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Assessment of Public Opposition to Construction and Demolition Waste Facilities: A Case Study in Australia

Soheila Ghafoor [1], Salman Shooshtarian [2,*], Tayyab Maqsood [2] and Peter SP Wong [2]

[1] School of Architecture and Built Environment, Deakin University, Geelong 3220, Australia
[2] School of Property, Construction and Project Management, RMIT University, Melbourne 3000, Australia
* Correspondence: salman.shooshtarian@rmit.edu.au

Abstract: The purpose of this paper is to investigate the nature of public opposition (PO) to the siting of construction and demolition (C&D) waste management facilities in Australia. A qualitative case study of PO to the development proposal for the Gunnedah waste facility, in the state of New South Wales (NSW), was conducted. The waste facility is promised to process up to 250 kilotons of waste materials, much of which is C&D waste intended for use in road constructions after processing. Using a content analysis approach, the study analysed 86 public submissions that were lodged within the allocated development application exhibition period to systematically analyse the arguments used by the submitters about the establishment of the facility. The case study revealed five broad perceived risk classes to the siting of the Gunnedah waste facility, namely location, environmental, human health, financial and process risks. It was also shown that while not-in-my-back-yard (NIMBY) attitudes may have played a part in the PO to the sitting at the facility, the PO was heavily affected by the poor public participation process. The study outlines key strategies for an effective public participation process that may assist with the management of PO to the siting of C&D waste management facilities in Australia. The study contributes to the theory and practice of effective C&D waste management, enhancing the social acceptance of such facilities toward a more circular economy in the built environment.

Keywords: public opposition; waste facility siting; construction and demolition waste management; circular economy; case study; Australia

Citation: Ghafoor, S.; Shooshtarian, S.; Maqsood, T.; Wong, P.S. Assessment of Public Opposition to Construction and Demolition Waste Facilities: A Case Study in Australia. *Recycling* **2022**, *7*, 62. https://doi.org/10.3390/recycling7050062

Academic Editor: Elena Magaril

Received: 19 July 2022
Accepted: 22 August 2022
Published: 26 August 2022

1. Introduction

Infrastructure projects are complex in nature and attract public attention due to their significant effects on society, the economy and the environment. Public opposition (PO) presents a source of great uncertainty in the development of infrastructure projects [1]. PO has been reported to be one of the top limiting factors that hinder infrastructure projects worldwide [2]. Since the 1970s, a large body of academic literature has focused on understanding and predicting PO for a broad range of infrastructure projects [3]. PO has been investigated in the context of recycling and disposal facilities [4–6], road and railway constructions [3,7,8], power and energy plants [1,9], water infrastructure [10], housing developments [11,12], aviation infrastructure [13], the oil and gas industry [14] and renewable power and energy [15].

PO is complex, and its scenario evolution path is diverse [16]. Although the PO is not clearly defined in the literature, it is assumed to be citizens' response and action that is sparked by the perception of negative local impacts and unjust concessionary processes [17]. Within the waste management context, the source of PO is often related to the not-in-my-back-yard (NIMBY) syndrome [18]. The NIMBY syndrome reflects the response of the individuals who perceive many risks in hosting a waste facility, such as potential environmental and health risks, noise, congestion, decreased property value and lessened self-image, and only a few direct benefits, such as job and tax revenues [19,20].

This line of argument highlights the disparity between general and local attitudes, as the latter would bear the negative consequences of constructing a new facility in the vicinity [2]. The perception of the risk, as opposed to the scientifically assessed risk, is described as the major motivating factor here [21], which can be influenced by features, such as individual characteristics (i.e., income, education level), the community's past experience and proximity to housing [22,23].

While PO to the siting of waste facilities may have social and psychological roots, as Petts [20] describes, *"it is primarily a practical manifestation of deeper problems"*. For example, it might be heavily affected by the loss of trust in industry and regulators, lack of communication or exclusion of the public in the decision-making process [20,24]. The examination of these areas has drawn attention to the role of the public participation process in the public acceptance of waste facilities. Previous studies indicate that effective public participation is more likely to be achieved through an open and democratic approach that acknowledges the democratic rights of the public and addresses issues of trust, transparency and fairness [4,25,26].

