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What impact climate change has on Jakarta including its economy, social construction and migration patterns; and how does the Indonesian government engage local citizens in flood prevention measures, considering the effectiveness of participatory strategies in enhancing flood resilience?

Master of Science (MSc) in Development Studies and International Relations

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ABSTRACT

The aim of my thesis was to investigate the impact of climate change on mass migration and the efforts taken by the government of Jakarta, Indonesia. The world's largest archipelago nation is facing great difficulties due to flooding. As a result, the capital city, Jakarta is sinking (Channel News Asia, 2021). The population of the city consists of many ethnic groups, and some of these participate in the forced evictions (Human Rights Watch, 2006). Jakarta's city outline is rather unusual considering the view of skyscrapers with the kampungs in the urban areas. The Portuguese and Dutch colonisation has left its mark on the city's infrastructure, while it provided the opportunity for Indonesia to increase their export of spices, oil and palm oil, amongst other things.

The nature of my study implies that the research method and analysis could not be based on primary research, therefore, my thesis will mainly rely on historical, theoretical, and empirical data to answer the research question.

The findings demonstrate that Indonesia has one of the world's youngest populations, which means active workforce for decades. However, the lack of education puts great strain on the economy, as the unemployment rate is rather high. Those living in kampungs are in need of the most basic criteria to maintain their livelihood, such as food, clean water, and education. The United Nations, as well as other organizations have been providing financial aid, especially at times like the 1997 economic crisis or the 2004 tsunami. Interestingly, the Indonesian economy has recovered shortly after the above mentioned. These organisations have intended making recommendations to the Indonesian government regarding action plans to minimise the loss and damage each year caused by climate change. One of the solutions is to designate Nusantara as the capital city and by doing so, save the sinking Jakarta. Nevertheless, the government has not yet prepared the necessary strategies to tackle the complex issue of climate change which has a direct impact on the country's economy and internal mass migration. The complexity of how environmental changes can impact the economy and migration will be further analysed in my thesis. I also intend to provide information on the government’s efforts in order to tackle with this problem.

Keywords: migration, climate change, forced evictions, participatory strategies, sinking city

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I INTRODUCTION

Climate change is a global phenomenon that transcends boundaries, impacting societies, economies, and environments across the planet. In recent decades, its consequences have become increasingly evident, with severe repercussions on vulnerable regions, including Southeast Asia. Indonesia, the world's largest archipelago nation – consisting of more than 17,000 islands *(Malay Archipelago*, 1998), is particularly susceptible to the adverse effects of climate change. The distinctive combination of Indonesia's varied geographical and environmental features, along with its substantial population of 278,102,447 in 2023, and its susceptibility to climate-related incidents, present a special backdrop for exploring the consequences of migration induced by climate change. (*Indonesia population, 2023)* For many habitants, climate change means abandoning their homes where they have lived for generations and moving to another part of the country or traveling abroad. The current situation of Indonesia's capital, Jakarta puts the lives of more than 10 million people at risk (Hellman, 2015), as their homes are about to sink. Jakarta is not the only coastal city in the world to face rising sea levels, but in this specific case, the rapid sea rise - due to excess groundwater extraction - is making the capital the fastest sinking city in the world.

The general idea concerning my thesis topic revolves around mainly the internal migration in Indonesia caused by environmental changes and the participatory strategies proposed by the government in order to tackle with this phenomenon. Due to the complexity of this research topic my thesis will touch upon the historical and political background of Jakarta as it shaped the economy, as well as the social structure of Jakarta. The thesis structure includes a short the historical background which examining the history of climate change, as many scientists address the topic and consequently the displacement of people in their papers and articles. The various impacts of climate change will be further analyzed within the theoretical framework and also I am making cross-references of the concept of vulnerability in my analysis. The Research Methodology chapter includes information on data collection method and limitations followed by the Research Findings and Analysis, which will provide in-depth information and shed the light on the present and past situation of Indonesia, and the effectiveness of government efforts to improve livelihood and reduce mass migration by implementing participatory strategies. Finally, the Conclusion will close the thesis and include the answer to the Research Question.

My thesis aims to answer the following research question:
What impact climate change has on Jakarta including its economy, social construction and migration patterns; and how does the Indonesian government engage local citizens in flood prevention measures, considering the effectiveness of participatory strategies in enhancing flood resilience?

Hypothesis 1. Increased citizen participation and greater involvement in flood prevention efforts enhances the community's ability to adapt to and recover from flooding events, potentially reducing the scale of mass migration as communities become more resilient.

The findings and analysis in my thesis align with this hypothesis by highlighting the importance of community resilience and the role of the government and local citizens in addressing flood prevention measures. My thesis discusses the significance of involving vulnerable local populations in adaptation strategies and their potential impact on reducing mass migration. It emphasizes the need for active engagement of citizens in flood prevention efforts, as their involvement can lead to the development of community-based initiatives, early warning systems, and contingency plans. By empowering communities to be more resilient and adaptive to flooding events, there is a potential to reduce the necessity for mass migration as communities become more equipped to handle and recover from these challenges.

