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# “The Impact of Green Initiatives and ESG on Sustainable Development: A Comparative Study of Cracow and Warsaw”

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## **Abstract**

This capstone thesis examines the impact of green initiatives on sustainable development through a comparative analysis of Cracow and Warsaw. By comparing two major Polish cities, it aims to examine what green initiatives are, how they influence sustainable development and ESG implementation, and how this shapes urban sustainability outcomes.

Cracow's and Warsaw's experiences are relevant for analyzing the implementation of green policies, their impact on sustainable development, urban dynamics, governance frameworks, and levels of public engagement. Their progress provides valuable insights into urban sustainability and demonstrates how targeted interventions and community engagement can contribute to achieving sustainable development goals. The findings of this study will be helpful for urban policymakers, sustainability practitioners, academia, sustainability-related NGOs, and researchers interested in ESG-driven governance and sustainable urban transitions. The preliminary findings suggest that while both cities have made progress, Warsaw demonstrates a broader and more institutionalized approach to green initiatives, whereas Cracow shows more bottom-up civic engagement. Key enablers include stakeholder collaboration and clear urban policy frameworks, while challenges relate to governance fragmentation and social resistance in both cases.

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# Chapter I: Introduction

## **Background of the Study**

In a rapidly evolving economy, keeping pace with trends and changes related to climate change remains challenging. It is important to follow green initiatives and environmental, social and governance (ESG) principles. ESG offers a clear framework for sustainable transformation. When analyzing its relevance to sustainable urban development, it is essential to consider that urban green infrastructure integrates nature into city landscapes, providing both environmental and social benefits. Key aspects relevant to this topic include water management, air quality, and public space planning (Daniel, 2025).

In 2021, Cracow, Poland's second-largest city, ranked among the EU's ten most polluted cities, with a reading of  $24.7 \mu\text{g}/\text{m}^3$ . By 2024, it had improved to 20th place, with a reading of  $19.5 \mu\text{g}/\text{m}^3$ . This progress is largely attributed to various green policies implemented in the city (Tilles, 2024). For many years, Cracow was one of the most polluted cities in Europe due to multiple factors, including low emissions from burning poor-quality coal in domestic stoves (still common in the city and its surroundings), as well as traffic pollution — despite a well-developed public transportation system (Smog in Krakow: Causes, Threats, Ways to Prevent – Airly, 2024).

Conversely, Warsaw has seen a decrease in pollution levels from  $17.0 \mu\text{g}/\text{m}^3$  to  $15.0 \mu\text{g}/\text{m}^3$  (Tilles, 2024). Although these levels are lower than those in Cracow, Warsaw remains among the world's most polluted major cities (Telewizja Polska S.A, 2025). The sources of pollution in Warsaw are likely similar to those in Cracow, though their severity may be somewhat lower.

## **Problem Statement**

This capstone thesis examines the impact of green initiatives on sustainable development through a comparative analysis of Cracow and Warsaw. By comparing two major Polish cities, it aims to examine what green initiatives are, how they influence sustainable development and ESG implementation and how this shapes urban sustainability outcomes.

This comparison is particularly relevant given the cities' differing urban dynamics, governance frameworks, and public engagement levels. The experiences of both Cracow and Warsaw are relevant for analyzing the implementation of green policies and their impact on sustainable development. Their progress offers valuable insights into urban sustainability and demonstrates how targeted interventions and community engagement can help achieve sustainable development goals. Findings of these study will be helpful for urban policymakers, sustainability practitioners, academia, sustainability related NGO's and researchers interested in ESG-driven governance and sustainable urban transitions.

When defining green initiatives, these are understood as actions and policies aimed at preserving and improving the environment by promoting sustainable, eco-friendly, and environmentally safe practices and alternatives (IMANA, 2022). They address various aspects, such as reducing the human impact on the climate system through strategies like decreasing greenhouse gas emissions and enhancing natural carbon sinks (European Environment Agency, 2023).

Furthermore, sustainable development is defined as a form of development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs (International Institute for Sustainable Development, 2022). There are four pillars of sustainable development: economic, environmental, social, and cultural sustainability — each designed to ensure balanced growth that includes not only financial and environmental considerations, but also social equity and cultural preservation (Rose, 2024).

Finally, ESG refers to three key pillars: environmental, governmental, and societal factors, which are used to evaluate a company's ethical impact and sustainability practices. The environmental pillar — directly related to green initiatives — considers how a company performs in areas such as energy

consumption, carbon emissions, and waste management (What Is ESG in Simple Terms? - Aleatica, 2024).

### **Research Question (RQ)**

*"How do green initiatives, evaluated through ESG principles, influence sustainable development in Cracow and Warsaw, and what are the key challenges and enablers shaping their implementation?"*

#### **Sub-questions**

1. *What green initiatives have been implemented in Cracow and Warsaw, and which dimensions of sustainable development (e.g., air quality, public space, biodiversity) do they target??*
2. *How are ESG principles integrated into the strategic planning and governance of green initiatives in both cities?*
3. *How does stakeholder involvement — including local communities, NGOs, businesses, and public institutions — affect the implementation and outcomes of green initiatives in Cracow and Warsaw?*
4. *What barriers and enablers influence the implementation of green initiatives aligned with ESG principles in Cracow and Warsaw, and how do these factors differ between the two cities?*

### **Practical Relevance**

The findings of this research will provide practical knowledge for policymakers, NGOs, shareholders, and society at large in both Cracow and Warsaw. It will show how green initiatives, policies, and ESG principles are being implemented in both cities, and what differences exist between them — while also demonstrating how these efforts contribute to sustainable development.

By identifying the primary challenges and potential strategies for addressing them, the study aims to demonstrate that adopting more sustainable practices can lead to improved air quality, reduced carbon emissions, and an overall enhanced quality of life for residents.

The practical relevance offers valuable insights for bigger cities struggling with significant pollution and climate hazardous activities, offering direction for their own sustainability efforts.

### **Theoretical Relevance**

This study contributes to the existing literature on urban sustainability by examining the impact of green initiatives and ESG principles on sustainable development in Cracow and Warsaw through a comparative analysis of the two cities.

By analyzing the differences and key challenges both cities face in effectively implementing green initiatives while addressing pollution and other climate hazards, the research provides new insights into improving the effectiveness of such initiatives and understanding the relationship between policy implementation and sustainable outcomes in diverse urban contexts. Based on the aim a comparative case study method enables a contextual understanding of how differences between cities affect the effectiveness of green initiatives and ESG integration, as also shape the implementation and outcomes of it.

The thesis is structured in a following way it begins with a background and literature review on sustainable development, ESG principles, and green initiatives, followed by an explanation of the methodology and comparative case selection. The analysis section examines green policies in both cities, stakeholder involvement, impact on sustainable development and implementation challenges. The final section shows a discussion of findings and recommendations.

The preliminary findings suggest that while both cities have made progress, Warsaw demonstrates a broader and more institutionalized approach to green initiatives, whereas Cracow shows more bottom-up civic engagement. Key enablers include stakeholder collaboration and clear urban policy frameworks, while challenges relate to governance fragmentation and social resistance in both cases.

## **Chapter II: Literature Review**

This literature review is based on academic publications, institutional reports, and policy documents published in the past years, works selected focus on green initiatives, ESG integration, and urban sustainability, particularly connected to Cracow and Warsaw. A more detailed information on the literature review can be seen in the methodology section.

Over the last few decades, Poland — particularly large cities such as Cracow and Warsaw — has faced significant environmental challenges, including severe air pollution. As a result, there is an increasing need to implement green initiatives, environmental policies, and ESG principles in these urban areas.

In this part of the thesis, I will conduct an in-depth literature review to examine what research has been carried out on the impact of green initiatives and ESG on sustainable development in Cracow and Warsaw, identify gaps in the current literature, and provide the theoretical framework for this study. The following sections will present the background of the topic, explore existing green initiatives implemented in Cracow and Warsaw, examine ESG principles and their role in urban development, and discuss the key challenges associated with implementing such initiatives. I will also prepare a preliminary comparative analysis of the two cities. Finally, I will critically assess the literature, highlight existing gaps, and conclude the review.

### **Background**

Sustainable development, as outlined in the 17 Sustainable Development Goals, is closely linked to ESG principles and green initiatives. Both components aim to combat climate change by mitigating harmful human activities and slowing down the negative effects already taking place — such as global warming, economic consequences, social problems, and other challenges (esgthereport, 2021). ESG practices often help companies contribute to the SDGs by aligning their operations and governance with the broader objectives established by the SDG framework (Antoncic et al., 2020).

### **Green Initiatives in Cracow and Warsaw**

Several green initiatives have been implemented in Cracow, including “We Make Oxygen” and “We Make Oxygen: 3000 Trees for Krakow.” These actions were primarily educational — for example, by distributing air-purifying plants on the streets, organizers aimed to raise residents’ awareness of the importance of greenery in urban environments. As part of the “3000 Trees” action, tree seeds were handed out to residents, and trees were also planted in designated areas in cooperation with the organizers (Green Krakow – Krakow For Residents, 2022).

Other notable initiatives include “Cracovian’s Parks,” “Cracow Without Smog!”, and “Walk Around Cracow!” — all aiming to make the city more sustainable (Dominika, 2020; Krakow Without Smog – Krakow Smog Alarm, 2020; Kraków Encourages Walking. “Faster Than a Car,” 2019).

In Warsaw, several initiatives are also worth mentioning — such as “Million Trees for Warsaw,” which focused on planting trees in public areas; “Protecting Veteran Trees,” which encouraged care for the city’s oldest trees; and “Accessible Greenery,” aimed at removing barriers for people with disabilities. Other actions included “Clean Up the World,” where local communities cleaned the Vistula boulevards (admin admin, 2017; Vistula River Cleanup Action, 2025; BOŚ, 2025).

