge about the existence of green crackers, understanding their preferences for purchasing environment-friendly alternatives, and assessing their awareness of optimal timings for bursting crackers. The focus is on gaining insights into the extent of public understanding concerning eco-friendly practices during Diwali, with a specific emphasis on the awareness and choices related to green crackers and the timing of their usage.

METHODOLOGY

In pursuit of these objectives, a questionnaire-driven survey was implemented in the Bazi markets of Kolkata, Ranchi, and Bhubaneswar. A total of 567 individuals were randomly surveyed using the questionnaire to gather insights into their perspectives on firecracker purchases. Surveyors affiliated with the SwitchON Foundation network conducted the survey from November 7th to November 9th, aligning with the period when firecracker markets were bustling with activity in anticipation of pre-Kali Puja and Diwali celebrations. The survey aimed to capture the opinions of individuals visiting these markets to purchase firecrackers, shedding light on their preferences and awareness regarding eco-friendly Diwali practices.

Place	Total number of respondents	Male Respondents	Female Respondents
Kolkata	296	185	111
Ranchi	160	127	33
Bhubaneswar	111	94	17

FINDINGS

1. Awareness of Identification of Green Crackers

Green crackers are distinguishable by specific features such as the CSIR-NEERI Logo and a QR Code. These distinctive elements set environmentally friendly green crackers apart from their traditional counterparts in the market. Nevertheless, the survey findings indicate a lack of awareness among the residents of these cities regarding the identification marks associated with green crackers. The study highlights a gap in knowledge among citizens concerning the unique identifiers that differentiate eco-friendly alternatives, emphasizing the need for increased awareness and education on these crucial distinctions.