Hypothesis 2. The inclusion of citizen perspectives and local knowledge in flood prevention initiatives increases the likelihood that these efforts will be aligned with the evolving challenges of climate change in Jakarta, influencing the volume of mass migration.

My thesis tends to support this hypothesis by emphasizing the role of integrating local knowledge and citizen perspectives into flood prevention initiatives. It discusses the need for participatory strategies – mainly the importance of education - that considers the evolving challenges of climate change and the potential impact on mass migration in Jakarta. By incorporating citizen perspectives and local knowledge, flood prevention efforts can be better aligned with the specific circumstances and needs of the communities affected by climate change. This approach facilitates the development of tailored and effective strategies that take into account the unique environmental, social, and economic factors that contribute to mass migration. By considering the insights and experiences of local citizens, flood prevention initiatives can be more responsive to the challenges posed by climate change, ultimately influencing the volume of mass migration in Jakarta by proactive and targeted approaches.

II BRIEF HISTORY OF CLIMATE CHANGE RESEARCH

In this section my thesis will touch upon a brief history of climate change. It has multiple functions as it provides a contextual understanding of how climate change has been perceived and addressed in recent times and how does it evolved throughout history. I also intend to highlight the importance and urgency of this topic by tracing the development of climate awareness and the growing understanding of its potential impact on the planet and societies.

“We are running the most dangerous experiment in history right now, which is to see how much carbon dioxide the atmosphere can handle before there is an environmental catastrophe.” - Elon Musk (Betts, 2021)

In the early 19th century, the French mathematician and physicist Jean-Baptiste-Joseph Fourier played a pivotal role in advancing our comprehension of the greenhouse effect, laying the foundation for our modern understanding of climate science. Fourier's work on this topic was a pioneering effort that helped shape the way we think about the Earth's atmosphere and its role in regulating the planet's temperature.

Fourier's work on the greenhouse effect began with his study of heat transfer. In 1824, he published a landmark paper titled "Remarques générales sur les températures du globe terrestre et des espaces planétaires" (General Remarks on the Temperatures of the Terrestrial Globe and Planetary Spaces), in which he examined the temperature of the Earth and its relationship to the atmosphere. In this article, he presented numerous crucial observations and ideas that would later serve as the cornerstone of our grasp of the greenhouse effect.

1. Earth's Temperature Discrepancy: Fourier recognized that the Earth's temperature exceeded what could be anticipated solely from its distance from the Sun. He realized that some mechanism must be at play to trap heat and keep the planet warmer than it would be if it were simply absorbing and radiating energy from the Sun.

2. Atmosphere's Role: Fourier hypothesized that the Earth's atmosphere played a crucial role in regulating its temperature. He proposed that the atmosphere acted like a "blanket" or "veil" that allowed sunlight to penetrate and warm the surface but hindered the escape of heat back into space. This idea was a crucial early concept of what we now refer to as the greenhouse effect.

3. Selective Absorption: Fourier also recognized that different gases in the atmosphere had varying abilities to absorb and trap heat. He suggested that certain gases, which he referred to as "calorific rays," were responsible for preventing the escape of heat from Earth's surface. Although he did not identify specific gases at this time, his insights foreshadowed the later discovery of greenhouse gases like carbon dioxide and water vapor.

Fourier's work laid the theoretical groundwork for understanding how the composition of the atmosphere influences the Earth's climate. However, it's important to note that the term "greenhouse effect" was coined later, in the 19th century, by other scientists who built upon Fourier's ideas.

Today, we understand the greenhouse effect as the mechanism through which specific gases present in Earth's atmosphere, like carbon dioxide, water vapor, and methane, capture sunlight's warmth, thus preventing it from dissipating into space. This inherent process plays a crucial role in sustaining a consistent and liveable climate on our planet. Nevertheless, human actions, notably the combustion of fossil fuels and the clearing of forests, have raised the levels of greenhouse gases in the atmosphere. Consequently, this has intensified the greenhouse effect and contributed to global warming. (J. R. Fleming, 1999).

In 1856, Eunice Newton Foote conducted groundbreaking experiments involving gases and their ability to trap heat. She placed cylinders filled with various gases, including carbon dioxide, in the sun and observed their warming effects. Foote's experiments led her to describe what is now commonly understood as the greenhouse effect, a critical element in the context of climate change. Her findings were presented in a paper titled "Circumstances Affecting the Heat of the Sun's Rays" in 1856, during a meeting of the American Association for the Advancement of Science. However, her work received little recognition, and the credit for discovering the greenhouse effect is often attributed to John Tyndall, an Irish physicist.

