Urban Governance and Regulation Issues in Encouraging the Implementation of Recycling Practices and Efficient Use of Resources in Developing Cities.

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ABSTRACT

The rapid growth of developing cities is often accompanied by the challenges of inefficient waste and resource management, which has an impact on the deterioration of environmental quality and public health. One potential solution is the implementation of recycling practices and efficient use of resources, but it is still hampered by governance constraints and less supportive regulations. This research aims to analyze and examine the constraints of urban governance and regulatory aspects in encouraging the implementation of recycling practices and efficient use of resources, as well as providing policy recommendations that support sustainable resource management in developing cities. The study used a qualitative method with a case study design, involving 56 respondents who were selected through purposive sampling and snowball sampling techniques. Data was collected through in-depth interviews, field observations, and supporting documentation. The results of the study show that the main obstacles include a lack of policy synchronization between institutions, a lack of supporting facilities and infrastructure, and low participation of the community and the private sector. In addition, existing regulations have not fully accommodated recycling practices and resource efficiency optimally. In conclusion, improving governance by harmonizing regulations and increasing the capacity of infrastructure and public education are important keys in encouraging sustainable recycling practices. The implications of this research are expected to be the basis for more effective policy formulation and resource management implementation strategies that support sustainable urban development.

I. INTRODUCTION

Integrated resources are managed, especially in organizing a very strategic one. Urban governance serves as a regulator of coordination between government agencies, the private sector, and society to create an efficient waste management system(Kasri & Putri, 2018). In addition, regulations act as guidelines and control the implementation of recycling practices in accordance with sustainability standards and goals. This role includes policy formulation, incentivization, and supervision so that resource use practices run optimally and have a positive impact on the environment and the quality of life of city residents. In addition, the role of the community is also very important as implementers and active participants in recycling practices and resource management. Public awareness and community involvement greatly determine the successful implementation of policies and governance that have been designed. The role of the private sector and the business world is also no less important in creating innovation, investment, and technology development that supports the efficient use of resources in a sustainable economic cycle(Mehmood et al., 2025). The synergy of roles between various actors is the main key to encouraging the development of a clean, healthy, and environmentally friendly city.

Urban Governance Theory emphasizes the importance of mechanisms, processes, and interactions between various stakeholders in urban government, society, and the private sector in decision-making and implementation of public policies that focus on sustainable development and improving the quality of life of urban citizens (Koop & van Leeuwen, 2017). This theory underscores the need for inter-agency collaboration and community participation in addressing complex urban challenges, including efficient waste and resource management. In the context of recycling management in developing cities, regulations play an important role as an instrument for controlling and facilitating the implementation of recycling practices and the efficient use of resources. Effective regulations are able to encourage synergy between stakeholders and provide the necessary incentives and sanctions to ensure the sustainability of resource management (Parigi et al., 2018).

The growth of developing cities leads to an increase in the amount of waste and the need for effective resource management to maintain the environment. The implementation of recycling practices and the efficient use of resources is an important solution, but its implementation has not been maximized in many developing cities. Some cities have shown difficulty in aligning policies and regulations that support recycling practices so that the process runs inconsistently(Mora-Contreras et al., 2025). This causes there to be still a lot of waste that is not managed properly, and resources that have not been utilized optimally. Some parties consider that existing regulations are adequate and recycling facilities are starting to develop, so other approaches, such as education and economic incentives, are prioritized. However, there has not been a complete study that systematically examines the obstacles to urban governance and regulations that are still obstacles to the implementation of this practice(Ummah, 2019). Much information is not known to the extent to which existing policies are actually implemented and effective in the context of developing cities that have

different characteristics and challenges than developed cities. In addition, the influence of coordination between government agencies and community participation in encouraging the implementation of recycling practices is still poorly understood. The successful implementation of regulations is highly dependent on the interaction of various parties and the capacity of available infrastructure, an aspect that has not been extensively researched specifically for the context of developing cities(Cleave & Arku, 2015).