Additionally, many initiatives were supported or organized by companies such as Bank Ochrony Środowiska SA and other private institutions. Nevertheless, based on a review of available sources, significantly more green initiatives appear to have been documented in Cracow.

### **ESG Principles and Urban Development**

ESG principles are increasingly being integrated into the strategies of both Cracow and Warsaw to promote sustainable development and improve residents’ quality of life.

In Cracow, the city is actively pursuing climate neutrality, as reflected in the Climate Contract currently under development. This document sets the goal of reducing emissions by 80% by 2030, compared to the base year of 2018. However, it must be acknowledged that the measures taken so far remain insufficient, and the city is now planning additional initiatives aimed at reducing emissions within the environmental dimension of ESG (Climate Contract for Krakow on the Last Straight – Ideas and Expectations, 2025).

Warsaw has also addressed the environmental aspect of ESG by reducing emissions. The city has introduced Poland's first Clean Transportation Zone (SCT), covering about 7% of its area — primarily in the city centre and adjacent districts. As of July 2024, only vehicles meeting specific emission criteria (known as Euro standards) are permitted to enter the SCT. This initiative aims to improve air quality by gradually phasing out the most polluting vehicles (Clean Transportation Zones – The Future of Urban Air | Knowledge Base – ESG Academy, 2024).

Beyond municipal policies, an increasing number of companies based in both cities have begun integrating ESG principles into their core strategies to support sustainable development. Examples include Intermediate Capital Group Polska, Bank Ochrony Środowiska, and other companies exceeding 250 employees and €40 million in turnover — thresholds that require ESG reporting under EU regulations (When and Who Must Report on ESG? – Monte Vero Audit and Advisory Sp. z o.o., 2025).

### **Challenges in Implementing Green Initiatives**

In Cracow, several challenges hinder the effective implementation of green initiatives. These include the uneven distribution and limited accessibility of green spaces, the need to gradually expand public green areas — particularly in densely built-up districts where land is scarce — and the ongoing maintenance and adaptation of existing green spaces to better meet residents' needs.

Budget-related issues also play a significant role, including problems with budget allocation, limited access to financial resources, and difficulties in securing alternative funding sources. Additionally, broader economic conditions can further impact the city's ability to implement sustainable initiatives (Kwartnik-Pruc & Trembecka, 2021).

Warsaw, on the other hand, faces somewhat different but equally complex challenges. These include limited interdepartmental collaboration, dependency on external funding, and constraints in forming effective public-private partnerships. The city also struggles with aging infrastructure, transportation and mobility issues, low public awareness around recycling, and growing risks related to urban heat islands and flooding. Addressing these issues requires improved adaptation strategies, such as the introduction of green roofs, permeable pavements, and more effective stormwater management systems.

As illustrated, the challenges in both cities go beyond financial limitations. They encompass outdated infrastructure, transportation inefficiencies, and the need for stronger societal engagement and intersectoral collaboration (COP19 and Sustainability in Warsaw – Climate Action, 2020).

### **Theoretical Framework**

This section introduces the theoretical frameworks used to analyze the research findings and which emerge from the preceding literature review. It includes an overview of the selected theories, an explanation of their relevance to the analysis of green initiatives and ESG, and a discussion of how they relate to the research question.

Two main theories are applied in this thesis. The first is the Triple Bottom Line (TBL) framework by John Elkington, which argues that company performance should be evaluated not only in terms of profit, but also social responsibility and environmental impact. As Kenton (2024) explains, "TBL theory posits that instead of one bottom line, there should be three: profit, people, and the planet."



The second theoretical lens is Institutional Theory, as introduced by Meyer and Rowan, which focuses on how organizations are shaped by broader societal structures, including states, cultures, and global norms (Institutional Theory | Overview & Examples Video, 2021).

These theories are particularly helpful in analyzing green initiatives and ESG practices, and are directly linked to the research question.

1. The Triple Bottom Line theory provides a framework for assessing how ESG initiatives contribute to sustainable development. It also offers a structural approach for comparing the outcomes of green initiatives in Cracow and Warsaw, including their effectiveness in achieving environmental and social goals (Nica et al., 2025).
2. Institutional Theory is useful in examining how laws, societal expectations, and mimetic pressures influence ESG adoption and sustainability strategies. It helps explain why cities like Cracow and Warsaw, despite similarities, adopt different approaches and face unique implementation challenges (Galleli & Amaral, 2025).

### Comparative Analysis

When comparing the challenges both cities face in implementing green initiatives, it is observed that Cracow struggles primarily with the uneven distribution and limited accessibility of green spaces, as well as budget constraints and restricted access to financial resources. In contrast, Warsaw faces issues related to interdepartmental collaboration, a strong dependence on external funding, and the urgent need to address aging infrastructure, transportation inefficiencies, and growing risks associated with urban heat and flooding.

Both cities have adopted tree-planting initiatives aimed at raising awareness of air pollution and actively combating it. However, their broader strategies differ. Cracow places a stronger emphasis on educational campaigns and has committed to achieving climate neutrality by reducing emissions by 80% within the next five years. Warsaw, on the other hand, focuses on improving urban accessibility and engaging communities through clean-up efforts, and has introduced Poland's first Clean Transportation Zone as part of its air quality improvement strategy.

### Critical Evaluation

Based on this body of literature, several patterns and limitations became apparent during the review process despite this, I was able to identify key differences in the actions taken by Cracow and Warsaw, as well as gain insights into the challenges both cities face in implementing green initiatives and ESG principles. I also explored how ESG, green initiatives, and sustainable development are interrelated and how they can reinforce one another.

In terms of limitations and potential biases in the literature, I noticed a clear disparity in the availability of information. There were significantly more sources detailing green initiatives in Cracow compared to Warsaw. Secondly, sources discussing the challenges of implementing green initiatives were scattered and limited in depth, often found only in individual articles. Lastly, while ESG literature was more abundant, most of the papers did not focus specifically on Cracow or Warsaw. Moreover, access to up-to-date and comprehensive lists of companies implementing ESG in either city was limited.

### Research Gap

While both Cracow and Warsaw have implemented sustainability policies, there is limited research directly comparing their approaches, specific initiatives, and the challenges they face. This study aims to address that gap by evaluating how Cracow and Warsaw have implemented green initiatives and ESG principles to achieve sustainability goals, and how the effectiveness of these efforts differs based on factors such as governance structures, funding availability, public participation, policy enforcement, and key implementation challenges.

Additionally, this research explores how each city is addressing its unique obstacles, identifies the main differences between their strategies, and considers how Cracow and Warsaw could learn from one another to further strengthen their sustainability efforts.

# Chapter III: Methodology

## **Methodology**

### **Research Design**

This research paper presents a comparative study of Cracow and Warsaw, examining the impact of green initiatives and ESG principles on sustainable development in both cities, as well as the key challenges each faces in implementing these initiatives effectively. It also explores how the approaches and obstacles differ between the two urban contexts.

A mixed-methods approach will be employed, combining qualitative data obtained through interviews with secondary sources, including reports, academic literature, and policy documents. The study will follow a systematic review methodology, with a particular focus on a mixed-method systematic review, given the diverse types of data being integrated. This approach supports a comprehensive comparative analysis of the two cities' strategies and outcomes (Berrang-Ford, Pearce, & Ford, 2015).

### **Data Collection Methods**

#### *Secondary Data Collection*

Secondary data for this study was collected from a variety of sources, including academic articles, official reports, policy documents, and NGO plans related to green innovation. Most academic literature was accessed through Google Scholar and databases such as SmartCat. In addition to scholarly sources, websites of NGOs and government agencies were consulted to assess both past and planned green initiatives in Cracow and Warsaw.

Relevant materials were identified through keyword searches, including "green initiatives," "ESG," and "sustainable development" in the context of the two cities. Selected sources were chosen based on their direct relevance to the research question and their contribution to the understanding of ESG implementation and sustainable urban policies.

During the literature review, I found that the available literature on Cracow and Warsaw was highly relevant to the topic of my study. I came across numerous sources addressing green initiatives in both cities; however, many of them were not academic publications but rather news articles, policy plans, and other types of primary sources, and governmental documents.

#### *Primary Data Collection*

As the research is primarily helpful for urban policymakers, sustainability planners, researchers, NGOs, and ESG consultants, Involving primary research was essential. Three professionals have been interviewed, including representatives from NGOs engaged in green initiatives and officials from the Department of Environment, Climate, and Air (Wydział Środowiska) in Cracow and Warsaw. Specifically, two interviews were conducted with individuals from Cracow and one from Warsaw. These interviews explored the challenges of implementing green development strategies, current progress, and plans.

Before conducting the interviews, an interview guide with specific questions was designed to ensure that all relevant information was gathered. The interview guide was developed based on thesis sub-questions and themes identified in the literature review, particularly those related to past and current green initiatives, ESG integration, challenges and barriers in implementation, and possible differences between the cities. The semi-structured format was adopted to allow for open discussion while maintaining consistency across interviews. Questions were organized thematically, beginning with general experiences in green policy implementation and progressing toward challenges and opportunities for improvement (Brinkmann, 2020). (See Appendix I)

These primary sources provided valuable, firsthand perspectives on the local implementation of green initiatives. Interview data enriched the analysis by revealing practical challenges, institutional dynamics,

and context-specific strategies that are often missing from published research. This supported a more grounded comparative analysis between Cracow and Warsaw.

The participants were asked if they were comfortable and well-skilled in hosting the interview in English but were allowed to interview in Polish when this was more comfortable for them. All interviews were conducted in Polish, based on the participants' preferences. The interviews were held online via Google Meets and lasted between 30 minutes and 45 minutes.

Each interview was transcribed by AmberScript and translated where necessary for analysis. Furthermore, the transcriptions were coded manually. This process led to identifying codes and the most significant themes, guiding Chapter IV: Findings, and helping answer the research questions.