It wasn't until the 1970s and beyond that female historians of science began to acknowledge Foote's contributions. Elizabeth Wagner Reed, a geneticist and scholar in women's studies, highlighted the importance of Foote’s work in her 1992 book "American Women in Science Before the Civil War."

Eunice Newton Foote attended the Troy Female Seminary, one of the early institutions of higher education for women in the United States, where she pursued scientific studies. It's possible that her experiments were influenced by Joseph Henry, a family friend and the director of the

Smithsonian Institution, who had a keen interest in understanding how weather and climate affected agriculture. Her research was read aloud by Henry at the AAAS meeting in 1856, receiving some attention in the press. However, Foote's work did not receive the recognition it deserved, and her scientific career ended after presenting research on static electricity in the following year. She filed patents for various inventions before her death in 1888.

The question of whether John Tyndall was aware of, or plagiarized Foote's work remains a topic of debate among historians. While modern experts agree that Foote's experiments measured visible radiation warming and not the crucial infrared radiation associated with the greenhouse effect, Tyndall's experiments did consider this aspect. In recent years, efforts have been made to acknowledge Eunice Newton Foote's pioneering role in understanding the greenhouse effect. (T. Joosse, 2023.)

In 1938, Guy Stewart Callender, a British coal engineer, established the following:

“Quite a moderate number of reliable temperature records may be used to give the period anomalies of very large areas.

Few of those familiar with the natural heat exchanges of the atmosphere, which go into the making of our climates and weather, would be prepared to admit that the activities of man could have any influence upon phenomena of so vast a scale.

The combustion of fossil fuel [. . .] is likely to prove beneficial to mankind in several ways.

The return of the deadly glaciers should be delayed indefinitely.” (E. Hawkins, P. Jones, n.d.)

Half a century later, James Hansen – NASA climate scientist -, known for his influential testimony to the US Senate in 1988, along with two other scientists, cautioned in a joint statement that the world was on the brink of entering a 'new climate era.' This era would be characterized by temperatures surpassing those seen in the past million years, leading to consequences such as more intense storms, prolonged heatwaves, and severe droughts. (O. Milman, 2023)

The same year the IPCC (The Intergovernmental Panel on Climate Change) was formed of which the objective was to provide governments at all levels with scientific information that they can use to develop and implement climate policies and identify the strength of scientific agreement in different areas and indicate if further research is necessary. The IPCC does not conduct its own research, experts assess the annually published scientific papers to provide a

summary. Their reports have noted that human activities have contributed to the increase of the atmospheric concentrations of greenhouse gases. (About — IPCC, n.d.)

Previous investigations were further proven when Stephen V. Smith – American scientist - demonstrated that coral reefs are, in fact, net producers of carbon dioxide (CO2), which means they play a role in increasing the global greenhouse effect. It's crucial to note that this CO2 production is a natural part of the CO2 cycle, and coral reefs have been contributing to the Earth's natural greenhouse effect since the Mesozoic era. This natural greenhouse effect is essential for maintaining the Earth's temperature within a range that can support life.

In contrast, human activities like burning fossil fuels, changing agricultural practices, and various industrial processes release CO2 and other "greenhouse gases," which amplify this natural greenhouse effect. When we consider the global scale, the amount of CO2 generated by coral reefs is relatively small compared to the significant human-induced changes happening today. (Ware, J. R., Smith, S. V., & Reaka-Kudla, M. L.,1992)

By 2007 the IPCC warned that "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level." (IPCC, 2007) In their 2014 Report, the findings led to the Paris Climate Agreement.

The Paris Climate Agreement, or as often referred to, the European Green Deal, represents a significant global treaty designed to tackle the pressing issue of climate change. This agreement was formally adopted on December 12, 2015, at the 21st meeting of the Conference of the Parties (COP 21) held under the United Nations Framework Convention on Climate Change (UNFCCC) in Paris, France. While the negotiations took place in 2015, groundwork for this accord was laid in the preceding years, including initial talks in 2014.

Key Components of the Paris Climate Agreement:

Global Temperature Goal: The primary goal of the Paris Agreement is to restrict the rise in the Earth's average temperature to significantly less than 2 degrees Celsius (equivalent to 3.6 degrees Fahrenheit) compared to pre-industrial levels. Furthermore, it strives to make concerted endeavours to restrict the temperature increase to 1.5 degrees Celsius to avert more pronounced climate-related consequences. **Nationally Determined Contributions (NDCs)**: Each participating country, referred to as a Party, is required to submit its own NDC, which outlines

its commitment to reducing greenhouse gas emissions and adapting to the impacts of climate change. These NDCs are expected to be ambitious and progressively updated over time.

Transparency and Accountability: The agreement establishes a framework for transparency and accountability, requiring countries to regularly report on their emissions and progress in implementing their NDCs. There is also a process for international assessment and review of these reports.