The implementation of efficient resource use practices also requires adaptation in accordance with local conditions so that the synergy of various programs and policies can occur. An urban area has not yet been found that is able to integrate recycling regulations and practices comprehensively in developing cities(Ummah, 2019). This research tries to fill this gap by looking at all aspects of management, ranging from regulation, implementation, to sustainability. Another difference is seen from the results of previous research, such as in the work "Integrated Waste Management in City X" (Santoso, 2022), which focuses on the technical aspects of management, without much discussion of regulations and governance that oversee recycling practices. This shows that there is room to expand the study that is not only technical but also management policy. This research seeks to provide a more complete and strategic picture in the context of governance and regulation(Jensen et al., 2020). The main objective of this study is to examine the governance and regulatory constraints that affect the implementation of recycling practices and the efficient use of resources in developing cities, as well as to provide policy recommendations that can support sustainable resource management(Ummah, 2019). This research aims to produce solutions that can advance resource management in urban areas and improve the quality of the environment and the welfare of local communities. Currently, this research has a novelty value by combining the study of aspects of governance, regulation, and field practice simultaneously in the context of developing cities. Such a holistic approach is expected to provide more applicable and contextual recommendations for sustainable waste and resource management policies.

Urban Governance Theory emphasizes the importance of the role of various actors and decision-making mechanisms in managing resources and the environment in cities. According to Koop and van Leeuwen (2017), urban governance must be transparent, participatory, and responsive to the needs of the community to create sustainable development. This theory supports the research by providing a framework for understanding how interactions between stakeholders in developing cities affect the successful implementation of recycling practices and resource efficiency. Regulation as a second theory highlights how policies and regulations are created and implemented to control and facilitate the efficient use of resources. Parigi et al. (2018) explain that effective regulation can encourage cross-sector collaboration and provide appropriate incentives for recycling implementation in urban contexts. This regulatory theory is the basis for analyzing the role of government policies in developing cities in opening up opportunities and obstacles for recycling practices(Agyemang et al., 2025). This research is meticulous in exploring governance and regulatory aspects that have not been comprehensively explored in developing cities to date, with a theoretical framework that has been

developed between 2017 and 2024 by various researchers, such as Koop & van Leeuwen and Parigi et al.

II. METHODOLOGY

This study uses a qualitative method with a case study design to explore in depth the issues of urban governance and regulation that affect the implementation of recycling practices and efficient use of resources in developing cities(Neuman, 2014). The research population consisted of parties directly related to waste management and resource use, including local government officials, business actors, and communities involved in recycling practices. A sample of 56 respondents was selected using the purposive sampling technique, which involves selecting respondents based on their involvement and knowledge related to the research topic. The research subjects include policy makers, field implementers, and communities who play an active role in the recycling process and resource management in developing cities. The main research instrument is interview guidelines prepared based on problem formulation and literature review, complemented by direct observation and the collection of supporting documents. Interview guidelines are developed and tested in advance to ensure questions are easy to understand and relevant to the research objectives. The data collected was analyzed thematically, namely by grouping information into several themes that emerged during interviews and observations. This analysis helps to understand the constraints and opportunities in the governance and regulation of waste and resource management. The research procedure begins with instrument preparation, respondent selection, field data collection, then systematic data processing and analysis. Using this case study method, the research succeeded in producing a clear and easy-to-understand picture of the barriers and potentials in implementing recycling practices and resource efficiency in developing cities(Gill, 2020). The results can be the basis for designing policies and strategies that are more targeted to overcome environmental problems while improving the quality of life of urban communities.