2. Literature Review

2.1. Background: C&D Waste and NIMBY Conflicts in Australia

In recent decades, the construction and demolition (C&D) waste stream has grown substantially due to massive urbanisation that comes with population growth, migration and expansion in the tertiary education industry. According to the latest data in the National Waste Report 2020 [27], Australia generated 27 million tonnes of C&D waste in 2018–2019. With a 61% increase since 2006–2007, this waste stream continues to be the largest source of waste generated in Australia, accounting for 44% of the total waste.

Considering the recent bans on the export of waste by different countries, there is a heightened need to 'reduce, reuse and recycle' domestically, particularly across the major waste resource streams, i.e., C&D waste [28,29]. These strategies, also included in the 'waste hierarchy', are central to the concept of the circular economy that aims to transfer the current linear economic model into one where waste and pollution are eliminated, materials are circulated and nature is regenerated [30]. The hierarchy of these strategies is defined based on the extent to which they retain the value of the resources [31,32]. For example, it is more resource efficient to reuse a serviceable brick than to break it down for recycling. Although diverting C&D waste from landfills to recycling facilities is the last resort in this hierarchy, it has become a theme in policy debate for its role in closing the material loops. By diverting the waste that would have otherwise ended up in landfills to recycling, Australia can not only avoid landfill-related consequences but also reduce stress on already rapidly depleting natural resources [33]. Though 76% of C&D waste is recycled in Australia, the recycling rates are far from optimum and must increase massively to counter negative effects [34]. As such, while planning for higher-order circular interventions, attention should be given to the siting of the C&D waste management facilities.

Despite the significant need for C&D waste management facilities, PO results in the disruption of the delivery of such facilities. In Australia, one of the first reports on the PO was presented by Robert L. Schonfeld [35], an Assistant Attorney General in New York State, who studied the Australian PO to residence development through a three-week visit to Australia in 1989, supported by the World Rehabilitation Fund. Following interviews with attorneys, town planners, advocates, scholars and state and local officials, he observed significant attitudinal and institutional differences in managing PO between the US and Australia. He discovered that American community residence developers have a greater legislative and constitutional power to exercise action against PO compared to the equivalent authorities in Australia.

Several other case studies of PO have been conducted in Australia (summarised in Table 1). For example, Hurlimann and Dolnicar [10] studied PO in the case of Toowoomba's referendum, the circumstances of which led to the failure of the proposed indirect potable wastewater reuse scheme. By analysing data collected from secondary sources, focus groups

and in-depth interviews, the authors argue NIMBY attitudes along with politics, timing, vested interests and information manipulation were influencing factors. They suggest the way the public participates in the decision-making process of such major projects should be re-examined. King and Murphy [25] studied PO to the siting of a desalination plant in Wonthaggi. Through a survey of 1515 residents of Victoria, in which 759 were located within a 20 km radius of the site, the authors conclude NIMBY attitudes in such POs are most likely motivated by justice perceptions. Although people who live close to the site are more likely to protest, implementing 'procedural justice' in the decision-making process through consultation, transparency and trust are more effective strategies for managing the PO than education or compensation. Anderson [36] studied PO to the construction of a wind farm in a town in western Victoria by interviewing the affected community, regulators and industry representatives. The research findings underline the importance of developing tailored public participation processes that match the dynamics of the community in which the project is situated for the effective management of such POs. In this respect, social network analysis (SNA) has proven to be a strong tool for the evaluation of a project's ability to deliver value to its stakeholders [37].

Table 1. Summary of Australian studies investigating POs to infrastructure projects.

Case Study	Location and Project Type	Reference
PO in the case of Toowoomba's referendum for a water augmentation solution.	Toowoomba, Water infrastructure	Hurlimann and Dolnicar [10]
PO to the building of a desalination plant.	Wonthaggi, Water infrastructure	King and Murphy [25]
PO to the construction of a wind farm.	Western Victoria, Energy infrastructure	Anderson [36]

Source: authors.

2.2. Research Gap, Aim and Objectives

There are still limited Australian case studies of PO towards infrastructure facilities, particularly C&D waste management facilities. This is even though development proposals for these facilities fail mainly because of PO. For example, in 2019, the local government called for a large C&D waste management facility, Kingston City Council (Victoria), to be shut down despite receiving funds from Sustainability Victoria to install additional equipment. The decision was perceived to be based on NIMBY conflicts [38]. The case study approach can assist in the understanding of the 'why' and 'how' aspects of such events and has been frequently used in the analysis of public policies and government interventions [39,40].