Financial Support: Developed countries are expected to provide financial support to developing countries to help them transition to a low-carbon economy and adapt to the effects of climate change. The objective of generating $100 billion annually by the year 2020 was established, with intentions to raise this sum in the years that follow.

Loss and Damage: The Agreement recognizes the importance of addressing loss and damage that are the consequence of the adverse effects of climate change, especially in vulnerable and developing countries. It establishes a mechanism to enhance understanding and support in this area.

Technology Transfer: The agreement encourages the development and transfer of climate-friendly technologies to developing countries to help them reduce emissions and build resilience.

Global Stocktake: Parties agreed to conduct a global stocktake every five years to assess the collective progress toward achieving the agreement's goals and to inform future NDCs.

Long-Term Goals: The Paris Agreement envisions long-term goals, including achieving a balance between anthropogenic emissions and removals by sinks in the second half of this century. This implies a shift towards a carbon-neutral or net-zero emissions world.

Entry into Force: The agreement entered into force on November 4, 2016, after it was ratified by at least 55 countries representing at least 55% of global greenhouse gas emissions.

The Paris Climate Agreement marked a significant departure from previous climate negotiations by adopting a bottom-up approach, where countries set their climate goals based on their own circumstances and capabilities. This approach was seen as more inclusive and flexible, making it more likely for countries to participate and act on climate change.

The agreement received widespread support from the international community and was seen as a historic achievement in the fight against climate change. However, it also faced criticism from

some who argued that its goals were not ambitious enough to effectively address the climate crisis. Subsequent COP meetings have focused on strengthening and increasing ambition within the framework of the Paris Agreement. (*Paris Agreement on climate change*, n.d.).

III RESEARCH THEORY

a) Environmental Migration Theory

Environmental migration theory is an interdisciplinary field that seeks to understand the relationships between climate change, environmental degradation, and population mobility. It studies how individuals, households, and communities cope with changes in their environment and the implications of their decisions for global migration patterns (Foresight, 2011). This theory has been applied to various contexts, including natural disasters, civil conflicts, and the effects of climate change on migration. My thesis will provide an overview of the environmental migration theory, discuss its implications for climate-induced migration, and consider its impact on global governance and policy making and how it can affects migration. The effect of migration in Jakarta has direct and indirect effects on Europe as well, although the extent of these effects would depend on various factors such as policy responses, economic conditions, and societal dynamics. If climate change exacerbates environmental problems in Jakarta, such as sea-level rise, flooding, and extreme weather events, it could lead to displacement of populations. Some of these displaced individuals may seek refuge in Europe, adding to the ongoing global refugee crisis. It may serve as a catalyst for stronger international action on climate change mitigation and adaptation, with implications for European countries' climate policies and commitments (UNHCR Jakarta,2018)..

Climate-induced migration is a growing concern as the effects of climate change become more pronounced. Environmental migration theory can be used to understand the causes and impacts of this type of migration and recognizes a range of environmental drivers that can trigger migration (Hunter, et al, 2015). It is estimated that climate change could lead to the displacement of up to 200 million people by 2050 (De Haas, 2021,20). Various factors, including sea-level rise, extreme weather events, and the declining availability of resources, can drive climate-induced migration. For example, rising sea levels and changing rainfall patterns can cause coastal flooding, leading people to move inland in search of more stable land and resources (Behrman and Kent, 2022). Environmental migration theory also provides a framework for understanding climate-induced migration's impacts on sending and receiving areas, which includes understanding the effects on both areas' social and economic systems and the environmental impacts of migration (Kaczan & Orgill-Meyer, 2020,285). In some cases,

the influx of people can strain the resources of the receiving area, while in other cases, the outflow of people can leave the sending area with a shortage of labor and capital.

In connection with this theory the concept of vulnerability will be analysed from a social context. Vulnerability refers to the susceptibility of populations to environmental stressors. Vulnerable populations are more likely to be displaced due to environmental changes. Resilience, on the other hand, represents the capacity of individuals and communities to adapt and cope with environmental changes, reducing their likelihood of migration.

The theory distinguishes between forced and voluntary migration. Forced migration occurs when people are compelled to move due to immediate threats posed by environmental change, such as an impending disaster. Voluntary migration, on the other hand, occurs when individuals or communities choose to relocate in response to long-term environmental stressors – which in both cases true for Jakarta.