III. RESULTS AND DISCUSSION.

Based on the results of this study, it shows that the implementation of good governance and supportive regulations is essential for the success of recycling programs and efficient resource management(Neuman, 2014). The results reveal that so far, the main obstacle lies in the lack of synchronization between institutions and the lack of policies that are able to accommodate the needs of dynamically developing cities. Many cities still rely on conventional waste management systems, such as collection-transport-disposal systems, which tend to be inefficient and unsustainable. In addition, existing regulations are often not firm, do not include enough incentives and sanctions to encourage active participation from the public and the private sector in recycling practices. The results of the study also found that there are several cities that have begun to implement collaborative governance models, such as establishing waste banks and recycling plants supported by government and community programs.

However, the implementation of the program is still limited and uneven in all developing cities(McCann, 1998). One of the inhibiting factors is the lack of understanding and low public awareness, as well as the lack of adequate infrastructure to support the mass recycling process. In addition, weaknesses in the aspects of funding and financial resource management have also lengthened the process and reduced the effectiveness of waste management programs.

In order for urban governance to be more effective, it is necessary to have an administration and structural obstacles that must be improved in order to run optimally. The government's role as the main regulator and communicator needs to be strengthened, accompanied by more inclusive regulatory drafting and being ability to mobilize all components of the city in encouraging sustainable recycling practices. One of the innovations that has been found to be successful is the implementation of a collaborative system that involves the community, companies, and the government in one integrated resource management ecosystem(Kochetkov et al., 2021). The results of the study also confirm that the development of incentive policies, including economic incentives and increased public awareness, is an important factor in accelerating the implementation of recycling practices. In some cities, the implementation of strategies such as reducing the volume of waste through responsible incineration activities and the development of waste banks has succeeded in providing economic benefits while reducing the burden on landfills. However, this success still needs to be supported by strict rules and strengthening the capacity of all stakeholders, both in terms of institutions and human resources.

Thus, the results of this study state that the application of technology and innovation in waste management needs to be intensified so that the recycling process becomes more effective and efficient. The use of modern technology will be able to improve the quality of waste management and accelerate the process of the circular economy concept at the city level. In addition, strengthening a complete digital-based information system and data is important to support evidence-based decision-making and improve the efficiency of resource management. These data and findings suggest that waste and resource management in developing cities must be supported by policies that are able to integrate technical, institutional, and financial aspects simultaneously(Renner et al., 2008). In this context, the development of good governance is the main foundation for the success of recycling strategies and resource efficiency. Policies must be able to overcome various short- and long-term obstacles so that all levels of society and the industrial sector are able to actively contribute to urban waste management.

Thus, this study emphasizes that the development of a sustainability-oriented governance system and the active participation of all city components will create a more effective resource management ecosystem. The proposed solutions include strengthening regulations, technological innovation, sustainable infrastructure development, and increasing awareness and coordination between stakeholders. By taking all these steps in an integrated manner, it is hoped that developing cities can produce real environmental benefits while improving the quality of life of urban communities as a whole(Yadav et al., 2022). Thus, a strategy that prioritizes collaboration and mutual benefit will be the key

to building sustainable urban governance and be able to encourage the implementation of recycling practices that are effective, efficient, and oriented towards long-term success(Parigi et al., 2018). Capacity building of local governments and all stakeholders is the spearhead that must be supported through targeted policies, so that resource and waste management can take place sustainably and provide maximum benefits for the city and its people.

Table 1. Distribution of Respondents by Role

Role	**Number of Respondents**	**Percentage (%)**
Local Government	20	35.7
Community	18	32.1
Private Sector	10	17.9
Academics/Researchers	5	8.9
NGOs and Media	3	5.4

Based on the category of their role in resource management and recycling practices in developing cities. Local governments are the largest group with 35.7% because they have a central role in policy and regulatory formulation as well as infrastructure facilitation. The community is also an important part of 32.1%, as the main actor in the practice of sorting and managing waste. The private sector contributed 17.9% through the provision of technology and industrial waste management. Academics and researchers with 8.9% support through the study and development of research-based recommendations, while NGOs and the media play a role in education and advocacy, although the proportion is smaller at 5.4%. This composition shows that different groups play a role in governance and regulation with different focuses and functions.