Similarly, in the broader literature, the PO to waste-to-energy incineration or hazardous waste facilities have been widely investigated through case studies [4,41,42] but to the best of our knowledge has not been studied in the case of C&D waste management facilities. This is particularly important as C&D waste management facilities present a different risk profile with minimum to manageable impact on the environment and health of residents, which have often been addressed as the main areas of concern in other POs [23]. Understanding the nature of POs to C&D waste management facilities may pave the way toward their public acceptance. The case study approach can help to understand such complex community-based problems through the stakeholders' perspective and within its real-life environment and provide great insight for managing similar events [43]. In light of the above, this study aims to investigate the POs to C&D waste management facilities in Australia through a case study research approach. The specific objectives of this study are:

1. To explore areas of concern about siting of C&D waste management facilities in Australia;
2. To understand the nature of POs to C&D waste management facilities in Australia.

The structure of the research is as follows. Section 3 describes the case study and the approach used for collecting and assessing data. Section 4 presents the results, which are then discussed in Section 5. The findings of this study may inform government and

enterprises to address public concerns and manage negative attitudes and POs to these facilities more effectively. This could help to enhance the social acceptance of these facilities toward a more circular economy in the built environment.

3. Methodology

This study used the public response to the development proposal for the Gunnedah C&D waste management facility to gain greater insight into the nature of POs to C&D waste management facilities in Australia. Although this qualitative single-case study research approach may limit the broader applicability of findings, the in-depth nature of the study attempts to broaden the insight into the critical factors leading to POs to C&D waste management facilities in Australia. Furthermore, this approach is frequently used in similar studies in the field of PO management [4,41]. The type of case study used in this study was descriptive and involved a single and holistic strategy in which one case with one unit of analysis was explored. The research process adopted in this study is illustrated in Figure 1.

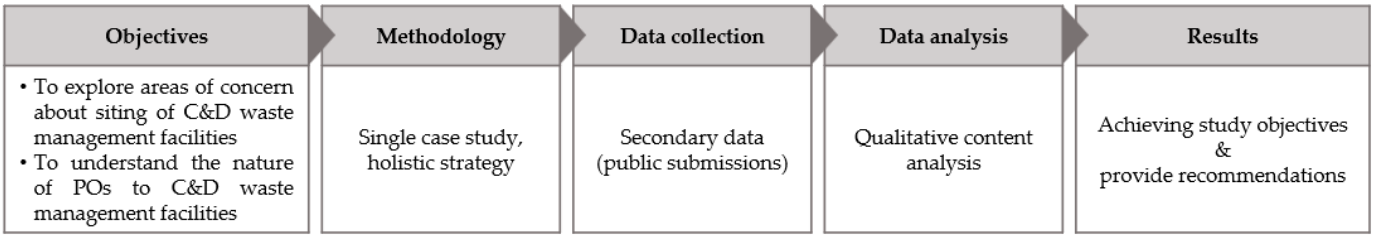

Figure 1. The overview of the research process. Source: authors.

3.1. Case Study Background

Currently, NSW generates the highest amount of C&D waste in Australia [27], and the government aims to increase the C&D recycling rate through policies, such as the waste avoidance and resource recovery strategy 2014–2021 [44]. Further, in NSW, regional areas produce a much greater proportion of construction (light) waste and have lower landfill gate fees [45]. Landfill capacity that accepts C&D waste is also likely to expire in the immediate future in some regional areas [46]. Therefore, siting new C&D waste management facilities are recommended in the state's latest waste and sustainable materials strategy [46]. Despite the significant need, PO results in the disruption of the delivery of these facilities.

Between February and April 2021, news about strong community opposition to the NSW government's plan to open a new waste facility in regional NSW made headlines. The AUD 3.9 million waste facility is proposed to be sited on 2.7 hectares of a newly established industrial estate located 4 km west of Gunnedah (Figure 2). With approximately 12,215 people [47], Gunnedah is the hub of one of Australia's richest agricultural regions, surrounded by Liverpool Plains and Nandewar Ranges. The waste facility is promised to deliver several socio-environmental benefits, such as annual processing of up to 250 kilotons of waste materials, much of which is C&D waste intended for use in road constructions after processing. The project will employ 62 full-time workers during construction and 30 people during operation.