Awareness of Green Cracker Identification

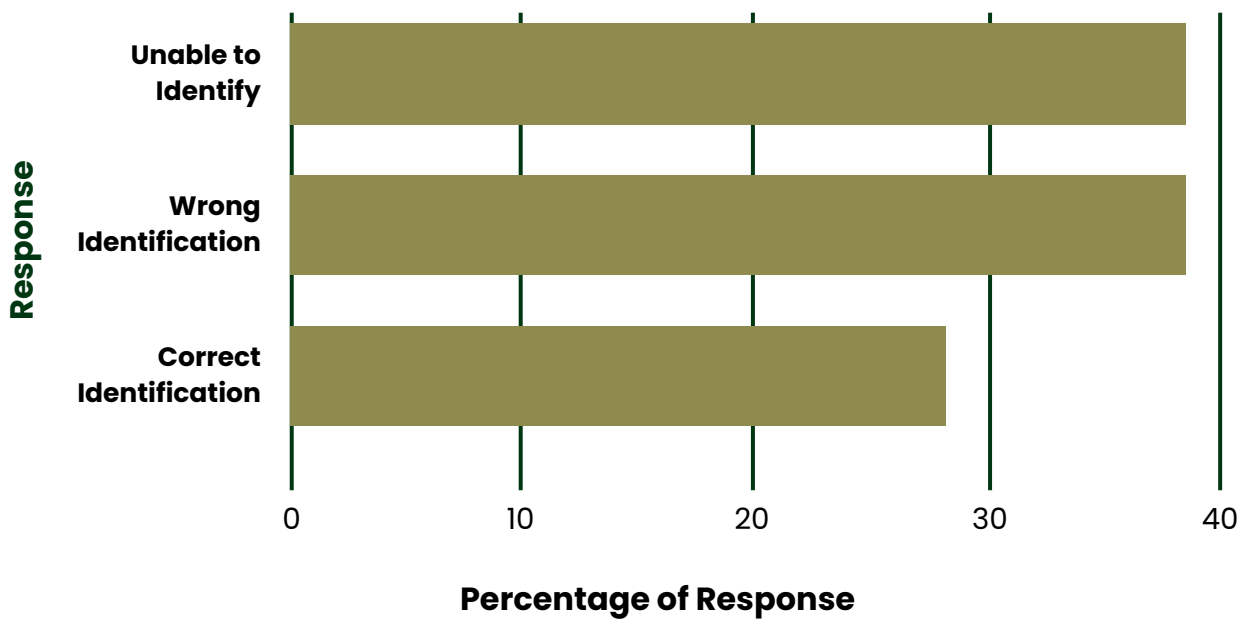


Figure 1: People’s awareness of Green Crackers Identification in Kolkata

Awareness of Green Cracker Identification

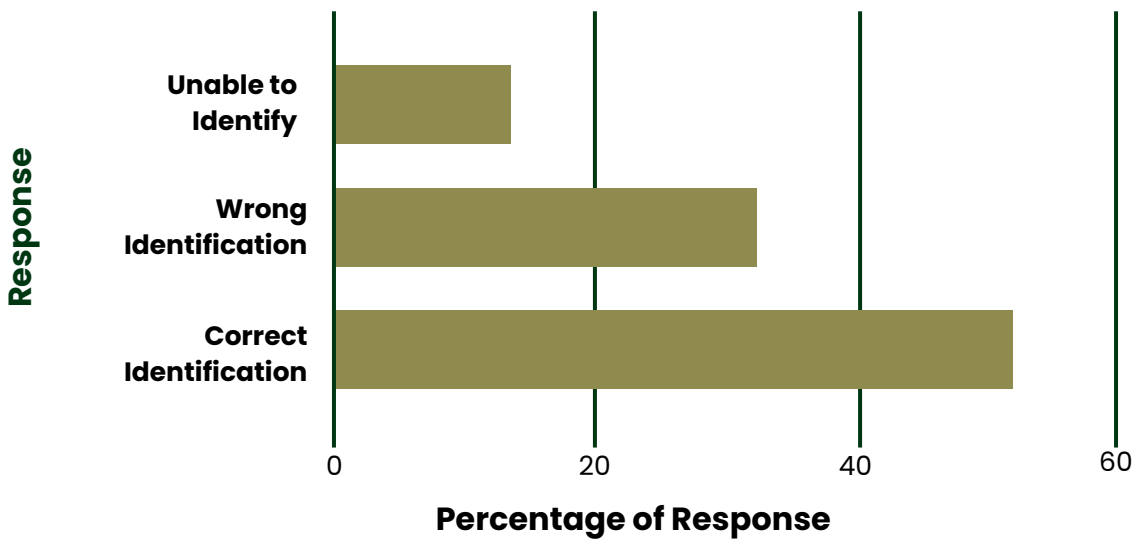


Figure 2: Awareness of Green Cracker Identification in Ranchi

Awareness of green cracker identification Estimation

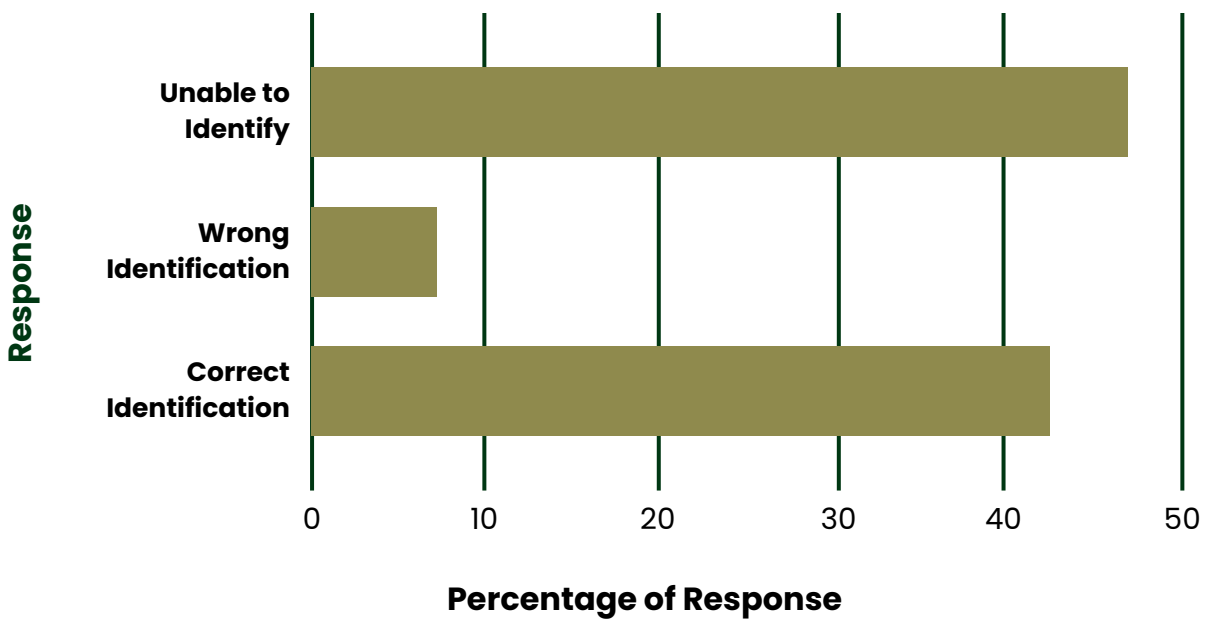


Figure 3: Awareness of Green Cracker Identification in Bhubaneswar

In Kolkata, 77% of respondents exhibited uncertainty in opting for green crackers, with 39% unable to recognize them and 38% misunderstanding identification methods (Figure 1). Ranchi, on the other hand, witnessed 53% correctly identifying green crackers through the CSIR-NEERI logo and QR Code, while 47% faced uncertainty due to lack of recognition (14%) or misconceptions (33%) (Figure 2). In Bhubaneswar, 54% expressed uncertainty, primarily from an inability to recognize (47%) or misunderstanding identification methods (7%), while 42% correctly identified and intended to purchase green crackers (Figure 3).

2. Awareness of the ban on Traditional Firecrackers

Across the entire Indian subcontinent, the legal prohibition of traditional firecrackers is in effect, with several state administrations imposing penalties for violations. Exclusive permission is granted for the use of green crackers, formulated by NEERI, within specified timeframes. However, a substantial portion of the population remains uninformed about these regulatory measures, encompassing both the ban on traditional firecrackers and the allowance for green crackers.