### **Methods Justification**

A comparative case study approach was used, as this research focuses on analyzing and comparing two cities — Cracow and Warsaw — in terms of their green initiatives, implementation strategies, and the challenges they face. This comparative case study reflects a pluralistic approach to causal inference, focusing on context-specific dynamics rather than generalizable outcomes (Russo & Rihoux, 2023). The study examined the differences in their approaches, the types of initiatives they undertook, and the specific barriers they encountered during implementation. Additionally, the underlying causes of these challenges were examined, as well as what each city can learn from the other's successes.

Secondary data served as a foundation for the research by providing a contextual background, identifying key trends, and shaping the focus of the primary data collection. This was complemented by interviews, which offered deeper, firsthand insights and expanded upon the knowledge gathered through the literature review.

### **Ethical Considerations**

All interviews conducted in this study followed the guidelines outlined in the "CF UCG Student Ethics Checklist 2025" available on Brightspace to ensure the protection of participants and the credibility of the research. Prior to the interviews, each participant was provided with an informed consent form outlining the study's purpose, their rights, and how the data was used and stored. The form was available both in Polish and English. The interviews were audio recorded with the interviewee's consent, and attention was paid to non-verbal cues. (Consent form – see appendix II )

Participants were informed that their involvement was voluntary and that they may withdraw from the study at any point without consequences. Anonymity and confidentiality were ensured through secure data storage and the anonymization of any personally identifiable information if needed.

Furthermore, the interviews were designed to avoid any potential harm to participants, minimizing personal or emotionally sensitive questions. The interview questions were reviewed in advance by the academic supervisor to receive ethical approval.

All research data, including interview transcripts and audio recordings, were securely stored and not shared with other participants or external parties. The electronic files were protected and deleted after transcription to prevent unauthorized individuals from gaining access.

## Chapter IV: Findings

### 4.1 Green Initiatives and ESG Principles in Cracow

#### Overview of Green Initiatives

This overview is primarily based on expert interviews, supported by the literature review for context. Interviews show that Cracow hosts a wide variety of green initiatives, including:

1. **Renewable Energy Projects** – Expanding the use of renewable sources, currently reaching about 22% of total energy consumption and 30% in electricity.
2. **Green Spaces** – Developing new parks and green landscaping, such as the flower planting at Grzegórzeckie roundabout and a sensory garden at a local school.
3. **Waste Management Programs** – Recycling rates are improving, with growing public support for a circular economy. As one interviewee noted: “The amount of waste for recycling is increasing yearly.”

Residents are actively engaged in environmental initiatives. Bottom-up involvement significantly supports urban greening and helps address sub-questions 1 and 3 regarding implementation and stakeholder engagement.

Cracow aims for climate neutrality by 2030 under the European City Mission framework, involving public authorities, government institutions, and NGOs. The “Pact for Climate” campaign is an example of this, featuring InPost as a key partner. Funding comes from government and EU subsidies, including the National Recovery Plan (KPO), and private investment.

#### ESG Principles in Practice

Interviews indicate ESG principles are increasingly integrated into Cracow’s policies. In 2018, the city adopted a development strategy for 2030, with goals like improving air quality, green transport, and waste management, aligned with ESG. However, the resolution remains under revision, and ESG is not yet formally embedded in strategic documents. Plans are underway for deeper ESG inclusion.

Concerns were raised about ethical implementation and greenwashing, which may hinder credibility and impact. Despite these challenges, stakeholders continue initiatives aligned with ESG values.

A notable example is the “**ESG Ambassador**” program, which builds ESG awareness among employees and supports sustainability reporting (City Hall of Kraków, 2024). Another is **ICE Cracow**, which introduced a Sustainability Policy including energy-efficient lighting, water conservation, and waste segregation. ICE is now working with the Carbon Footprint Foundation to develop a formal ESG strategy (Rajwa, 2023).

**Cracow Balice Airport** has institutionalized ESG by forming a dedicated ESG Team responsible for sustainability reports and compliance (Kraków Airport – Zespół ds. ESG, 2021).

#### Impact on Sustainable Development

This section examines the environmental, social, and economic impacts of Cracow’s green initiatives:

1. **Environmental Impact**  
Progress has been made in reducing air pollution, especially through the anti-smog resolution and the ban on coal and wood burning. One interviewee stated: “We introduced pioneering solutions such as the anti-smog resolution. [...] We reduced low emissions to practically zero.”

The city also replaced old heating stoves with gas or electric alternatives, funded by the City Council: “The city replaced old stoves for free because we all benefited from this, improving air quality.” (Czyste Powietrze Program, n.d.)

Cracow modernized its water supply system and now offers high-quality drinking water. As one participant shared: “Krakowianka is one of the cleanest waters in the world — it’s compared to the water in Singapore.”

Challenges remain, such as pollution from neighboring municipalities and gaps in enforcement (Editorial, 2024; Urząd Miasta Krakowa, 2024).

## **2. Social Impact**

Green initiatives have strengthened public awareness, promoted sustainable behavior, and increased community engagement. Anti-smog measures improved public health and well-being. Cooperation with NGOs has built a sense of shared responsibility, with resident participation seen as essential for long-term change. Investments in flood prevention and water infrastructure also improved public safety.

## **3. Economic Impact**

Green policies have created jobs in environmental engineering, renewable energy, and low-emission transport, boosting local economic growth and investment attractiveness (Błaszczuk, 2025; Urząd Miasta Krakowa, 2025).

## **Challenges and Barriers**

Based on interviews with Respondents X and Z, several challenges and barriers to the implementation of green initiatives in Cracow can be identified.

### **Regulatory and Legal Obstacles**

One of the main issues concerns environmental legislation, which, according to participants, “enters very slowly and is inadequate to the development needs of cities.” This hinders the introduction of modern solutions. Bureaucratic complexity was also emphasized: “Bureaucratic barriers are significant, often slowing down the implementation of new approaches.” The lack of flexible legislation, particularly in areas like energy communities and green technologies, makes approvals time-consuming and discourages innovation.

### **Financial Barriers**

A recurring concern was insufficient funding. Cracow lacks the resources to scale up green initiatives and invest in environmental education. As noted: “There is a great need for investment, not just spending money, which requires savings and effective planning.” Public-private partnerships receive limited support, and education budgets are minimal, delaying even well-designed projects.

### **Social Resistance and Public Awareness**

Public attitudes remain a challenge. “We need to educate the inhabitants to understand that we have to decide whether to live in a concrete desert or a city with parks, cycle paths, and clean air.” Resistance often stems from low awareness and skepticism, especially regarding policies like the solid fuel ban.

### **Transport and Infrastructure Constraints**

Despite good public transport, Cracow still struggles with car traffic (Appendix III), especially as a tourist hub. Involving residents in planning is key to balancing mobility and sustainability.

## **4.2 Green Initiatives and ESG Principles in Warsaw**

### **Overview of Green Initiatives**

Based on an interview with Respondent Y regarding green initiatives and ESG in Warsaw, it is evident that the city is actively implementing a wide range of projects aimed at improving the environment and

adapting to climate change. These initiatives include the expansion and revitalization of parks, public squares, and embankments, as well as efforts to increase biologically active areas and enhance water retention — all of which contribute to strengthening the city’s resilience.

A key program highlighted is the long-standing “*Warsaw in Flowers*” competition, promoting planting initiatives and resident engagement. Other notable efforts include “*Garden Thursdays*” and thematic lectures to foster environmental awareness.

Warsaw also benefits from private-sector-supported initiatives, particularly the “*Green Fund for Warsaw*”, aimed at encouraging entrepreneurs to support greenery and environmental protection through corporate sustainability programs (Zarząd Zieleni m.st. Warszawy, n.d.).

Green initiatives are primarily financed through municipal budgets and Public-Private Partnerships, with additional support from EU funds. According to Participant Y, projects follow schedules set jointly by the city council and private sector, with implementation overseen by bodies such as the Greenery Management Board and the Air Protection and Climate Policy Office.

A wide range of stakeholders are involved, including local authorities, companies, and community organizations. InPost, for example, has co-financed projects such as the development of a square in Mokotów and research on urban wetlands.

Public participation is a key feature of Warsaw’s approach. Regular public consultations allow residents to shape sustainable development strategies. Effective coordination between municipal departments and private partners is essential to success.

### **ESG Principles in Practice**

According to Respondent Y, Warsaw incorporates ESG elements into its strategic planning, particularly through its “*Warsaw 2030*” strategy. This document outlines goals for a more inclusive and environmentally friendly city, such as expanding public transport and replacing outdated rolling stock. While ESG is not explicitly referenced, many objectives align with ESG values, especially regarding sustainability and social inclusion.

Warsaw is reinforcing the social dimension of ESG by engaging residents in decisions, particularly on green initiatives. This participatory model promotes more inclusive governance.

A major event reflecting ESG’s rising importance is the *Warsaw ESG Summit 2025*, held on 12 April 2025. Organized by the SGH Student Scientific Circle of Consulting, it brought together business leaders, experts, investors, and innovators to discuss responsible investment, sustainable practices, and ESG strategy. Themes included corporate ESG impact, eco-innovation, and the role of regulation and mindset shifts in sustainable development (Warsaw ESG Summit 2025, 2025; *Outdated Fashion or Necessity? Conclusions from Warsaw ESG Summit*, 2025). Warsaw also hosts other major ESG-related conferences (Konferencje Naukowe: ESG w 2025 R., 2025; IV Kongres ESG – OESG, 2025; Kongres Bankowości Zrównoważonego Rozwoju 2024 – Konferencje :: Bank.pl, 2024).

These forums support knowledge exchange and the development of sustainability standards in policy and business.