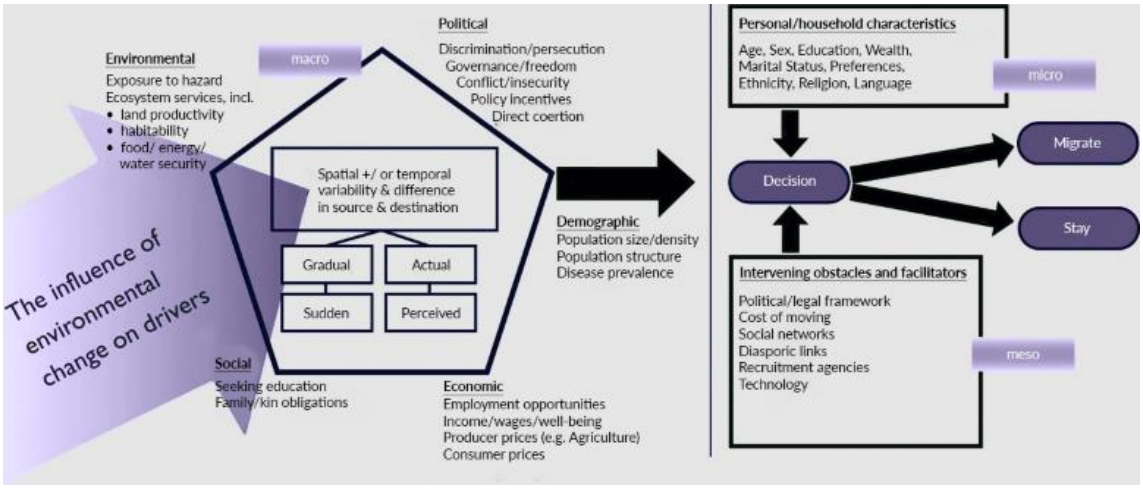

Figure 4. A conceptual framework for the drivers of migration. Source: Hunter, L. M., Luna, J. K. and Norton, R. M. (2015). The Environmental Dimensions of Migration. *Annual Review of Sociology*, *41*, 377 - 397.

b) **Push and Pull Theory**

Migration is a multidimensional phenomenon that involves the movement of individuals or groups from one place to another with the intention to settle temporarily or permanently. Jakarta, the capital city of Indonesia, is known for its rapid urbanization and exponential

population growth. The understanding of migration patterns in Jakarta can be effectively analyzed through the lens of the push and pull theory. My thesis will explore the push and pull factors influencing migration in Jakarta, offering insights into the complex dynamics that shape urban migration patterns in the city or the opposite, as I am incorporating the concept of vulnerability and its implications on migration. The push and pull theory, developed by E.G. Ravenstein, proposes that migration is primarily driven by a combination of push factors (negative conditions in the area of origin) and pull factors (attractive conditions in the destination area) (McKee et al., 2015; Rigaud et al., 2018). By understanding the interplay between these factors, researchers can gain a deeper comprehension of migration patterns in a given context. Throughout my analysis I identified that one of the push factors affecting migration in Jakarta can be the economic factors with high unemployment rates, limited job opportunities, and low wages in rural areas which push individuals to seek employment in the city, where greater economic prospects are perceived. In connection with the environmental migration theory environmental factors can also be a push factor. Natural disasters, such as floods and land erosion, coerce people to relocate from vulnerable areas to safer regions within Jakarta (Human Rights Watch, 2005). My analysis also touch upon the insufficient social infrastructure, limited educational opportunities, and social unrest which may prompt families to move, where better access to services is available. On the other hand, pull factors are also influencing migration in Jakarta. One of these factors are the economic opportunities because Jakarta offers a wide range of job opportunities, higher wages, and access to urban amenities compared to rural areas. This encourages rural residents to relocate for improved economic prospects. Better educational facilities and improved healthcare services are become a significant pull factor as well, attracting families in search of higher-quality education and healthcare for their children. Understanding the push and pull factors behind migration helps policymakers and urban planners make informed decisions to address housing, employment, and social welfare challenges associated with the growing population in Jakarta (Human Rights Watch, 2005). To understand this phenomenon my analysis touch upon the economic and social situation in Jakarta and how it influences migration – besides climate change.

c) The connection between the Environmental Migration theory and the Push and Pull Theory

These theories can complement each other by providing different perspectives on the factors influencing migration patterns. The environmental migration theory focuses on the impact of environmental factors and events, such as climate change, natural disasters, and environmental degradation, on migration. It suggests that environmental factors can act as "push" forces that make people leave their place of origin, or "pull" forces that attract them to a new location that offers better environmental conditions or resources (Cutter, S. L., Boruff, B. J., & Shirley, W. L. ,2003). In the case of Jakarta, potential examples of push factors related to the environmental migration theory could include the increasing risks of flooding and sea-level rise due to climate change. These factors have led to forced displacement of people living in low-lying areas of the city. On the other hand, the push and pull theory, which is a broader theoretical framework, considers various social, economic, and political factors that influence migration decisions. It suggests that people migrate due to a combination of push factors (such as poverty, conflict, political instability) and pull factors (such as job opportunities, better living conditions, and social networks) in the destination area. To examine the correlations between the two theories, I intended to explore how environmental factors (push) interact with other socio-economic factors (push and pull) to shape migration patterns in Jakarta which again – led the analysis to the concept of vulnerability.