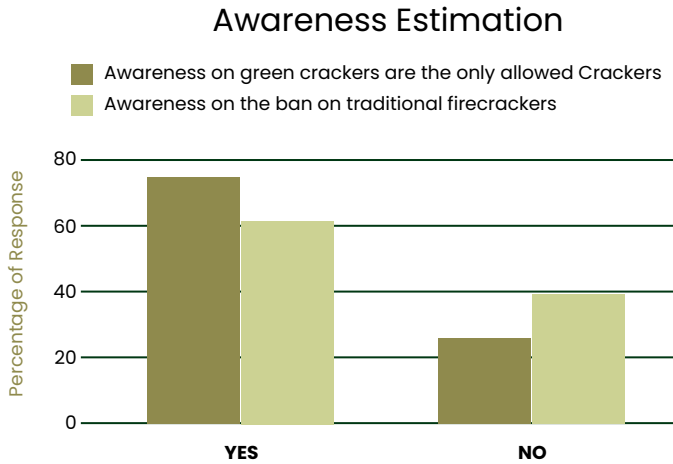


Figure 4: People’s awareness of the permission and Ban on Crackers in Kolkata

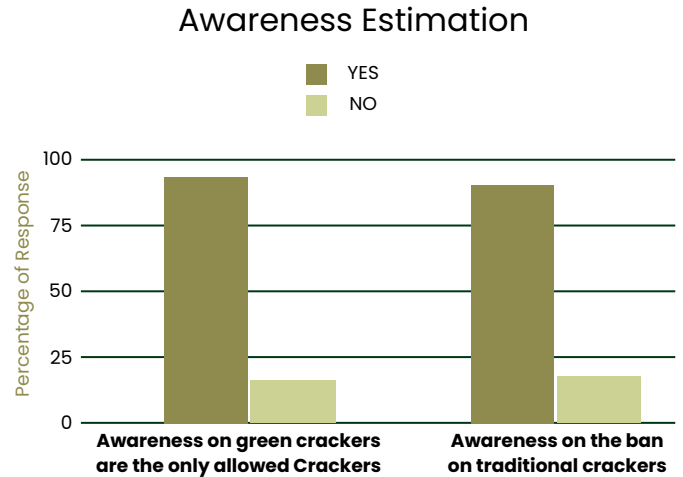


Figure 5: Awareness estimation of the ban and permission of Crackers in Ranchi

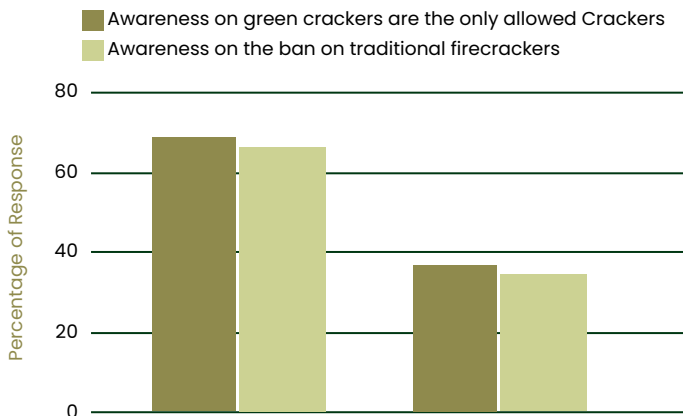
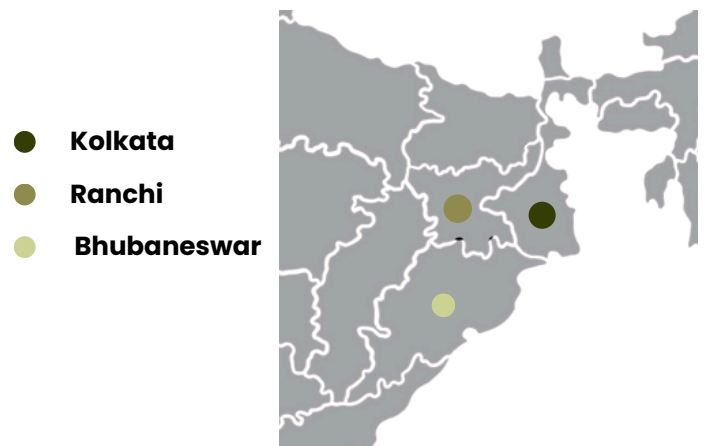


Figure 6: People’s awareness of the permission and ban on crackers in Bhubaneswar



In Kolkata, 75% of participants demonstrated a clear understanding that green crackers are the sole permitted fireworks in the state. Awareness levels were moderate at 61% for the ban on traditional crackers and high at 74% for the allowance of only green crackers (Figure 4). Conversely, in Ranchi, a high level of awareness prevailed regarding the ban on traditional crackers, with 84% acknowledging the prohibition, and only 14% unaware that only green crackers are allowed (Figure 5). In Bhubaneswar, 68% grasped that only green crackers are permitted (Figure 6), accompanied by moderate awareness at 66% for the ban on traditional crackers and 68% for permission to use green crackers.

3. Possibility of buying premium-priced green crackers

People of various ages, genders, and economic backgrounds engage in bursting crackers, making the pricing of these items a significant consideration. Notably, it has been observed that green crackers are occasionally priced higher than traditional ones. This pricing disparity emerges as a notable factor affecting the potential purchase of crackers, a concern evident in the research findings. The results unmistakably indicate a shared apprehension among citizens regarding the affordability of crackers, particularly in light of the varying prices between green and traditional varieties.

Possibility of buying greencrackers if those are expensive than traditioanl crackers

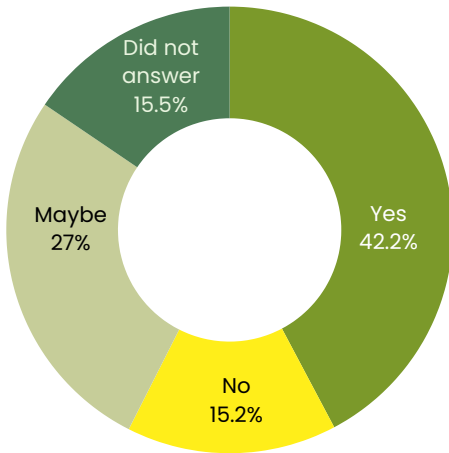


Figure 7: People’s Opinion on premium-priced green crackers in Kolkata

Possibility of buying greencrackers if those are expensive than traditioanl crackers

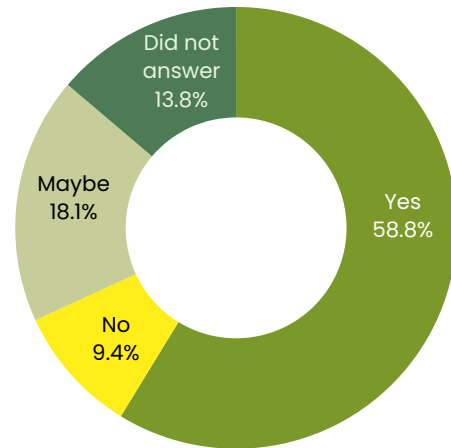
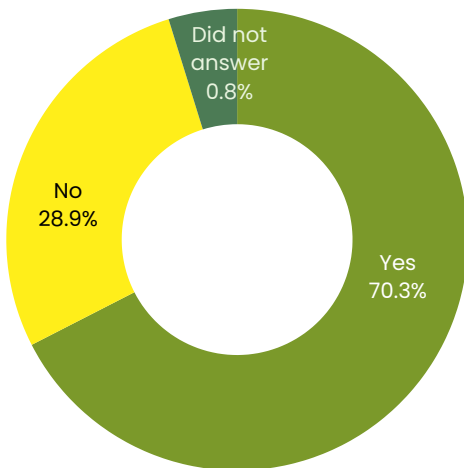