Table 2. Main Obstacles in Governance and Regulation

Constraints	Information	Number of Respondents	Percentage (%)
Lack of Synchronization Between Institutions	Conflicting and non-integrated policies	22	39.3
Lack of Supporting Infrastructure	Difficulties in access to and recycling facilities	18	32.1
Low Public Awareness	Participation has not been maximized	13	23.2
Funding Limitations	Limited and unsustainable budgets	10	17.9

Weaknesses in Regulation Implementation	Sanctions and incentives have not been effective	15	26.8

This table identifies the key issues facing stakeholders. Most respondents (39.3%) stated that the lack of synchronization between institutions hinders harmonious and integrated policies. The lack of infrastructure to support the recycling process, as revealed by 32.1% of respondents, indicates the need to improve facilities. The low public awareness of 23.2% is a significant obstacle that affects participation. Funding limitations recorded at 17.9% and weaknesses in the implementation of regulations with ineffective sanctions of 26.8% are also other inhibiting factors. All of these obstacles indicate the need for improvements in various aspects so that governance and regulations can run better.

Table 3. The Role and Participation of Stakeholders in Recycling Practices

Role	Role Description	Number of Respondents	Percentage (%)
Government	Policymakers and infrastructure facilitators	20	35.7
Community	The implementer directly sorts and manages waste	18	32.1
Private Sector	Technology providers and industrial waste managers	10	17.9
Academics	Research-based recommenders	5	8.9
NGOs & Media	Education and advocacy	3	5.4

Various roles are played by various parties. The government remains a policymaker and infrastructure provider, which is important to ensure smooth recycling practices (35.7%). The community plays a role as a direct implementer who sorts and manages waste (32.1%), showing that the active role of residents greatly determines the success of the program. The private sector handles the provision of technology and industrial waste management with a proportion of 17.9%. Academics contribute through the preparation of research-based recommendations (8.9%), and NGOs and the media support education and advocacy (5.4%). This emphasizes the need for synergy of roles from all parties.

Table 4. Policy and Strategy Recommendations from Respondents

Recommendations	Information	Number of Respondents	Percentage (%)
Strengthen Coordination	Institutions need more intensive cooperation	24	42.9
Upgrade Infrastructure	Facility support for recycling	20	35.7

Improved Education	Public awareness of recycling	18	32.1
Economic Incentives	Rewarding for stakeholders	15	26.8
Increased Supervision	Enforce regulations with clear sanctions	12	21.4

This table shows from the respondents to improve the effectiveness of governance and regulations. As many as 42.9% asked for strengthening coordination between institutions so that programs run synergistically and do not overlap. Adequate infrastructure upgrades are valued by 35.7% as the main need to support the recycling process. Education to the community was proposed by 32.1% to increase awareness and participation. Economic incentives that reward perpetrators are considered important by 26.8%, while 21.4% emphasize the need for strict supervision with clear sanctions so that regulations are carried out optimally. These recommendations are an important foundation for designing effective policies.

Collectively, this research underscores that green entrepreneurial success in agriculture and livestock depends on a holistic approach addressing educational, social, economic, and policy-driven factors. Supporting knowledge-building, strengthening social networks, providing accessible funding and incentives, and implementing robust institutional policies can significantly boost the adoption of sustainable practices, thereby reducing emissions and fostering environmental resilience(Cahyati et al., 2025).