d) Environmental Justice Theory

This theory emphasizes the relationship between environmental degradation and socio-economic inequalities, highlighting how vulnerable populations are often disproportionately affected by ecological disruptions and forced migration (Bullard et al.,2008). In the context of Jakarta, this theory can support my analysis by examining how environmental factors, such as sea-level rise, land subsidence, and increased flooding, contribute to the displacement of marginalized communities. Environmental Justice Theory argues that environmental hazards and migration patterns are influenced by structural inequalities rooted in economic and political systems. Therefore, I will be analysing this aspect further in my analysis where I highlight the importance of the Jakarta's economy and its governance structure focusing on the past. In the case of Jakarta, rapid urbanization, ineffective land-use planning, and inadequate infrastructure

have exacerbated the city's vulnerability to environmental hazards (Winarso & Budidarsono, 2019). These hazards disproportionately impact low-income communities residing in informal settlements and coastal areas, leading to forced migration. Furthermore, this theory can also shed light on the economic aspects of environmental migration in Jakarta. As vulnerable populations are displaced, their economic livelihoods are disrupted, and they face challenges in accessing employment opportunities and essential services in their new locations. Consequently, this further exacerbates existing economic disparities and can lead to a cycle of poverty and marginalization. In sum, by employing the Environmental Justice Theory, I gained a better understanding of the complex interplay between environmental factors, socio-economic inequalities, and migration patterns in Jakarta. This perspective also highlights the need for sustainable solutions such as participatory strategies to further address the environmental challenges faced by marginalized communities, while also considering their economic well-being.

IV METHODOLOGY

Before starting to delve into the analysis part I will introduce the method used during my thesis. This methodology ensured consistency and provided a structured approach throughout my analysis. The data collection method used in my thesis is chosen to explore the complexity of my research question. This includes the collection and analysis of secondary data from academic journals, reports, international organizations, and online news sources. In connection with this, the examination of historical records, policy documents, economic data are addressing the effect of climate change in Jakarta from a socio-economic perspective including the government's effort to tackle with migration.

a) Document analysis

Document analysis is a crucial research method utilized across various disciplines to extract meaning from written - both printed and electronic - sources. Like other analytical methods in qualitative research, document analysis requires that data be examined and interpreted in order to elicit meaning, gain understanding, and develop empirical knowledge (Corbin & Strauss, 2008). It involves a detailed examination of documents, texts, or other recorded forms of information to gain insights into historical, social, cultural, or political contexts which I intended to analyse in my thesis. This method involves various steps, including identification, classification, examination, interpretation, and evaluation of the documents used during the research. By employing these steps, researchers can gain a comprehensive understanding of the document's content, context, and intent (Krippendorff, 2018). Document analysis requires critical evaluation to assess its reliability, authenticity, and potential limitations. Researchers should consider potential biases, whether intentional or unintentional, that might influence the document's content and perspective. Evaluation also involves comparing the document with other contemporary or related sources to cross-reference information and determine its accuracy (Creswell, 2014). Document analysis is a rigorous method employed to examine written materials to extract meaning, context, and intent. By utilizing a systematic approach, researchers gain deeper insights into the significance and implications of the documents they investigate (Denzin, 1970).

With regards to the above, this methodology can greatly support my analysis.

b) **Limitations of the study**

The major disadvantage which I identified throughout my research that the secondary data used may not entirely answer my research question which may limit my analysis. Also, the usage of outdated data can also be a problem however, I indented to use up to date data throughout my analysis.

V RESEARCH FINDINGS AND ANALYSIS

a) Impacts of climate change

Climate change has severe social impact as well. One of the main issues is displacement and migration which is due to the rising sea levels, extreme weather events, and loss of agricultural productivity. The result being that communities are forced to relocate, leading to climate-induced displacement. This phenomenon has significant social implications, including conflict over resources and the need for international cooperation in resettlement efforts. Vulnerable populations, particularly in low-income countries, are disproportionately affected, leading to increased mortality rates. The article on the European Union Agency for Asylum website (n.d.) discusses how climate crises disproportionately impact **vulnerable communities**, often located in climate change hotspots, exacerbating existing tensions and conflicts due to resource depletion. Over 70% of refugees and displaced individuals come from climate-vulnerable countries like Afghanistan, the Democratic Republic of the Congo, Syria, and Yemen. Climate-induced displacement occurs both within and across borders, making protection an international concern.

Efforts to address this issue have intensified, with the UNHCR's Strategic Framework for Climate Action working with various stakeholders to increase resilience among displaced populations facing climate change. In 2022, the UN Human Rights Council appointed the first Special Rapporteur on human rights in the context of climate change, aiming to protect those displaced by climate-related reasons. However, a challenge lies in the absence of a legal definition for environmentally displaced persons.