### **Impact on Sustainable Development**

#### **(1) Environmental Impact**

Warsaw is working to reduce its carbon footprint, aiming for climate neutrality by 2050 and a 40% cut in emissions by 2030. These efforts improve public health and air quality. Urban greening—tree planting, grass and shrub beds, expanding biologically active areas—helps lower city temperatures and enhance water retention, reducing heat island effects (Appendix IV; *Warszawa – Directions for the Development of the City in the Green Vision of Warsaw*, 2023).

#### **(2) Social Impact**

Warsaw runs extensive education campaigns to promote ecological behavior and ESG awareness.

Programs include school initiatives, *Warsaw in Flowers*, and *Garden Thursdays*. According to Respondent Y, these raise environmental awareness, quality of life, and well-being (Appendix V; *Greenery and the Quality of Life in the City – THINKTANK*, 2023).

### **(3) Economic Impact**

The green transition supports job creation in green industries. The *Green Fund for Warsaw* attracts private investment in regeneration and environmental protection. Warsaw's R&D spending reflects its commitment to sustainable innovation, boosting competitiveness and investor appeal. Sustainable infrastructure investments are expected to bring long-term economic benefits and asset value appreciation (World Bank, 2023; Urząd Statystyczny w Warszawie, n.d.).

## **Challenges and Barriers**

Based on the interviews conducted, several key challenges hinder the effective implementation of green initiatives and ESG principles in Warsaw. These barriers can be grouped into three main categories: financial, regulatory, and societal.

### **(1) Financial Constraints**

One of the most pressing obstacles is the limited availability of funding. Although Warsaw has access to municipal budgets and EU grants, the process of applying for European funds is often time-consuming and complex, which delays or inhibits the launch of new initiatives. The scale and ambition of green projects frequently exceed the city's immediate budgetary capacity, and long waiting times for grant approval create further obstacles to implementation.

### **(2) Regulatory and Legal Barriers**

Warsaw also faces significant challenges related to regulatory complexity. Current national legislation often fails to provide a clear or supportive legal and tax framework for green innovation. The lack of stable regulations discourages investment from start-ups and green technology companies, contributing to an outflow of innovation and capital abroad. As noted by Król (2024), the absence of coherent, innovation-friendly legal structures hampers the development of eco-technological solutions at the local level. Additionally, slow bureaucratic procedures and administrative burdens complicate project approvals and delay implementation.

### **(3) Societal Resistance**

Despite growing environmental awareness, there is still noticeable social resistance to specific green measures—particularly when they are perceived to reduce individual convenience or limit freedoms. A key example is the opposition to Clean Transport Zones (CTZs), where residents have expressed concerns over restrictions on car use, viewing them as infringements on personal mobility and autonomy. As highlighted in the interview, this type of resistance underscores the need for improved public engagement and communication strategies that emphasize long-term benefits over short-term inconvenience.

## **4.3 Comparative Analysis**

### **Similarities and Differences**

The comparison between Cracow and Warsaw is structured across three dimensions that directly reflect the study's research sub-questions: (1) types of green initiatives implemented (sub-question 1), (2) implementation strategies, financing, and ESG integration (sub-question 4), (3) stakeholder engagement in green initiatives (sub-question 3) finally in addition touching upon knowledge exchange between the cities. This structure enables a focused comparison of how each city implements green initiatives, ESG principles, and sustainable development strategies in practice.

## Types of Initiatives

Both cities participate in the European Climate-Neutral Cities 2030 Mission and demonstrate similar thematic priorities—particularly in air quality, urban greening, and public education. However, distinct emphases can be observed.

- **Cracow** focuses primarily on transport decarbonization, air quality improvement, renewable energy, and circular economy models. Examples include the anti-smog resolution, clean transport initiatives, and investments in green energy infrastructure.
- **Warsaw**, on the other hand, prioritizes urban greening, water retention, and community engagement through educational and beautification programs such as “Warsaw in Flowers” and splash pad installations.

Despite these nuances, both cities promote environmental awareness, enhance green spaces, and aim to reduce emissions—albeit through different flagship programs and community engagement models.

## Implementation Approaches and Financing

The two cities exhibit notable differences in strategic planning and funding mechanisms:

- **Cracow** aligns its actions tightly with the European City Mission’s 2030 goals. Its planning involves a broad coalition of stakeholders—government institutions, NGOs, private companies, and public-sector bodies. Funding is heavily supported by EU programs such as the KPO and European structural funds.
- **Warsaw** also participates in the Mission but follows a more project-based model, with initiatives scheduled by the city council and implemented through a mix of municipal funds, public-private partnerships (PPPs), and select EU grants. The city also integrates climate objectives into its broader urban development framework.

## ESG Integration

- **Cracow** has yet to formally adopt ESG principles in its strategic documents. While some policies and initiatives are aligned with ESG ideals (e.g., improving waste management or air quality), reporting remains voluntary, and implementation varies across sectors. Efforts such as ESG Ambassadors or the climate pact with local businesses reflect a nascent ESG culture.
- **Warsaw**, in contrast, demonstrates stronger engagement with ESG in both strategy and public discourse. Its “Warsaw 2030” vision incorporates environmental and social elements consistent with ESG values, and the city regularly hosts ESG-related conferences, such as the Warsaw ESG Summit 2025, contributing to knowledge exchange and awareness building.

## Stakeholder Involvement

Both cities rely on multi-sectoral collaboration, but differences emerge in structure and maturity:

- In **Cracow**, tri-sector cooperation is developing, with increasing participation from NGOs, private firms, and academia. However, fragmentation remains a challenge—some stakeholders operate in silos, and coordination with the municipal government is not always efficient. As one participant noted, “everyone has their particular interests,” highlighting the need for stronger integrative mechanisms.
- **Warsaw** exhibits more formalized cooperation, especially via its Green Fund, where private companies like InPost and Veolia co-finance greening projects. Academic institutions are also engaged, for example through biodiversity research funded under the “Seed Programme.”

## Intercity Cooperation

While Cracow and Warsaw follow distinct pathways toward urban sustainability—with differing emphases, funding structures, and ESG maturity—they also share common goals and challenges. Notably, there is active knowledge exchange between the two cities. (Appendix VI)



This mutual learning dynamic underlines a key strength: both cities are not only evolving independently but also building on each other's experiences to enhance their own strategies for sustainable urban development.

#### Concluding Remarks

While both cities follow different priorities toward sustainability, emphasizing different funding structures, and ESG maturity—they also share common goals and challenges. A key strength observed throughout this analysis is the active knowledge exchange between the two cities. Rather than keeping the practices for themselves both cities try to build up on shared experiences, learning from one another's successes and limitations. This shared learning dynamic improves their collective capacity to implement green initiatives and advance sustainable urban development.

#### Sustainable Impact Comparison

The sustainable impact of green initiatives and ESG principles in Cracow and Warsaw can be assessed across three dimensions: environmental, social, and economic. While both cities pursue similar sustainability goals, their approaches, outcomes, and challenges differ notably.

#### Environmental Impact

Cracow and Warsaw have both achieved measurable progress in environmental performance, though through differing priorities and mechanisms.

- **Cracow** made significant strides in air quality improvement through pioneering anti-smog regulations, including a ban on burning solid fuels and subsidized stove replacements. These actions led to notable improvements in both indoor and outdoor air quality. Furthermore, Cracow invested in water supply modernization, reduced plastic use, and tackled localized environmental issues, including pollution from surrounding municipalities.
- **Warsaw**, by contrast, adopted a systemic strategy aimed at long-term climate neutrality. The city recorded gradual reductions in CO<sub>2</sub> and greenhouse gas emissions, while enhancing urban resilience through green infrastructure. Measures included increased water retention capacity, mitigation of urban flooding, expansion of green areas, and protection of urban biodiversity.

In summary, Cracow's environmental approach was more regulatory and localized, targeting air quality and infrastructure, whereas Warsaw pursued a broader climate strategy aligned with long-term resilience and adaptive urban design. The key environmental challenge for Cracow remains regional cross-municipal pollution, while Warsaw contends with the pressures of urban sprawl and climate adaptation needs.

#### Social Impact

Both cities emphasized public engagement and education, yet implemented different methods suited to local contexts.

- **Cracow** focused on raising environmental awareness, promoting pro-environmental behavior, and strengthening community collaboration—particularly with NGOs and civil society. The anti-smog resolution not only improved public health but also catalyzed greater civic responsibility.
- **Warsaw** placed a strong emphasis on educational outreach, introducing environmental curricula in schools, organizing competitions (e.g., “Warsaw in Flowers”), and holding community events. These initiatives contributed to increased social awareness, green participation, and improved mental and physical well-being, especially in areas with higher tree canopy coverage.

While both cities improved public health outcomes, Cracow achieved it primarily through pollution control, and Warsaw through the expansion of green areas. Moreover, Warsaw's investments enhanced neighborhood attractiveness and life satisfaction, whereas Cracow strengthened civic engagement and built new employment pathways in the green sector.

## Economic Impact

The economic benefits of sustainability initiatives are evident in both cities, yet again shaped by different mechanisms and scopes.

- **Cracow** stimulated economic growth through transport modernization, improved investment attractiveness, and increased competitiveness. Green projects contributed to job creation in areas such as environmental engineering and technical services.
- **Warsaw**, meanwhile, leveraged public-private collaboration to fund urban greening and space rehabilitation. The city also emphasized innovation, with rising R&D spending, support for eco-entrepreneurship, and growing foreign and domestic investment in sustainable infrastructure and green technologies.

Overall, Cracow's economic impact reflects a focus on infrastructure and service modernization, while Warsaw's strategy centers around long-term innovation, entrepreneurship, and strategic capital investment.

## Challenges

Both Cracow and Warsaw face a range of systemic and city-specific challenges that hinder the effective implementation of green initiatives and ESG principles. These challenges span regulatory, financial, and societal dimensions.

### Common Challenges

#### 1. Regulatory and Bureaucratic Barriers

Both cities struggle with outdated or rigid legislation, as well as slow and complex administrative procedures. These barriers delay the adoption of innovative solutions and the scaling of green projects. The absence of flexible legal frameworks—particularly those that could accommodate energy communities or emerging green technologies—further limits responsiveness to environmental needs.