3.2. Selection Criteria

This case was selected as it represents a contemporary and typical case of PO to C&D waste management facilities in Australia. Besides, the data for analysing the case were readily accessible. Considering the lack of scholarly work on this topic in Australia, a case study of the Gunnedah waste facility may provide insights into the effective management of similar events. It may also add new knowledge to the current understanding of PO to such facilities and benefit the government and enterprises by paving the way for their public acceptance.

Figure 2. The location of the proposed C&D waste management facility in Gunnedah. Source: Google Maps [48].

3.3. Data Collection

This study is based on secondary data extracted from the NSW's Department of Planning, Industry and Environment web page's major projects division. Secondary data provide context for studies that will collect primary data in the future [49]. These data were collected through public submissions lodged within the Gunnedah waste facility development application exhibition period of 16 December 2020 to 3 February 2021. The exhibition was only accessible electronically, while the submissions could be lodged online or by mail. Anyone was allowed to make a submission about the development proposal during the exhibition period. The submitters were asked to provide a statement on whether they support or object to the proposal or are only commenting, the reasons for their support or objection and a declaration of any reportable political donations made within the last two years. A total of 86 public submissions were lodged within the exhibition period. Though these submissions may not represent the view of the whole community, they can provide a valuable indication of the community's concerns to inform policy and decision-making, as demonstrated in previous studies [50].

3.4. Data Processing and Analysis

To investigate the arguments used by the submitters concerning the establishment of the Gunnedah waste facility, the submissions were analysed systematically, using a content analysis approach [51]. By reading each submission, the content of submissions was coded for areas of concern. Initial codes were identified during the first reading and then updated and finalised during the second reading. The results of this data analysis were tabulated in an excel spreadsheet. Through this process, a list of 14 categories of perceived risks was identified as one area of concern. These categories were then integrated into the second cycle to allow larger patterns to emerge, resulting in five broad perceived risk classes. A list of 5 categories of objection to the public participation process was also identified as the second area of concern. The following sections further elaborate on the results.

4. Results

4.1. Profile of Submissions

The 86 public submissions lodged within the allocated development application exhibition period were analysed to investigate the arguments used by the submitters. All 86 submissions objected to the establishment of the Gunnedah waste facility. Submissions varied from short statements opposing the proposal in general to detailed statements quoting development application documents (Table 2). Some statements were exact copies of one statement but were kept in the dataset. About 68% of the submitters requested to withhold their personal information (i.e., name, address) before submissions were published on the website. Therefore, sufficient data were not available to assess the submitters' profiles or their proximity to the project, as had been possible in previous studies.

Table 2. The number of words used in each submission.

Number of Words	Number	Percentage
<100	32	37.2%
100–300	27	31.4%
300–500	16	18.6%
>500	11	12.8%

Source: authors.

4.2. Perceived Risks

The analysis of submissions resulted in five broad risk classes, namely location, environmental, human health, financial and process risks (Table 3).

Table 3. Perceived risks about the establishment of the Gunnedah waste facility.

No.	Risk Class	Percentage
1	Location risks	76%
2	Environmental risks	73%
3	Human health risks	72%
4	Financial risks	27%
5	Process risks	37%

Source: authors.

These risk classes were formed from the 14 risk categories coded in analysing the content of submissions, illustrating the leading community concerns (Figure 3).

The majority of submitters stressed the proximity of the proposed waste facility to housing (72.1%) and the Namoi River system (38.4%) and the uncertainty of potential risks. Some concerns were related to the likelihood of the toxic fumes, dust particles and hazardous materials escaping the site into the air, watercourses and land, causing various environmental and health issues. For example, one respondent commented:

> *"This development is awfully close to my childhood home . . . The possibility of contamination of the air, land, groundwater, travelling stock rout and the Namoi River."*

Another critical area of discussion was the environmental risks and whether the proposal has sufficiently assessed these risks. The majority (61.6%) perceived water pollution risk as very high. Concerns regarding contamination of the rainwater tanks, the Namoi River system and groundwater were expressed repeatedly. Some respondents argued that the proposal does not adequately consider the flood risk and that misrepresented information may put the environment and community at higher risk:

> *"Information in regards to the flood plane is also misrepresented in the EIS. Whilst the site is not subject to flooding from the Namoi River it is prone to local flooding from which runoff enters and travels through private property and into the Namoi River—ours being one of them. These are water bodies that our livestock drink from, and our children often play in."*

As part of the concerns about environmental risks, concerns were expressed regarding pollution of the air (55.8%) and land (38.4%) from dust particles and toxic fumes. Some (20.9%) were also concerned about the native wildlife and livestock, particularly the impact of the waste facility on the koala population in the area. For example, one respondent commented:

" . . . why pick the location of Gunnedah, the so-called Koala Capital of NSW?"

Concerns were also raised about the impact of such a waste facility on the community's health, safety and wellbeing. Concerns about adverse impacts on human physical and mental health were mentioned in the majority of submissions (60.5%). Around half (48.8%) perceived noise from the crusher, loading equipment and heavy vehicle movement as a real issue. Many (43%) commented that increased heavy vehicle traffic would endanger the safety and amenity of road users, especially bus users. For example:

"The health and wellbeing of the property owners will be at risk not only from the contaminated waste but from stress and anxiety of living within such a close proximity to contaminated waste."

"My other concern is for my nieces and nephews catching the bus to the farm of an afternoon... With these trucks travelling at 100 km/hr on this road, for them to brake fully loaded, it is going to take some time. There are a number of children that catch the school bus every day that this will affect them."

Financial risks were the least mentioned concerns in submissions. Common complaints concerned the adverse impacts on business operations (18.6%), decrease in property value (7%) and lack of perceived benefits (7%). For example, one respondent commented:

"I do not believe this waste facility will benefit my community. There are personal houses and land which I feel will be greatly affected by this arrangement"

Process risks were another area of discussion in submissions. Many submitters' concerns (25.6%) centred around whether the facility would be run to the required standard and monitored effectively to avoid any leaks or breaches. A final reason for local opposition was why waste from Sydney and interstate should come to their town for processing, as commented below by a respondent:

"The only justification for sending toxic waste 700 km from Brisbane and 400 km from Sydney is that the citizens of those capital citizens will never tolerate toxic waste nearby"

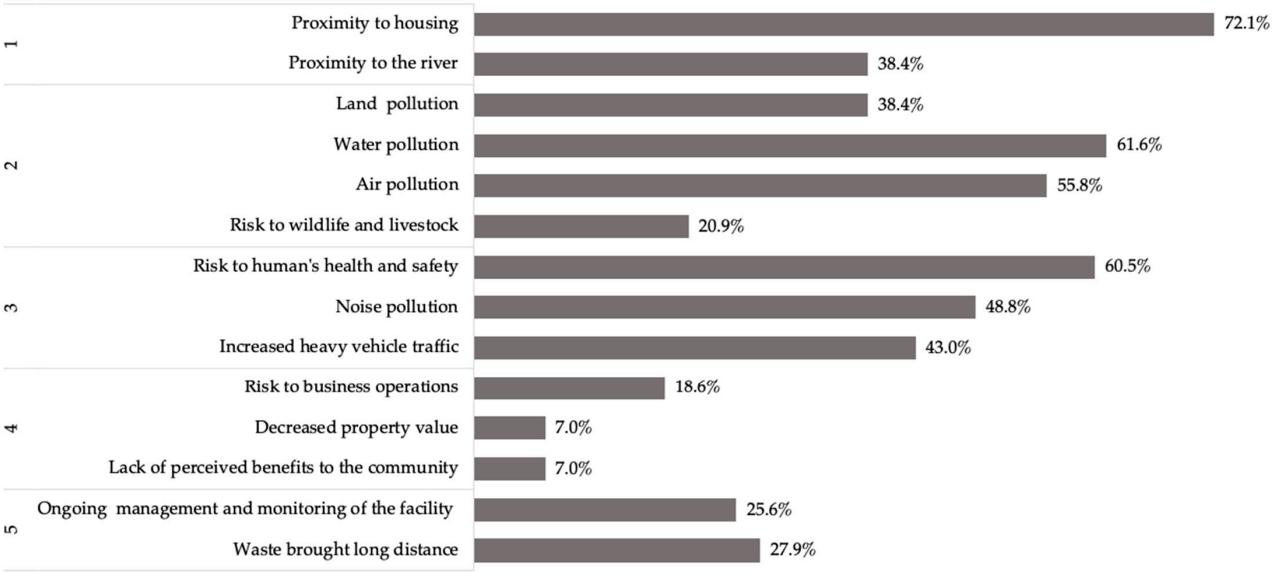

Figure 3. Percentage of perceived risk categories. Source: authors.