The 27th UN Climate Change Conference of Parties (COP27) in November 2022 highlighted the importance of including refugees and displaced persons from climate-vulnerable countries in discussion, as they emphasized the urgency of adapting to climate change, calling for increased financing for front-line climate emergency countries and ensuring that resources benefit both climate-vulnerable countries and displaced populations along with their host communities.

Another factor to be considered is the economic impact. The increasing frequency of extreme weather events, such as hurricanes and floods, damages infrastructure and leads to substantial economic costs. Governments and businesses must invest in climate resilience measures to

mitigate these impacts. Reduced labour productivity, increased healthcare costs, and supply chain disruptions can also hamper economic growth and development. The insurance industry faces mounting challenges from climate-related claims, which could lead to increased premiums and reduced coverage. Additionally, financial markets are exposed to risks associated with stranded fossil fuel assets and unpredictable climate-related events.

b) **Global migration related to climate change**

In this section my aim was to investigate how climate change has impacted global migration waves starting by focusing on global tendencies. It allowed me to examine migration from a broader perspective in my thesis and also; further in my analysis I intended to present the case of the EU and UN as it provides insight into how different countries manage or address migration challenges. It may suggests potential policy recommendations or allows "knowledge-transfer" of the best practices which can potentially improve migration management caused by climate change in Jakarta.

Butros et al (2021) have examined the policies implemented by the EU and the UN. They found that both the policy documents analysed - from both the UN and the EU - express similar views regarding the connection between climate change and migration, characterizing it as crisis-induced. Neither institution asserts that climate change alone will directly cause migration, but they both acknowledge that climate change can contribute to conflicts, making it a triggering factor for migration. However, there are differences in perspective between the two organizations. The UN adopts a comprehensive human security approach, whereas the EU adopts a perspective centred on state security. Despite this distinction, both institutions recommend similar response measures, such as climate adaptation and resilience building in the countries from which migration originates or may originate. The policy documents from before 2015 do not delve into specific measures to enhance readiness for increased climate-induced migration in the recipient countries (Butros et al.,2021).

The European Union faces a demand for labour migration because of its aging population and is making efforts to draw in skilled workers from beyond its borders (European Investment Bank, 2016). Simultaneously, it is allocating resources to fortify its borders with a militarized approach and is enforcing stricter migration policies. Several member states, which presently decline to accept refugees, have played a significant role in generating migration due to their

historical heavy greenhouse gas emissions, sometimes referred to as their historical responsibility. (Butros, D., Gyberg, V. B., & Kaijser, A. ,2021.)

Based on the result of the EPRS (European Parliamentary Research Service) (2022), In 2020, a variety of crises compelled 11.2 million individuals to evacuate their homes, pushing the total number of forcibly displaced people to exceed 82 million, according to the United Nations (UN) Refugee Agency (UNHCR). Among these, approximately 48 million experienced internal displacement, while the remaining individuals sought refuge or asylum outside their home countries. Although this figure is alarming, it faces the potential to be overshadowed in the future due to the impacts of climate change. If regions currently susceptible to environmental challenges become uninhabitable in the coming years, we could witness an extensive and permanent international displacement crisis. According to a UN estimate, as many as 700 million people could be forced to relocate due to water stress by 2030. Furthermore, a report from the World Bank suggests that unless corrective measures are taken, there could be 216 million internal migrants driven by climate-related factors by 2050, surpassing the combined populations of Germany, France, and Italy.

Certain measures to be taken urgently and efficiently were also mentioned in the document, as the European Parliament has recognized that climate change is one of the factors driving migration. In its resolution on the protection of human rights and the European Union's external migration policy, it calls for various measures, including funding for sustainable responses to climate change on a regional level. A study, which was commissioned by the Parliament's Committee on Civil Liberties, Justice, and Home Affairs, delved into the connection between climate change and displacement, and explored potential policy frameworks at the European Union level.

Support from the EU for vulnerable countries will play a crucial role. Strengthened partnerships between the EU and stakeholders in vulnerable regions can assist these regions in building greater resilience to climate change. Investments, assistance, and the transfer of technology and knowledge from the EU can strengthen the ability to adapt in regions such as the Sahel, MENA, and the Asia-Pacific. Additionally, there's the potential to establish systems akin to the EU civil protection mechanism to guarantee increased readiness and a synchronized response in case of emergencies.

A 2015 study (M. Okka Lou, B. Schraven, 2015) has already revealed that the refugee crisis is hitting Europe, and it is a problem that the entire planet must tackle. There is no straightforward

cause-and-effect relationship between climate change and migration. In other words, the mere fact that temperatures are rising or there is less rainfall does not automatically lead to an increase in migration. In most cases, migration is the result of a complex interplay of economic, political, social, cultural, and environmental factors. This is also true for the outbreak of violent conflicts, which has been a major driver of recent refugee crises. While climate change may contribute to the conditions that lead to violent conflicts, as seen in discussions about the civil war in Syria, other factors like political stability and the ability to provide emergency assistance in affected countries are crucial in determining whether conflicts escalate.