#### 2. Limited Funding and Resource Constraints

Budget limitations are a shared obstacle. In Warsaw, accessing EU funds has proven challenging due to lengthy and bureaucratic application processes. In Cracow, limited funding affects not only implementation capacity but also educational outreach and infrastructure modernization. Both cities face difficulties in securing consistent and diversified financial streams, including from public-private partnerships.

#### 3. Public Resistance and Awareness Gaps

In both Cracow and Warsaw, some residents oppose restrictive environmental measures, especially when they are perceived to compromise personal comfort or lifestyle (e.g., clean transport zones or restrictions on solid fuel use). This resistance often stems from a lack of environmental education, limited understanding of long-term benefits, or concerns about personal cost.

### City-Specific Challenges

#### • Cracow

A unique challenge in Cracow is excessive daily car traffic from surrounding municipalities, with an estimated 300,000 vehicles entering the city each day. This generates high emissions and places pressure on urban infrastructure. The conflict between demand for parking and the preservation of green areas poses a dilemma for urban planners, especially in a densely built city with limited space.

#### • Warsaw

Warsaw faces challenges related to legal uncertainty and investor deterrence. The lack of a stable and coherent tax and legal framework has contributed to an outflow of eco-innovators and start-ups, who seek more supportive conditions abroad. Additionally, the city must overcome public skepticism toward car traffic restrictions, such as those imposed by clean transport zones.

#### Potential Solutions

To address these issues, several policy and community-based approaches can be proposed:

- **Strengthen** public education and engagement, targeting both schools and adult populations, to increase awareness of sustainability benefits and reduce behavioral resistance.
- **Institutionalize** ESG principles into local legal frameworks to improve coherence and reduce bureaucratic delays.
- **Introduce** urban transport regulations, such as entry restrictions for high-emission vehicles in Cracow, to alleviate traffic congestion and support clean air policies.
- **Promote** investment incentives and legal clarity to retain eco-innovators and support green entrepreneurship in Warsaw.

By addressing both common and localized challenges through these targeted solutions, Cracow and Warsaw can significantly improve the effectiveness and public acceptance of their sustainability agendas.

## Chapter V: Discussion

Following section focuses on the interpretation and reflection of key findings presented in the findings chapter, linking them to both research questions and the theoretical framework. It reflects on the comparative insights gathered from both cities, drawing on the theoretical frameworks of the Triple Bottom Line and Institutional Theory. The discussion is structured on the study's core analytical dimensions: (1) the types of green initiatives and their thematic focus, (2) how these initiatives are implemented and what role stakeholders play, and (3) the main barriers and enablers that shape how policies work in practice.

### Comparative Analysis of Cracow and Warsaw

#### **Urban Strategy and Governance**

Comparing Cracow and Warsaw key similarities and differences emerge in policy approaches, stakeholder engagement, coordination mechanisms, and overall governance style.

#### **Shared Strategic Approaches**

Both cities demonstrate a commitment to EU-aligned sustainability goals, utilizing planning frameworks such as the 2030 Strategy, while engaging with private sector partners and NGOs. They draw from EU and national funding sources and have incorporated ESG principles, even if not formally codified, reflecting the Triple Bottom Line (TBL) framework. Both cities pursuing economic development, environmental protection, and social engagement while, operating within institutional constraints consistent with Institutional Theory, which emphasizes organizational conformity to wider social and political norms.

#### **Key Differences in Governance Style**

Despite these shared foundations, governance styles diverge significantly:

- **Cracow** adopts a collaborative and decentralized model, using a diverse range of stakeholders: public sector, NGOs, businesses, and residents. Citizens possess agency in green initiatives selection through participatory budgeting and public input mechanisms. Funding contributions from both the public and private sectors further reinforce the bottom-up, community-integrated model. From a TBL perspective, the social dimension is embedded in Cracow's sustainability governance.

- **Warsaw**, by contrast, follows a more centralized, top-down approach. Municipal departments and city officials lead planning and implementation. Consultation mechanisms exist, citizen involvement is more advisory than participatory, and decision-making power remains institutionally concentrated. From an Institutional perspective, this reflects a hierarchical and formalized model shaped by administrative norms and political structures.

Thus, Cracow may be viewed as locally networked and socially embedded, while Warsaw prioritizes top-level coordination. These governance styles influence policy formulation and resonance with local stakeholders.

#### **Implications for Theoretical Frameworks**

This divergence reinforces the application of both TBL and Institutional Theory. Cracow's integration of social participation aligns with the TBL pillar of "People", whereas Warsaw's demonstrates how institutional mandates and governance hierarchies shape urban sustainability implementation. This highlights how local governance models significantly affect ESG and green initiatives operationalization.

#### *Types of Initiatives*

Initiatives in both locations target climate resilience, sustainable mobility, and the expansion of green spaces, reflecting a shared focus on the environmental pillar of the Triple Bottom Line (TBL). According to Institutional Theory, this signifies alignment with EU policy frameworks, reinforced by the use of EU financial instruments to support green projects. Both cities structure their efforts around long-term development strategies, aligned with the 2030 Strategic Plans.

### Similarities

- **Strategic alignment** with the EU's Green Deal and sustainability agenda.
- **Use of EU and national funding**, underscoring institutional legitimacy and the formalization of sustainability commitments.
- **Focus on key sectors** such as mobility, emissions, air quality, and green urban infrastructure.
- Integration of initiatives within **long-term planning cycles**, illustrating how environmental objectives are tied to structural urban governance.

These commonalities highlight the fulfillment of TBL's "Planet" dimension, while reflecting the influence of external norms and policy diffusion as described by Institutional Theory.

### Differences

Despite these shared goals, the **focus, scale, and method of implementation** differ substantially:

- **Cracow** emphasizes emissions reduction and community-level social transformation, focusing on behavioral change, education, and inclusive public engagement. Projects are localized, with clear neighbourhood focus and citizen co-ownership of outcomes. Reflecting a bottom-up approach rooted in social sustainability, it integrates awareness campaigns and participatory planning processes. Within the TBL framework, an emphasis on the "People" component.
- **Warsaw**, by contrast, prioritizes environmental and technical transformation on a city-wide scale, emphasizing structural reforms such as urban greening, infrastructure modernization, and stormwater management. These initiatives are largely technocratic and department-led, with limited grassroots involvement. This suggests a top-down, centralized model of public policy implementation, aligned with hierarchical governance structures outlined in Institutional Theory.

In summary, Cracow's approach promotes horizontal integration and civic empowerment, while Warsaw's model prioritizes vertical efficiency and system-level interventions.

### *Effectiveness and Impact*

Both Cracow and Warsaw have succeeded in achieving measurable reductions in emissions through formal environmental policies such as coal bans, clean transport zones, and low-emission programs. From a Triple Bottom Line (TBL) perspective, these measures reflect strong alignment with the environmental pillar, both cities demonstrate an institutional commitment to mitigating climate-related risks. From an Institutional perspective, both cities exhibit institutional maturity and regulatory capacity.

### Similarities in Effectiveness

- Implementation of formal environmental instruments (e.g., anti-smog laws, emission zones).
- Institutionalization of climate goals into long-term city strategies (e.g., 2030 visions).
- Alignment with EU norms and funding schemes, illustrating policy legitimacy and external compliance.

These commonalities indicate environmental outcomes, reflecting both the "Planet" pillar of TBL and the normative strength of institutional isomorphism (i.e., adaptation to common frameworks).

### Differences in Social Responsiveness and Public Acceptance

While both cities implemented impactful environmental policies, the social effectiveness and acceptance of these strategies diverged significantly:

- **Cracow** utilizes public involvement in planning (e.g., citizen voting on green initiatives, education campaigns) enhanced policy legitimacy and community buy-in, especially during politically sensitive measures like the coal stove ban. This bottom-up participatory model fostered broader engagement across all three TBL pillars — environmental, social, and economic — and encouraged behavioral change at the grassroots level.
- **Warsaw**, in contrast, pursued a top-down approach, using regulatory tools and infrastructure upgrades to enforce change. Although effective from a technical standpoint, the rollout of clean transport zones encountered resistance from residents, where policies were perceived as infringing on personal freedom or daily convenience. This highlights a gap between institutional action and social receptiveness, limiting the holistic impact across the TBL framework.

### **Integrated Impact Assessment**

- **Cracow's** balanced strategy enabled long-term impact: emissions dropped, awareness grew, and social trust was strengthened, resulting in compound policy effectiveness.
- **Warsaw's** technical efficacy was offset by limited social endorsement, which constrains the expansion and scalability of environmental measures, especially where citizen adaptation is required.

In summary, both cities demonstrate success in emissions reduction and environmental management. However, Cracow's model shows greater integration across all dimensions of sustainability, leveraging community engagement and social capital as accelerators of impact. Warsaw's model, while institutionally robust, risks stagnation without stronger mechanisms for social dialogue and co-creation.

### *Barriers and Challenges*

When examining barriers to effective implementation of green initiatives, both Cracow and Warsaw encounter systemic limitations rooted in funding constraints and regulatory complexity. These shared obstacles affect their capacity to implement and scale sustainability measures, undermining both the economic pillar of the Triple Bottom Line (TBL) and institutional efficiency as viewed through the Institutional Theory lens.

### **Shared Barriers**

- Both cities rely heavily on EU and national funding, which are often conditional, time-bound, and bureaucratically complex. This financial dependency underscores a lack of fiscal autonomy and highlights institutional top-down dependencies, limiting cities' ability to pursue flexible or innovative strategies.
- Additionally, both cities struggle with fragmented national legislation, unclear mandates, and overlapping competences between local and national governance, reflecting institutional misalignment that slows down effective policy execution.