Figure 8: People’s Opinion on premium-priced green crackers in Ranchi



Possibility of buying greencrackers if those are expensive than traditioanl crackers

Figure 9: People’s Opinion on premium-priced green crackers in Bhubaneswar

In Kolkata, only 42% indicated a potential willingness to purchase green crackers at premium prices, with 15% declining immediate purchases of highly-priced crackers. An additional 27% remained uncertain about their purchase decision, while 16% refrained from answering this specific question (Figure 7). In Ranchi, when queried about the likelihood of choosing premium-priced green crackers over traditional ones, over 58% expressed intent to opt for the higher-priced option. Meanwhile, 18% were undecided, 14% refrained from responding, and 9% unequivocally stated they would not choose costly green crackers (Figure 8). Conversely, in Bhubaneswar, 70.3% expressed a potential willingness to buy green crackers at premium prices, while 29% rejected immediate purchases of highly-priced crackers (Figure 9).

4. Awareness of the timing of Bursting Crackers

The government does not oppose the act of bursting crackers; instead, it advocates for reduced pollution to create a habitable environment for everyone. Consequently, specific timings have been established for the detonation of green crackers on various occasions. For Diwali, the designated timeframe is between 8 pm and 10 pm. However, the research findings indicate that residents of these urban areas are not well-informed about these timings.