4.3. Public Participation Process

The analysis of submissions also showed that the PO was heavily affected by the poor public participation process. Figure 4 illustrates the submitters' main objections to the public participation process.

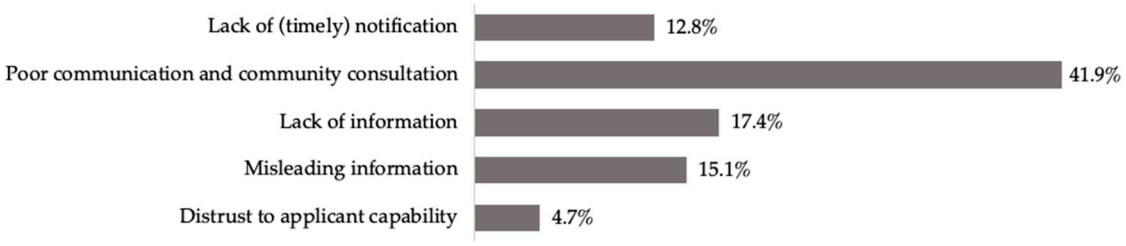

Figure 4. Submitters' main objections to the public participation process. Source: authors.

The majority of submitters (41.9%) mentioned poor communication and community consultation as an influencing factor, some (12.8%) complaining that they did not even receive a (timely) notification of the development proposal. One objection was also raised to the timing of the exhibition, 16 December 2020 to 3 February 2021, when many people may have been on holiday, and to the use of only online means for the exhibition of the proposal, which could limit the community's opportunity for proper engagement. For example, the following comment was made by one of the respondents:

> *"There has been no community/town consultation/meeting. I have not been afforded the opportunity to ask questions/voice my concerns and have feedback provided by the developer".*

The most common request in submissions was the request for community consultation, an opportunity to be heard and to hear from the applicant. Another objection was to the level of information shared with the public. The main areas of concern were the waste profile that will be assessed at the facility and whether and to what level the waste is toxic. Requests were made for the information on the risks, technical aspects, such as operation and management, and why the facility is needed. For example:

> *"Gunnedah already has a waste facility, and if need be, would it not be more appropriate to improve the existing infrastructure to meet the demands of the people in town".*

The use of vague language and outdated photos in the development proposal led submitters to doubt the accuracy of the information shared. A lack of trust in the private sector is evident. In part, this is a consequence of the community's past experience. Submitters expressed their preference for the waste facility to be located in the existing municipal waste management facility and operated by the local authority rather than the applicant.

5. Discussion

5.1. The Nature of the Opposition

The arguments used by the submitters concerning the establishment of the Gunnedah waste facility outlined five broad risk classes perceived by the community, namely location, environmental, human health, financial and process risks. Environmental and human health risks, which were mainly discussed regarding the proximity of the proposed waste facility to housing, stood out. This suggests that NIMBY factors may have played a part in the opposition and that proximity may be related to higher risk perceptions [21]. However, results also showed that the PO was heavily affected by the poor public participation process, which is consistent with the results of previous studies [10,25,36].

In Australia, public participation is a legislative requirement for a broad range of development proposals [52]. However, this can itself be a source of discontent [3]. The analysis of the submissions highlighted the importance of timing and method of public participation. The public participation methods are generally differentiated by the level of

community engagement, which may range from informing to empowering. Ideally, the public participation process will start early on and give all interested parties opportunities to have their say [26]. Here, using only online means to communicate the development proposal and communicate it with the public when the environmental impact assessment (EIA) was almost complete proved to be insufficient in meeting the community's expectations. It is no surprise, then, that the most common request in submissions was the request for an opportunity to be heard and to hear from the applicant. In this respect, the head of sustainability of a strategic communications and corporate affairs consultancy highlighted the significance of strategic communication [53]:

> *"Key to [the UK waste recycling industry] their success was getting stakeholders onside before embarking on a project. This does not just mean engaging the local community, which is the bare minimum. It means developing a carefully considered communications strategy and working with partners to inform and educate the public and other stakeholders well before any specific project work begins".*

Albrow [53] further suggests that a communication plan with stakeholders should consist of eight components: (1) designing a communications strategy with clear objectives; (2) developing communications collateral to promote the project and counter negative arguments; (3) assigning spokespeople capable of conveying the key messages and with appropriate media and crisis training; (4) considering setting up community liaison committees or similar ways of engaging in a transparent local debate; (5) understanding and consideration of engaging with the opposition; (6) understanding the political context; (7) ensuring the first stakeholders hear of project objectives and benefits are not from those who oppose it; and (8) political engagement and the enlisting of ambassadors with credibility.

Inadequate information was another source of dissatisfaction among submitters. The issue of framing information to achieve the desired outcome is relevant to public participation [26]. It has been shown that the individual perception of an infrastructure project influences their willingness to accept the construction of the project in the vicinity [3,54]. Though providing the public with more information may improve their perception of the project, the type and form of information shared and the extent to which people are provided with the opportunity to discuss this information play a pivotal role [20,26]. In submissions, requests were made for risk information, environmental assessments and technical and specific project plans. Questions were also asked regarding the necessity of such a waste facility in the community, highlighting the importance of addressing the need perception in accepting the facility [21]. A better understanding of the information requirements may have assisted with the production of an effective EIA and better management of PO in the Gunnedah case.

Furthermore, the quality of the information shared with the community escalated mistrust and, therefore, the perceived risks and PO to the facility. Distrust of the extent to which potential environmental impacts have been evaluated is at the heart of PO to waste facilities [20]. Transparency and fairness are, therefore, underlined as key factors here for an effective engagement with the community that can in turn help to build trust [24,26]. Although the community's past experience may have undermined trust, a more transparent process could have ensured the community were provided with the full and accurate story to avoid further mistrust. In this regard, Schmidt [55] states that we must not be barred from accessing current, accurate and, where possible, unbiased information relating to the pros and cons of critical issues, such as the siting of critical infrastructure.

5.2. Strategies to Manage the PO to Siting of C&D Waste Management Facilities

From the Gunnedah case study and the literature, it is possible to highlight the importance of several key strategies for an effective public participation process that may assist with the management of PO to the siting of C&D waste management facilities (Figure 5). It is important to note that our intention here is not to imply that such POs can be dealt with to the extent that they are completely solved but to put forward suggestions that can help to achieve a consensus among interested parties.

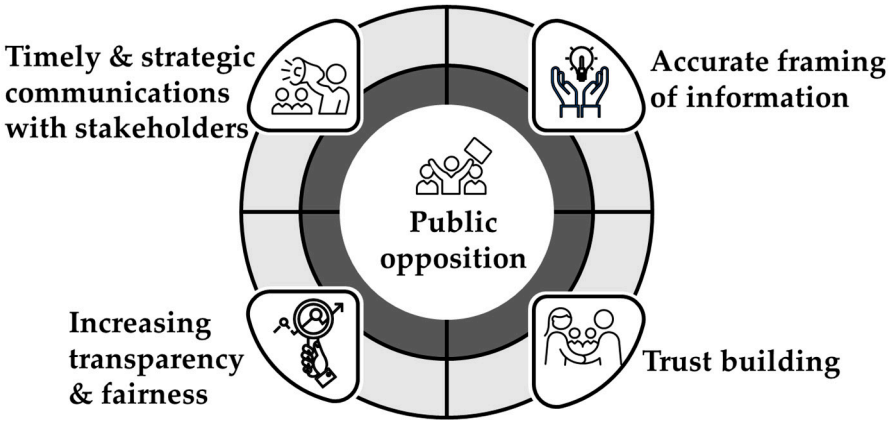

Figure 5. Public participation strategies to manage PO to C&D waste management facilities. Source: authors.

Timely and strategic communication: Involve the community in the early stages of developing a C&D waste management facility with a carefully considered communication strategy to gain mutual support of stakeholders, raise awareness and balance stakeholders' needs. Such communication can be organised through different means from letters to information-sharing workshops and even referenda [56]. The important factor here is that the process should be adapted to suit the nature of the community and embarked from the early planning stages to improve both the quality of decision output and its public acceptance [36,57].