### **Divergent Challenges**

- **Cracow** experiences significant administrative and bureaucratic inertia, with procedural delays commonly cited by initiative organizers. These issues limit social engagement and economic efficiency, particularly in terms of citizen-led projects. Nevertheless, public resistance is comparatively lower, suggesting that despite administrative delays, Cracow has managed to foster greater social alignment and participation.
- **Warsaw**, by contrast, faces higher levels of public opposition, particularly visible in the case of the Clean Transport Zone. This pushback reflects challenges in social communication and behavioral alignment, pointing to weaknesses in addressing the social pillar of TBL. Institutional fragmentation

within the city administration, specifically poor coordination between departments, was identified as a critical bottleneck, hindering integrated planning and cross-sectoral implementation.

### Theoretical Reflection

#### *Introduction*

This section critically evaluates how the comparative findings from Cracow and Warsaw align with the two theoretical frameworks underpinning this study: the Triple Bottom Line (TBL) and Institutional Theory.

#### *Application of Triple bottom Line Framework*



Figure 1. Triple Bottom Line pillars (El Rifai, 2021)

### **Application of the Triple Bottom Line (TBL) Framework**

The Triple Bottom Line theory, developed by John Elkington, assesses sustainability through the integration of three core pillars: Environmental, Social, and Economic outcomes. This section breaks down the TBL application to both Cracow and Warsaw across each dimension.

#### **1. Environmental Impact**

##### **· Cracow:**

- Demonstrated significant improvements in air quality through the implementation of anti-smog legislation and the phasing out of coal and wood-burning stoves.
- Progressed in renewable energy adoption, with around 30% of electricity sourced from renewables, as reported in interviews.
- Upgraded water supply infrastructure, resulting in one of the cleanest municipal water systems in Europe.

##### **· Warsaw:**

- Focused on urban greening and unsealing (rozszczelnianie), mitigating urban heat islands and enhancing water retention.
- Committed to reducing greenhouse gas emissions by 40% by 2030, aligning with EU climate neutrality goals.
- Enhanced urban biodiversity and resilience through strategic planting, rain gardens, and flood prevention systems.

Both cities contribute meaningfully to the environmental pillar, though Cracow's efforts are more concentrated on air and energy, while Warsaw adopts a broader, climate-adaptation-focused strategy.

## **2. Social Impact**

### **· Cracow:**

- Prioritized community engagement via participatory budgeting for green projects, environmental education, and direct involvement in local planning.
- Emission reduction and better air quality have had measurable benefits on public health and well-being.
- Strengthened partnerships with NGOs and educational institutions to foster environmental awareness and civic responsibility.

### **· Warsaw:**

- Developed structured environmental education, including school programs, community events like “Garden Thursdays”, and the “Warsaw in Flowers” competition.
- Residents in greener neighborhoods report higher life satisfaction and better mental health outcomes, supported by data from THINKTANK (2023).
- Public consultation mechanisms are in place, but citizen influence in decision-making appears weaker compared to Cracow.

While both cities have engaged socially, Cracow demonstrates deeper participatory integration, suggesting stronger alignment with the social sustainability pillar of TBL.

## **3. Economic Impact**

### **· Cracow:**

- Created new jobs in sustainability sectors (e.g., waste management, renewable energy).
- Improved city competitiveness and attracted investment through transport modernization and air quality initiatives.
- Faces financial limitations but leverages EU and government funding effectively.

### **· Warsaw:**

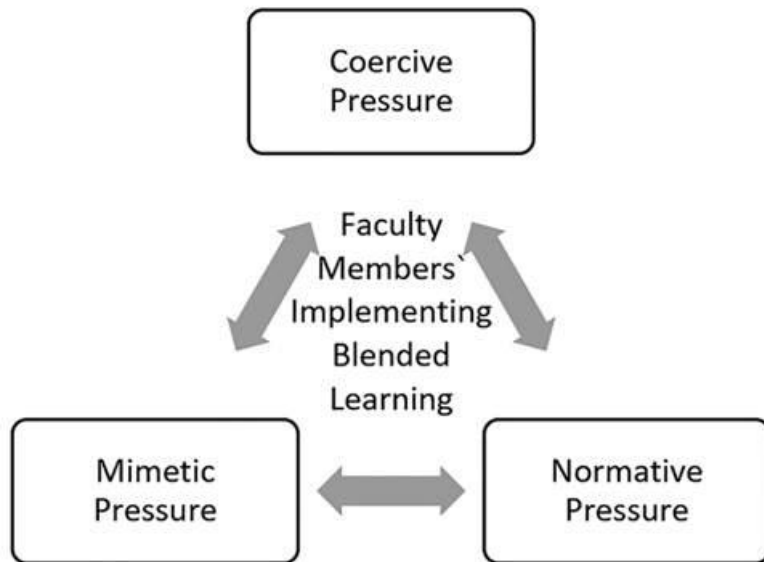
- Established the “Green Fund for Warsaw”, enabling public-private partnerships for environmental projects.
- Attracted foreign and domestic investors by promoting R&D in green technologies and urban space rehabilitation.



- Positioned itself as an economic leader in the ESG space, evidenced by support for innovation and start-ups.

Both cities address the economic pillar, but Warsaw's institutionalized financial mechanisms and innovation agenda offer a stronger foundation for long-term economic sustainability.

### *Application of Institutional Theory*



*Figure 2. Components of institutional theory (Anthony Jnr, 2021)*

Institutional Theory provides a framework for analyzing how both formal structures (e.g., laws, policies, governance bodies) and informal norms (e.g., societal values, behavioral patterns) shape sustainability outcomes. This section evaluates how Cracow and Warsaw reflect these two dimensions in the context of ESG and green initiatives.

### **1. Formal Institutions and Governance Structures**

#### **· Cracow:**

- Cracow faces institutional inertia: regulatory delays and bureaucratic complexity hinder the timely implementation of green projects and ESG integration.
- Although ESG principles are being informally adopted (e.g., via the “Climate Pact” and ESG Ambassadors), there is no formal legal or strategic anchoring for ESG in city governance.
- The city's reliance on external funding (e.g., EU KPO) reveals dependency on supranational structures rather than robust internal frameworks, aligning with Institutional Theory's concept of isomorphic pressures (DiMaggio & Powell, 1983).

#### **· Warsaw:**

- Displays a more institutionalized approach to ESG, reflected in structured frameworks like the Warsaw 2030 Strategy and events such as the Warsaw ESG Summit.
- Green initiatives are driven by municipal departments and centralized planning, supported by formalized public-private partnerships (e.g., the Green Fund).
- ESG principles are embedded implicitly in policy documents and made visible through consistent public communication, signaling regulatory stability and institutional maturity.

Conclusion: While both cities face bureaucratic challenges, Warsaw demonstrates greater institutional coherence, whereas Cracow relies more on ad hoc mechanisms and stakeholder goodwill.

## 2. Informal Norms and Cultural Change

### · **Cracow:**

- Shows progress in cultivating social awareness and behavioral change through public involvement in green projects and education initiatives.
- However, resistance to certain policies (e.g., transport restrictions, energy transition) suggests lingering tensions between environmental goals and cultural values, especially concerning personal comfort and cost.
- Informal norms are evolving, but changes remain localized and gradual, reflecting emerging cultural alignment with sustainability norms.

### · **Warsaw:**

- Has seen more widespread societal engagement, particularly through green education in schools and community-based initiatives like Garden Thursdays.
- Nevertheless, public opposition to car traffic restrictions (e.g., clean transport zones) highlights deep-rooted norms around individual freedom and car ownership, which conflict with top-down environmental regulations.
- The city is experiencing a cultural transition, yet faces pushback when policies challenge entrenched habits and privileges.

Key Insights Both cities reflect partial alignment of informal norms with sustainability goals. Cracow leans on participatory change to foster social shifts, while Warsaw navigates resistance to imposed behavioral changes, despite high institutional visibility.

## *Conclusion*

In summary, both theoretical frameworks—Triple Bottom Line (TBL) and Institutional Theory—have proven valuable in interpreting the dynamics observed in Cracow and Warsaw's sustainability efforts.

· **The TBL framework** revealed how both cities, despite different implementation models, attempt to balance these three pillars—Cracow excelling in environmental and social dimensions, while Warsaw demonstrates strength in economic innovation and urban-scale green infrastructure.

· **The Institutional Theory** highlighted how Cracow's more collaborative, bottom-up governance faces bureaucratic delays, while Warsaw's top-down structure benefits from clearer strategic coordination but encounters cultural resistance to imposed changes.

## Implications

This study offers several practical and academic insights relevant to other Polish cities or urban areas facing similar sustainability challenges. aiming to generate analytical insights that may inform similar urban contexts.

## **Urban Planning and Policy Transfer**

The findings suggest that certain policy approaches from Cracow and Warsaw are replicable, scalable, or contextually adaptable for other municipalities:

- **Public engagement models**, e.g. Cracow's hedgehog shelters or Warsaw's "Garden Thursdays," show how small-scale, community-driven initiatives can effectively foster environmental awareness and societal participation.
- **Multi-sectoral collaboration** e.g. Cracow's "Climate Pact" and Warsaw's "Green Fund" highlights how cooperation between stakeholders can ease financial and operational constraints.

However, it is important to recognize that administrative capacity, legal frameworks, and public readiness may vary significantly between municipalities, requiring tailored adaptations of these models rather than direct replication.

### Academic Contribution

This thesis contributes to the existing body of research on urban sustainability and ESG implementation in the following ways:

- It provides an in-depth analysis of **green initiatives in Cracow and Warsaw**, areas previously underexplored in comparative urban studies in Poland.
- It **extends the application of the Triple Bottom Line (TBL)** theory beyond the corporate context, illustrating its value in evaluating city-level sustainability strategies.
- Employing **Institutional Theory**, the study demonstrates how formal structures and informal norms shape the success or failure of sustainability efforts.