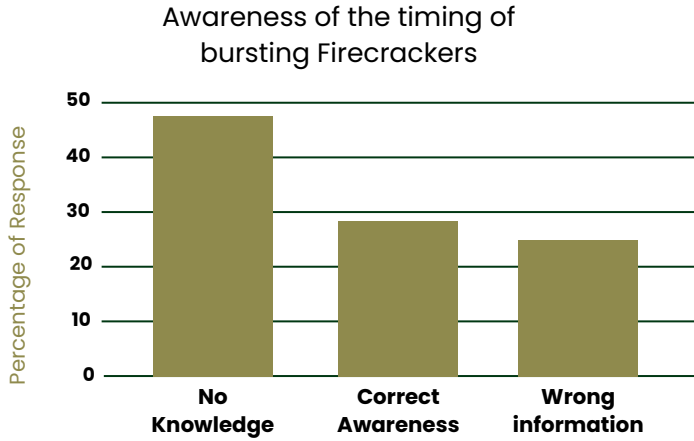


Figure 10: People’s awareness of the timing of bursting crackers in Kolkata

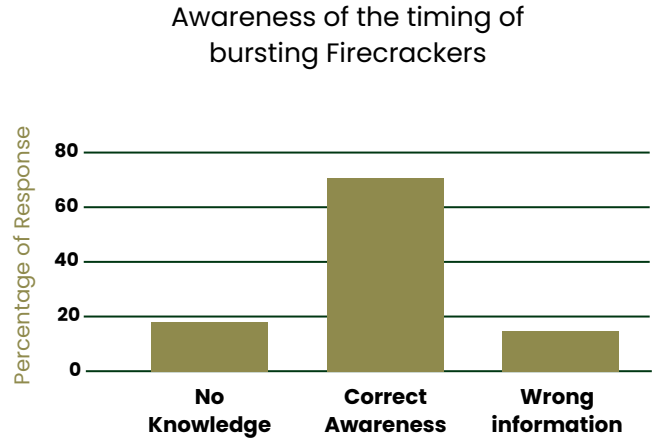


Figure 11: People’s awareness of the timing of bursting crackers in Ranchi

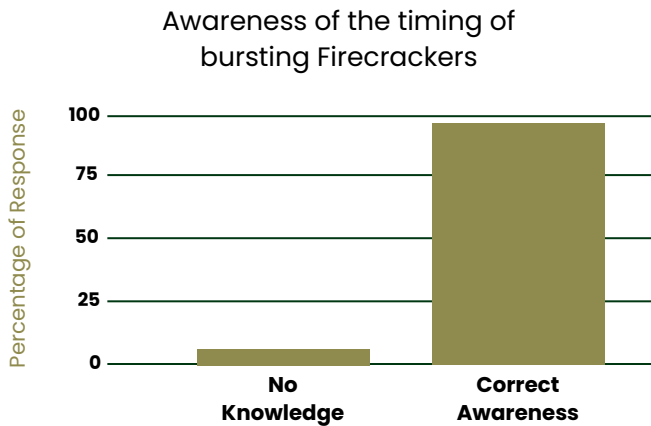


Figure 12: People’s awareness of the timing of bursting crackers

In Kolkata, only 28% of respondents possess accurate knowledge of the designated timings for green crackers (8 pm to 10 pm), while the remaining 72% are either unaware of such timings or were not adequately informed and attempted to make uninformed guesses (Figure 10). Conversely, in Ranchi, 69% of respondents were well-informed about the legal time frame for bursting green crackers (Figure 11). In Bhubaneswar, a substantial 96% of respondents accurately knew the timings, with the remaining 4% lacking awareness or relying on uninformed guesses (Figure 12).

5. Best Case Scenario

Based on all the parameters being countered to the people, a best-case scenario evolved wherein only 11% of the survey population attained perfect response; with a gender distribution of male: female of 8% and 3% respectively. The study elucidates this small group of Calcuttans who are aware of the permission of green crackers, the ban on traditional firecrackers, and proper identification of green crackers as well as the right time to burst green crackers in the city. Additionally, they will opt for green crackers even if those are premium-priced.

Whereas Ranchi presented a best-case scenario, with 41% of respondents, primarily male, exhibiting awareness of green cracker permissions, traditional firecracker bans, correct identification, and appropriate timing. In Bhubaneswar, a mere 16% achieved a perfect response, including 18% males and 1% females, showcasing awareness of green cracker permissions, traditional firecracker bans, identification, and a willingness to choose premium-priced green crackers.

RECOMMENDATIONS

- The identification process of the green crackers needs to be easier and more unique so that people can recognize a green cracker only by looking into it. More awareness drives on the identification marks of green crackers may help with this concern. Vigorous miking on the legal time duration of bursting green crackers needs to be done so that households are aware of the same.
- Setting up more green cracker markets , especially in the open places near the localities will make people buy those crackers instead of relying on back door means to buy illegal fireworks.
- Market availability of green crackers and traditional firecrackers needs to be reversed very aggressively so that people have no other choice left if they want to burst crackers.
- At the same time, pricing needs to be within limit , so that people can afford them. Furthermore, unless the black marketing of traditional crackers stops completely, it will not be possible to obtain the goal of a clean environment and several people will have to suffer from prolonged cardiovascular disease for a single-day celebration!

Speaking from an overall perspective, Calcuttans may know completely or partially about the ban, the timings and the mandate with green crackers, but the Diwali celebrations will remain compromised one way or the other unless 100% of the citizens either switch to the use of only certified **GREEN CRACKERS** or **find some miraculous solace in celebrating Diwali with complete abstinence from firecrackers of any type.**

CONCLUSION

In conclusion, the study reveals a concerning lack of awareness among residents of Kolkata, Ranchi, and Bhubaneswar regarding eco-friendly Diwali practices, specifically related to the identification, regulatory measures, pricing, and timing of green crackers. To address this, enhanced awareness campaigns, simplified identification processes, and strict market regulations are recommended. Additionally, efforts should focus on making green crackers more accessible and competitively priced.

WAY FORWARD

A concerted effort is crucial to ensure a transition to eco-friendly celebrations and mitigate the environmental impact, emphasizing the need for comprehensive public education and regulatory enforcement. Only through widespread adherence to green practices can the true spirit of Diwali be sustained.

ANNEXURE

Survey Images in Kolkata Markets

Location	Image
Kalikapur Bazi Bazaar	
Behala Bazi Bazar	
Tala Park Bazi Bazar	

Survey Images in Ranchi Markets

Survey Images at Bhubaneswar Baji Market

Location	Image
Bhubaneswar	

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SwitchON Foundation, established in 2008, is a leading non-profit organisation focusing on Environment Sustainability and Equal Opportunities. Operating in 10 Indian states. It leads initiatives in Clean Energy Access, Sustainable Agriculture, Skilling, Clean Air and Sustainable Cities. Key strengths encompass innovative project implementation, capacity building, field support, awareness and advocacy.