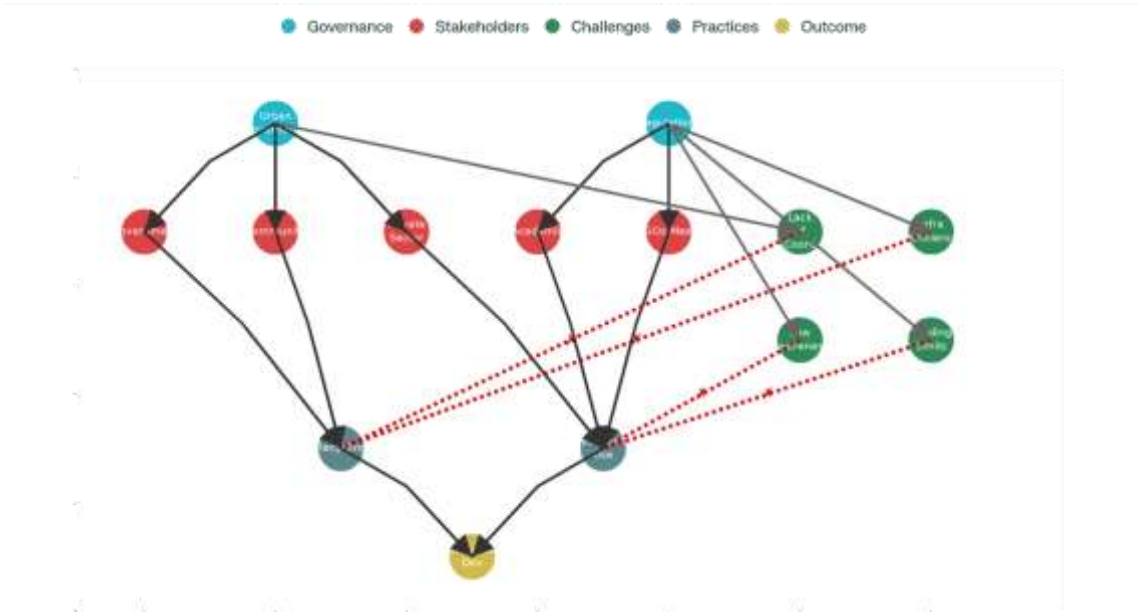

Figure 1. Urban Governance & Recycling Model

Shows how urban governance and regulation are the main foundations in encouraging the adoption of recycling practices and efficient use of resources in developing cities. At the highest level, Urban Governance and Regulations serve as a framework of policies and regulations that coordinate all elements of the system. These two components are interconnected and affect the entire subsequent process. Urban Governance includes decision-making mechanisms

involving various stakeholders, while Regulations are formal rules and control instruments that ensure effective policy implementation. These two elements are inseparable and must go hand in hand to create a solid foundation for the implementation of recycling practices.

The second component in this model is Stakeholder Roles, which consists of five main groups: Government, Community, Private Sector, Academia, and NGOs & Media. Each stakeholder has a unique and specific role that complements the other. The government serves as a policymaker and infrastructure provider, the community functions as a direct enforcer of recycling practices, the private sector provides technology and waste management solutions, academics provide research-based recommendations, while NGOs and the media conduct education and advocacy. These roles are directly influenced by existing Governance and Regulations, but these roles also face various obstacles or challenges that can hinder their effectiveness in carrying out their respective functions.

The components of challenges or obstacles identified in this model include: Lack of Inter-agency Coordination, Infrastructure Deficiency, Low Public Awareness, and Funding Limitations. These constraints directly affect the ability of stakeholders to implement Recycling Practices and Efficient Resource Use. This model shows that these challenges can be minimized through strengthening good governance and regulation, as well as through the activation of the optimal role of each stakeholder. When Recycling Practices and Efficient Resource Use are successfully implemented, this will support the achievement of Sustainable Urban Development as the final output that is the goal of the entire system.

The successful implementation of recycling practices and resource efficiency is highly dependent on the effectiveness of urban governance and regulatory policies implemented. This study reveals the main obstacles in the form of a lack of synchronization between institutions, a lack of infrastructure, low public awareness, limited funds, and weaknesses in supervision and enforcement of regulations. These findings are in line with the urban governance theory affirmed by Koop and van Leeuwen (2017), which states that responsive, inclusive, and collaborative governance is essential in achieving sustainable development goals in developing cities. Effective governance allows for better coordination between stakeholders and appropriate decision-making so that obstacles can be minimized(Munir et al., 2022).