In conclusion, the findings deepen understanding of the sustainability landscape in Poland's leading cities while offering practical guidance for others seeking to navigate similar transitions toward inclusive urban development.

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### Hypothesis for Future Research

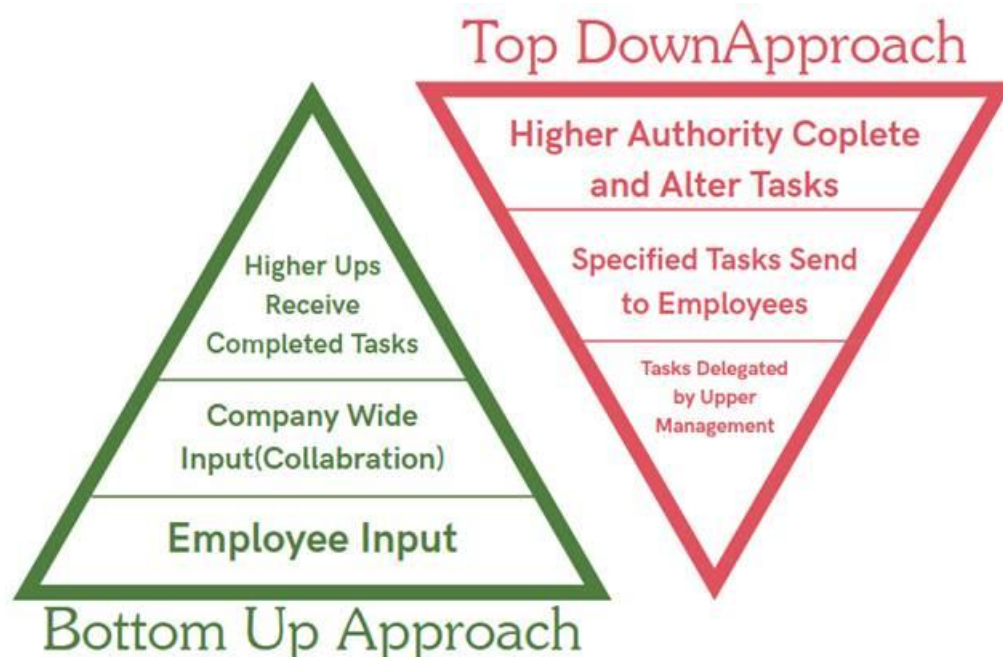


Figure 3. Top-down and bottom-up approach structure (Erhardt, 2025)

This section outlines potential hypotheses emerging from the study's findings and proposes future research avenues to deepen understanding of ESG and green initiative implementation at the urban level.

### Proposed Hypotheses

Based on the comparative analysis of Cracow and Warsaw, and the “Chapter IV: Findings” the following hypotheses are proposed for further investigation:

- H1: Cities with community-led green initiatives exhibit higher levels of public engagement than those relying primarily on top-down, government-led approaches.

Support from this study: Cracow's bottom-up structure—characterized by resident involvement and participatory planning—has shown to foster stronger civic engagement compared to Warsaw's more centralized, top-down model. Cracow's initiatives such as “Park Krakowian” and “Air Protection Program” demonstrated strong resident involvement in both planning and implementation stages, including participatory budgeting and neighborhood consultations. In contrast, Warsaw's projects—like the “Green Vision for Warsaw 2030”—were largely municipal-led, with limited mechanisms for grassroots input.

- H2: Even in the absence of formal ESG policy frameworks, cities can effectively implement ESG-aligned practices through informal mechanisms, stakeholder engagement, and cultural adaptation.

Support from this study: Both Cracow and Warsaw have integrated ESG-compatible activities, such as climate education, reporting, and sustainability programs, despite the lack of legally mandated ESG frameworks. For example, Cracow's collaboration with local universities on sustainability curricula and Warsaw's climate monitoring initiatives

- H3: Multi-sector governance positively influences the effectiveness and scalability of green initiatives.

Support from this study: Both cities benefited from cross-sectoral collaboration—with municipal authorities, NGOs, academia, and private companies contributing funding, knowledge, and capacity-building efforts. For example “Climate-Energy Plan” in Warsaw and the “Clean Air Program” in Cracow—were co-developed with different stakeholders, providing access to technical expertise, enhanced policy legitimacy and diversified resources contributing to more sustainable development.

These hypotheses reflect patterns observed in the empirical findings and offer testable propositions for broader empirical validation.

### Directions for Future Research

To expand upon the findings of this study, the following areas are recommended for future investigation:

- **Comparative urban studies** across different Polish cities, particularly mid-sized and non-capital ones, to assess the scalability and local adaptability of Cracow and Warsaw's approaches.
- **Cross-country comparisons**, particularly with cities in Eastern and Central Europe, to evaluate ESG implementation in post-socialist urban contexts within the EU framework.
- **Quantitative analysis** of initiative outcomes, such as air quality improvements, energy usage reduction, or public satisfaction metrics, using time-series or longitudinal data.
- **Long-term tracking of ESG adoption** at the municipal level in Poland, especially in light of upcoming EU regulatory changes that may formalize ESG obligations for public entities.
- **Public perception and behavioral studies**, including surveys or interviews with residents and businesses, to explore attitudes toward ESG and green policies, trust in governance, and willingness to change lifestyles.

In summary, this thesis lays a foundation for further interdisciplinary and multi-scalar research that integrates environmental policy, urban governance, and socio-economic transformation in the context of ESG and sustainable development.

### Policy and Strategic Recommendations

This section outlines actionable policy and strategic recommendations for Cracow and Warsaw to address identified challenges and enhance the effectiveness of green initiatives and ESG integration.

#### **Recommendations for Cracow**

##### **1. Streamlining Administrative Procedures for Green Initiatives**

Cracow struggles with bureaucratic inefficiencies and delayed approvals, which hinder the implementation of green projects. Establishing fast-track administrative pathways specifically for sustainability-oriented projects—particularly for NGOs and SMEs—could significantly improve project initiation and execution.

Reference: Platform on Sustainable Finance Report: Streamlining Sustainable Finance for SMEs (2025).

##### **2. Creating a Cross-Municipal Air Quality Coalition**

While Cracow has achieved reductions in local emissions, it remains vulnerable to pollution from surrounding municipalities. A solution would be to create a regional partnership or air quality coalition with neighboring towns to harmonize emissions regulations, coordinate enforcement, and share data and best practices.

Reference: European Commission (2023) – Urban Environmental Policy Integration Guidelines.

##### **3. Formalizing ESG in Budgetary and Strategic Frameworks**

Given residents' demonstrated interest and participation in environmental initiatives, Cracow could institutionalize ESG by designating a specific budgetary allocation for ESG-aligned citizen-led projects. This approach would incentivize grassroots engagement and link fiscal planning to sustainability goals.

#### **Recommendations for Warsaw**

##### **1. Formal Integration of ESG into Urban Strategy**

Warsaw's sustainability efforts align with ESG in practice, yet lack formal acknowledgment. Integrating ESG explicitly into the city's core strategy documents, such as "Warsaw 2030", would strengthen legitimacy, improve governance coherence, and enhance the city's readiness for future EU compliance frameworks.

##### **2. Enhancing Private Sector Collaboration and Investment Incentives**

While Warsaw benefits from public-private partnerships, long-term investment flow remains a challenge. Introducing targeted tax incentives or co-financing mechanisms for companies meeting urban ESG targets could improve capital flow and project scalability. ESG deliverables should be clearly defined and auditable to maintain transparency and accountability.

##### **3. Deepening Citizen Engagement to Reduce Resistance**

Public resistance, particularly toward transport and clean air policies, reflects a gap in communication and ownership. Warsaw should implement hyper-local awareness campaigns—e.g., at the neighborhood level—supported by data and success stories. These campaigns should highlight the direct benefits of green policies (e.g., reduced temperatures, cleaner air, improved health), and use participatory tools such as deliberative forums and citizen voting.

## **Intercity Learning Opportunities**

Based on policy and strategic recommendations, both cities can offer valuable insights and lessons for each other. On the one hand, Cracow's success in fostering citizen engagement through bottom-up planning could inform Warsaw's efforts to reduce public resistance to environmental policies; mechanisms such as participatory budgeting and grassroots project design could be adapted to Warsaw's context. On the other hand, Warsaw's use of institutional partnerships and public-private funding models provides a valuable template for Cracow to strengthen investment pipelines and scale initiatives beyond the local level. Moreover, Warsaw's alignment of long-term urban strategies with sustainability goals presents a replicable model for Cracow's formal integration of ESG into strategic planning frameworks.

## **Chapter VI: Conclusion**

### **Conclusion**

This study aimed to compare the implementation of environmental initiatives and ESG principles in Krakow and Warsaw within the context of sustainable urban development, with a focus on understanding the cities' approaches to management, identifying differences in their approaches, and examining the challenges and areas for mutual learning. The most important conclusions emphasize that: (1) Krakow employs a bottom-up, participatory approach characterized by stronger social involvement and the integration of non-governmental organizations and local communities. (2) Warsaw, on the other hand, uses a top-down, institutionalized approach with better integration of strategic frameworks.

Both cities struggle with the lack of formal ESG mandates in their policies, but they still implement ESG-compliant measures. Additionally, cross-sector cooperation is a common factor that fosters urban development, though implemented differently in each city.

Moving on to the theoretical contribution, the TBL theory helped assess initiatives in environmental, social, and economic terms, showing that Krakow focuses on the environmental and social pillars, while Warsaw focuses on the economic pillar. Institutional theory suggests Krakow's informal approach facilitates community involvement but faces delays, while Warsaw's structured model ensures clarity but encounters resistance.