Accurate framing of information: Consider the type and form of information that need to be discussed with the community and frame it accurately to develop a better understanding of the issue at hand. Simply providing the community with more information does not necessarily lead to a more informed decision but takes into account the community's requirements and the way information is communicated with the community [20,26].

Transparency and fairness: Provide the community with access to the full story so that they can make informed decisions, such as regarding the aptness of the proposed facility or its location. This is more likely to be achieved by an open conversation with genuine reflection and exchange of information, which can in turn help to extend the knowledge base of the community and build common democratic values [4,24]. After all, waste is everyone's responsibility [58].

Trust building: Improve the quality and robustness of information shared to build trust. Although trust is highly associated with the community's past experience, it is also linked to the perception of accuracy and competency [24,41]. Therefore, robust information provided by reliable sources can help to facilitate a more effective public participation process.

5.3. Regulations, Policies and Guidelines

Although the development proposal for the Gunnedah waste facility could have benefited from a more carefully planned public participation process, current policies seem ineffective or inadequately implemented in managing the PO to the facility. Similar development proposals can benefit from a clear guideline for managing such oppositions [22]. In the context of Australia, this can be the responsibility of the federal government rather than the state government. Whereas the latter, by law, is required to regulate waste for each jurisdiction [44], the former can intervene and take leadership in developing and imposing such policy as this issue might be categorised as a threat to the environment, which is of national concern [59].

5.4. Limitations

This study suffers a few limitations that can be addressed in further research. Firstly, the nature of research drawing on secondary data limits its ability to understand the

interaction between the local community, government and contractors. For instance, the unavailability of information about local residents in public submissions prohibited the analysis of the impact of demographic factors on the PO. Secondly, as a single-case study, the potential of the study for generalisation is limited. Lastly, the research could not capture any change in public sentiments after they were informed of the project benefits, deliverables and strategies to be implemented to reduce the social, economic and environmental risks.

6. Conclusions

This study aimed to understand the nature of PO to C&D waste management facilities in Australia through a case study of the Gunnedah waste facility in regional NSW. The study identified five broad risk classes perceived by the community, namely location, environmental, human health, financial and process risks. Though NIMBY factors may have played a part in the opposition, the PO was heavily affected by the poor public participation process.

As a single case study, the potential of the study for generalisation is limited. However, the analysis of the argument used by the submitters revealed the importance of timely and strategic communication, effective framing of information, transparency and fairness and trust building in the public participation process for the effective management of PO to the siting of C&D waste management facilities. We argue that a clear guideline for managing PO to these facilities is necessary. The responsibility for that lies with the federal government as this issue might be categorised as a threat to the environment, the protection of which is in the national interest. Hence, further research is required to explore how the government policy development activities are aligned with the recommendations provided in this study. The study contributes to the theory of C&D waste management by adding new knowledge to the current understanding of PO to the siting of C&D waste management facilities in Australia. This study is the first piece of research of this kind in the C&D waste stream in Australia, which also provides lessons for other countries seeking to improve the public acceptance of these facilities. Recommendations made in this study may also apply to PO management in other infrastructure developments. As for the practice, the findings may inform policymakers and practitioners seeking to devise public participation strategies. It also benefits them by paving the way for public acceptance of such facilities toward a more circular economy in the built environment.

Author Contributions: Conceptualization, S.S. and T.M.; methodology, S.G., S.S. and T.M.; formal analysis, S.S. and S.G.; investigation, S.G., S.S. and T.M.; resources, S.G., S.S. and P.S.W.; data curation, S.S.; writing—original draft preparation, S.G. and S.S.; writing—review and editing, P.S.W.; supervision, P.S.W. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Acknowledgments: This research has been developed with support provided by Australia's Sustainable Built Environment National Research Centre (SBEnrc). SBEnrc develops projects informed by industry partner needs, secures national funding, project manages the collaborative research and oversees research into practice initiatives. Core Members of SBEnrc include ATCO Australia, BGC Australia, Government of Western Australia, Queensland Government, Curtin University, Griffith University, RMIT University and Western Sydney University. This research would not have been possible without the valuable support of our core industry, government and research partners.

Conflicts of Interest: The authors declare no conflict of interest.

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