The results of this study support the concept of regulation as the main instrument in sustainable resource management described by Parigi et al. (2018). Clear and firm regulations, accompanied by effective incentives and sanctions, can encourage the active participation of the private sector, society, and government in recycling practices. This is emphasized in this study, which shows that the lack of supervision and sanctions is a factor inhibiting the implementation of regulations. Therefore, policy reform and capacity building for regulatory implementation are crucial steps to address environmental problems while advancing resource use efficiency.

The role of diverse stakeholders in this study also confirms the importance of a multi-actor approach in urban management, as described in the theory of good urban governance. The government, the community, the private sector,

academia, and non-governmental organizations must move in synergy so that recycling optimization can be achieved. This study confirms that the active participation of the public and private sectors is decisive for the success of recycling programs, which is also supported by literature that emphasizes the importance of community empowerment and private sector innovation in environmental management (Koop & van Leeuwen, 2017). By combining good governance, supportive regulations, and the involvement of various stakeholders, developing cities can overcome the problems of wasteful use of resources and suboptimal waste management. This reinforces the view in the literature regarding circular economy-based resource management that demands systemic integration between policy, social, and technological (Parigi et al., 2018). Therefore, this research is a relevant empirical foundation for policymakers and urban management practitioners in designing appropriate strategies to achieve environmental sustainability and urban community welfare(Edwards, Peggy; Tsouros, 2008).

IV. CONCLUSION AND RECOMMENDATIONS

Suggests that the successful implementation of recycling practices and resource efficiency is highly dependent on effective governance and supportive regulation at the urban level. The main obstacles identified include a lack of coordination between institutions, a lack of adequate infrastructure, low public awareness, a limited budget, and weak implementation of regulations with suboptimal incentives and sanctions. The active role of the government, the community, the private sector, academics, as well as non-governmental organizations and the media is needed to create synergy in overcoming this challenge. This research also emphasizes that the integration of policies, implementation, and community participation is a determining factor in achieving sustainable urban development.

The implication of these findings is the need for improvements in various aspects of governance, such as strengthening coordination between institutions, building and improving recycling infrastructure, and conducting continuous education to increase public awareness. In addition, revisions to regulations that are able to provide economic incentives and strengthen sanctions must be implemented so that the implementation of the program is more effective. Holistic and evidence-based policies are key for developing cities to optimize the management of their resources and waste in a more efficient and sustainable way. This not only has a positive impact on the environment but also on the quality of life of urban communities through reducing pollution and improving socio-economic welfare. Thus, the results of this study provide a solid basis for policymakers and urban management actors in formulating effective strategies towards better and sustainable urban governance.

REFERENCES

Agyemang, A., Osei, A., & Kongkuah, M. (2025). Exploring the ESG-Circular Economy Nexus in Emerging Markets: A Systems Perspective on Governance, Innovation, and Sustainable Business Models. *Business Strategy and the Environment*, *34*(5), 5901–5924. https://doi.org/10.1002/bse.4278

Cahyati, S., Chairia, Siagian, H. S. P., & Meilisa, D. (2025). The Role of Green Entrepreneurship as an Innovative Strategy in Addressing the Environmental Crisis. *Business Innovation and Entrepreneurship Journal*.

Cleave, E., & Arku, G. (2015). Community branding and brand images in Ontario, Canada. *Place Branding and Public Diplomacy*, *11*(1), 65–82. https://doi.org/10.1057/pb.2014.5

Edwards, Peggy; Tsouros, A. (2008). This planning guide provides a range of ideas, information, and tools for developing a comprehensive plan. *World Health Organization*.