### **Limitations**

The study has several limitations. First, conducting interviews proved difficult, especially in Warsaw, where establishing contact was a challenge – only one person responded. As a result, insights regarding Warsaw may be more limited compared to Krakow. Second, the literature on ESG implementation at the city level in Poland remains scarce, and no comparative study of this kind has been conducted before. Third, the focus on only two cities – Krakow and Warsaw – limits generalizability. Both are large cities, so findings may not reflect smaller municipalities. Finally, the broad scope and word limits restricted analytical depth across all key aspects.

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# Chapter VIII: Appendix

## Appendix I “Interview Questionnaire”

### Capstone Interview Structure

#### Interview Introduction

First, I would like to thank you very much for taking the time to participate in this interview. I am Katarzyna Erhardt, currently pursuing my bachelor's degree at the University of Groningen. My thesis is titled "The Impact of Green Initiatives and ESG on Sustainable Development: A Comparative Study of Cracow and Warsaw."

The primary objective of this interview is to gain insights into the implementation, effectiveness, and challenges associated with green initiatives and ESG (Environmental, Social, and Governance) principles in both Cracow and Warsaw. We will also explore the differences in the application of these principles between the two cities.

Before the start, please be informed that your participation is entirely voluntary, and you have the right to withdraw at any time. All information provided will be treated with the utmost confidentiality and anonymity, ensuring that no personal identifiers will be recorded.

With your consent, I would like to record this conversation for transcription purposes assuring that, the recording will be securely stored and promptly deleted following the transcription process.

#### Questions

##### Introduction

1. Can you simply introduce yourself? Such as your name, where do you live, what's your role in the (company/organization/department)
2. Can you provide an overview of the (company/organization/departments) background, including its mission, vision, and goals?

##### Main Questions

###### A. Green Initiatives and ESG – understanding and view

1. What are the main green initiatives currently implemented in [Cracow/Warsaw]?
  - *What specific areas do these initiatives focus on? (e.g., air quality, green transport, renewable energy, waste management)*
  - *Who are the main actors driving these initiatives (public institutions, NGOs, private sector)?*
2. How are ESG (Environmental, Social, Governance) principles reflected in the city's sustainability framework?
  - *Are there reporting mechanisms or benchmarks related to ESG in place?*
3. How would you describe public awareness and engagement with sustainability efforts?
  - *Are citizens actively engaged in these initiatives? Do they support them?*
  - *Are there any educational programs or public campaigns integrated in the city to increase awareness?*

###### B. Past and present initiatives

4. Could you share examples of past or ongoing green initiatives?
  - *What were the outcomes?*
  - *Which ones have had measurable environmental or social impact?*
  - *What made them successful or unsuccessful?*
5. How was the success of these initiatives measured?
  - *Are there specific KPIs or sustainability metrics used?*
  - *Have there been any official evaluations or reports published?*
6. What role, if any has the private sector played in driving ESG-based sustainability projects?
  - *Have partnerships between public institutions and businesses been effective?*

### C. Future Plans

7. What are the city's goals for next years in terms of sustainability specifically looking at green initiatives and ESG?
  - *Are these goals linked to any sustainability frameworks such European Green Deal or the SDGs?*
  - *Is there a specific emission reduction target in the City?*
8. Are there any major future projects that will significantly shape the sustainability agenda? (such as infrastructure upgrades, transport electrification, urban greening, etc.?)
  - *Can you tell anything more about the plans, or their schedule*
  - *Is the city preparing to adapt to climate change in any way?*
    1. *Are there resilience or adaptation plans in place (e.g., flood prevention, heatwave preparedness)?*

### D. Possible Challenges

10. What are the major challenges when it comes to implementing green initiatives and ESG principles?
  - *Budget issues, political opposition, lack of expertise, public resistance?*
  - *In your opinion, are these challenges specific to local conditions or more general?*
11. How do you perceive the coordination between various stakeholders (government, private sector, NGOs, academia)?
  - *Is collaboration strong, or are there gaps in communication or priority alignment?*
12. Has the city faced any controversies or criticisms related to its green policies?
  - *If yes, what were the main concerns (e.g., gentrification, greenwashing, accessibility)?*
13. Are there any legal or bureaucratic limitations that slow down progress?
  - *For example, delays in approvals, EU compliance challenges, conflicts between departments?*

### E. Opinion on Cracow and Warsaw differences (only for NGO/governmental department interview)

14. How would you compare the approach to green initiatives and ESG principles between Cracow and Warsaw?
  - *Are the priorities different?*
  - *Is one city seen as more progressive or innovative?*
15. Have you seen examples of one city learning from the other?
  - *Are there collaborative projects between Cracow and Warsaw, or knowledge exchanges?*
16. Which city do you believe is better positioned to lead in sustainable urban development over the next decade?
  - *Why, and what could the other city do to catch up?*

### **Interview Summary**

Is there anything else you believe is important for understanding the sustainability efforts in Cracow and Warsaw that we haven't discussed yet? Are there any reports, documents, or publications you would recommend I review? Before we conclude, do you have any questions for me? Thank you once again for generously sharing your time and insights. Your contribution is truly valuable to my research.

## **Information sheet & Informed Consent Form**

### **INFORMATION SHEET**

Dear

Thank you for your interest in participating in this research. This letter explains what the research entails and how the research will be conducted. Please take time to read the following information carefully. If any information is not clear kindly ask questions using the contact details of the researchers provided at the end of this letter.

### **WHAT THIS STUDY IS ABOUT?**

This research is about examining the impact of green initiatives and ESG (Environmental, Social, and Governance) principles on sustainable development, through a comparative analysis of Cracow and Warsaw. It explores how both cities implement eco-friendly policies, the differences in their approaches, and the challenges they face in building more sustainable urban environments.

### **WHAT DOES PARTICIPATION INVOLVE?**

By agreeing to participate in this research, you will give up roughly 45–60 minutes of your time. I will ask you a number of questions and expect you to answer honestly without withholding details. With your permission, I would like to record the interview for data collection and analysis purposes.

### **DO YOU HAVE TO PARTICIPATE?**

Participation in this research is completely voluntary. You can choose to withdraw from this research at any moment and choose not to answer the question without consequence or providing reason.

### **ARE THERE ANY RISKS IN PARTICIPATING?**

There are no physical, social, economic, legal risks of participating in this research.

### **ARE THERE ANY BENEFITS IN PARTICIPATING?**

There are no direct benefits of participating in the research, but your participation will contribute to further knowledge on my research topic and will potentially be valuable to you indirectly or in the long term.

### **HOW WILL INFORMATION YOU PROVIDE BE RECORDED, STORED AND PROTECTED?**

I will guarantee confidentiality and anonymization, by removing your name and any references to your position from my research paper. The information will be presented in such a way that no identification is possible. The data will be stored both on the researchers pc in a private folder and on a storage platform facilitated by the university of Groningen that is considered safe. When the project is finished, in June of 2025, all the data will be disposed.

### **WHAT WILL HAPPEN TO THE RESULTS OF THE STUDY?**

The research findings in my final report will be shared with the supervisor part of University of Groningen that will be assessing my project. My research will be also presented at the Campus Fryslan Conference that will be open to the general public.

### **ETHICAL APPROVAL**

This research study is in line with relevant ethical guidelines and has obtained ethical approval from the Campus Fryslan Ethics Committee.

#### **INFORMED CONSENT FORM**

By signing the informed consent form you are attending to participate, but are still able to withdraw at any time.

#### **Contact information**

Katarzyna Erhardt

Email address: [k.a.erhardt@student.rug.nl](mailto:k.a.erhardt@student.rug.nl)

Phone number: +48 535178526

#### **INFORMED CONSENT FORM**

**Title study: “The Impact of Green Initiatives and ESG on Sustainable Development: A Comparative Study of Cracow and Warsaw”**

**Name Participant:**

#### **Assessment**

- I have read the information sheet and was able to ask any additional question to the researcher.
- I understand I may ask questions about the study at any time.
- I understand I have the right to withdraw from the study at any time without giving a reason.
- I understand that at any time I can refuse to answer any question without any consequences.
- I understand that I will not benefit directly from participating in this research.
- I understand that the interview will be recorded for data collection purposes.

#### **Confidentiality and Data Use**

- I understand that none of my individual information will be disclosed to apart of the researcher and my name will not be published.
- I understand that the information provided will be used only for this research and publications directly related to this research project. I understand that data (consent forms, recordings, interview transcripts) will be retained on the Y-drive of the University of Groningen server for 5 years, in correspondence with the university GDPR legislation.

**Future involvement**

☐ I wish to receive a copy of the scientific output of the project.

**Having read and understood all the above, I agree to participate in the research study:**

yes / no

**Date:**

**Signature:**

*To be filled in by the researcher*

- I declare that I have thoroughly informed the research participant about the research study and answered any remaining questions to the best of my knowledge.
- I agree that this person participates in the research study.

**Date:**

**Signature:**



### Appendix III

*“We have 300,000 cars a day coming from outside Cracow, passing through the city. People must understand that we cannot provide parking spaces for everyone [...]. If we start building car parks, it will be at the expense of something — for example, green areas.”*

### Appendix IV

*“The dissolving we do firstly reduces the temperature in urban heat islands. Secondly, they allow some of that precipitation to be retained on the soil.”* (Anonymous participant)

### Appendix V

Research suggests a strong correlation between green public spaces and residents’ satisfaction:

*“Residents of more ‘green’ neighborhoods perceive them to be more attractive and statistically show higher levels of life satisfaction, while a decrease in tree canopy cover below 30 percent of the area is associated with a statistically significant decrease in the mental and physical well-being of residents in these neighborhoods.”*

### Appendix VI

As highlighted by Respondent X:

*“Well, I see some such differences. Just little ones. Just like that. Each local authority is organized differently, and we look at these differences. Sometimes, in order not to duplicate specific solutions because we do not like them—or to duplicate them because we think they are clever.”*

*“We exchange knowledge and experiences. We have such a level of understanding that not only the good practices but also the less successful ones are shared.”*