Gill, M. (2020). Phenomenological approaches to research. *Qualitative Analysis: Eight Approaches*, 73–94. https://www.researchgate.net/publication/341104030_Phenomenology_as_qualitative_methodology

Jensen, A., Nielsen, H. Ø., & Russel, D. (2020). Climate policy in a fragmented world—transformative governance interactions at multiple levels. *Sustainability (Switzerland)*, *12*(23), 1–8. https://doi.org/10.3390/su122310017

Kasri, R. A., & Putri, N. I. S. (2018). Fundraising Strategies to Optimize Zakat Potential in Indonesia: An Exploratory Qualitative Study. *Al-Iqtishad: Jurnal Ilmu Ekonomi Syariah*, *10*(1), 1–24. https://doi.org/10.15408/aiq.v10i1.6191

Kochetkov, D. M., Vuković, D. B., & Kondyurina, E. A. (2021). Challenges in Developing Urban Marketing Strategies: Evidence from Ekaterinburg. *Economy of Regions*, *17*(4), 1137–1150. https://doi.org/10.17059/EKON.REG.2021-4-7

McCann, P. (1998). *Research Methodology*. 163–177. https://doi.org/10.1007/978-3-662-03702-7_6

Mehmood, K., Kautish, P., Sithipolvanichgul, J., & Gupta, P. (2025). Circular economy readiness and digital solutions: redefining urban sustainability through human-centered technological advancements. *Technological Forecasting and Social Change*, *219*. https://doi.org/10.1016/j.techfore.2025.124242

Mora-Contreras, R., Alvarez, M. J., Jaca, C., Ormazábal, M., Rodríguez-Ferradas, M. I., & Morer-Camo, P. (2025). Towards the Implementation of the Smart Circular Economy for Sustainable Development: A Systemic Framework of Barriers and Drivers in the Hospitality Sector. *Sustainable Development*. https://doi.org/10.1002/sd.70136

Munir, M. A., Habib, M. S., HUSSAIN, A., Shahbaz, M. A., Qamar, A., Masood, T., Sultan, M., Abbas, M. A., Imran, S., Hasan, M., Akhtar, M. S., Ayub, H. M., & Salman, C. A. (2022). Blockchain Adoption for Sustainable Supply Chain Management: Economic, Environmental, and Social Perspectives.

Frontiers in Energy Research, *10*. https://doi.org/10.3389/fenrg.2022.899632

Neuman, W. L. (2014). Pearson New International Edition Social research methods: Qualitative and Quantitative approaches. In *Pearson*. https://www.amazon.co.uk/Social-Research-Methods-Quantitative/dp/0205786839/ref=sr_1_5?s=books&ie=UTF8&qid=1461496914&sr=1-5&keywords=social+research+methods+qualitative+and+quantitative+approaches

Parigi, N., Santoso, A., & Rahman, F. (2018). Regulatory frameworks and sustainable waste management in developing cities. *Journal of Environmental Policy and Planning*, *20*(3), 316–329. https://doi.org/10.1080/1523908X.2018.1431844

Renner, M., Sweeney, S., & Kubit, J. (2008). Green jobs: Working for people and the environment. *Worldwatch Paper*, *177*, 1–57. https://www.scopus.com/inward/record.uri?eid=2-s2.0-56449125974&partnerID=40&md5=2fb2f1acae9f69b30d0e082f144b6725

Ummah, M. S. (2019). No 主観的健康感を中心とした在宅高齢者における 健康関連指標に関する共分散構造分析Title. In *Sustainability (Switzerland)* (Vol. 11, Issue 1). http://scioteca.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://dx.doi.org/10.1016/j.regsciurbeco.2008.06.005%0Ahttps://www.researchgate.net/publication/305320484_SISTEM_PEMBETUNGAN_TERPUSAT_STRATEGI_MELESTARI

Yadav, S., Patel, S., Killedar, D. J., Kumar, S., & Kumar, R. (2022). Eco-innovations and sustainability in solid waste management: An indian upfront in technological, organizational, start-ups, and financial framework. *Journal of Environmental Management*, *302*. https://doi.org/10.1016/j.jenvman.2021.113953