Furthermore, within the context of global warming, migration often takes the form of temporary and regional movements rather than large-scale emigration to other continents. This is because many of the individuals most severely impacted by climate change rely directly on natural resources for their livelihoods, such as small-scale farmers, herders, or fishermen. These individuals are often among the poorest in society and may not even have the means to migrate. They are sometimes referred to as "trapped populations"(Ayeb-Karlsson, 2022). These at-risk communities bear significant hardships as a result of climate change, including struggles with food availability. When people are compelled to relocate because of the immediate consequences of climate change, their typical destinations are either within their own nations or neighbouring countries. It is often individual members within households and families who undertake this migration, rather than whole families. They utilize the income earned under difficult conditions to assist their families in dealing with the impacts of climate change. So, it's important to recognize that "non-migration" can be just as much of a problem as migration itself.

These results underline the evidence that climate change not only results in mass migration, but also leads to political, economic, and social issues. Therefore, addressing the intersection of climate change and migration requires comprehensive strategies that consider not only the environmental aspects but also the broader socio-economic and political factors that influence migration patterns and outcomes.

In my thesis, I have chosen to focus on Asia and more specifically Indonesia because of the special nature of the place, as it is "… highly vulnerable to climate change impacts, including extreme events such as floods and droughts, and long-term changes from sea level rise, shifts in rainfall patterns and increasing temperature." (Climate Change Knowledge Portal, n.d.) The article also states that despite significant economic growth in recent decades, which has resulted in a substantial decrease in poverty from 24% in 1999 to 9.78% in 2020, Indonesia faces

vulnerability due to its high population density in areas prone to hazards and a heavy reliance on the country's natural resources. This vulnerability places Indonesia at risk from anticipated climate variability and climate change. The effects of climate change will have widespread consequences, impacting various sectors and regions. It is projected that these impacts could lead to economic losses ranging from 2.5% to 7% of the country's GDP, with the poorest segments of the population bearing the greatest burden.

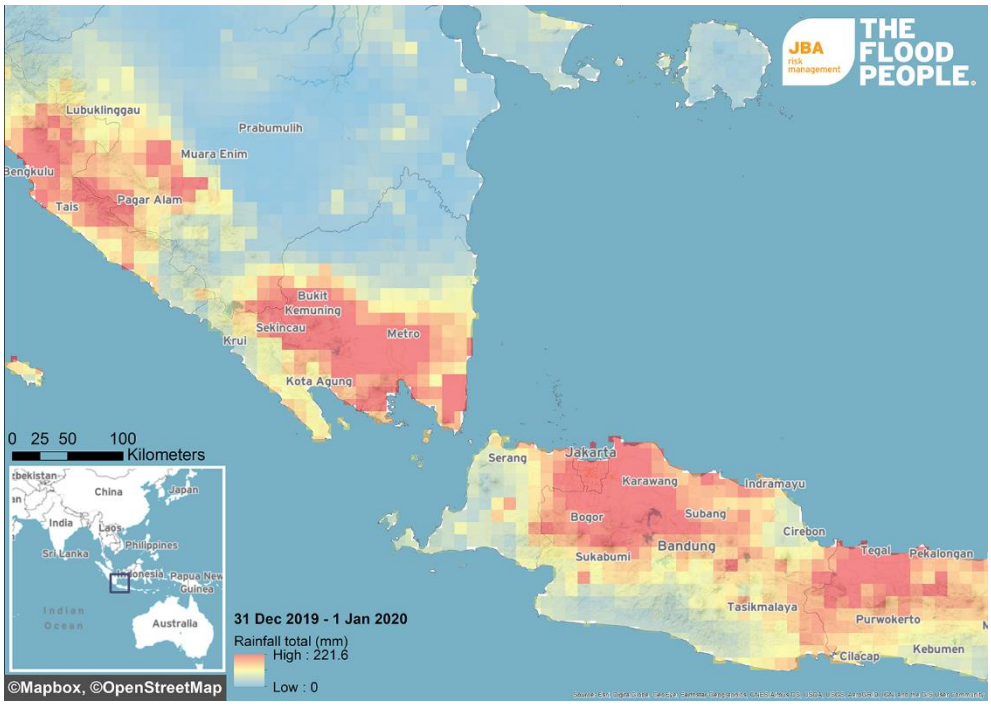

Figure 1. Rainfall and flood risk. Source: BA risk. (n.d.). *Jakarta floods*. JBA Risk Management | The Flood People.

Randall (2015) predicted that significant internal movement occurs between rural and urban regions within the country, encompassing both temporary and permanent migration. Western Java is a commonly selected destination for such migration. As Jakarta is expected to face various climate change impacts in the near future, it's possible that internal migration patterns will shift toward urban areas that are less vulnerable to risks, potentially extending to cities on different islands within the archipelago nation.

A 2011 article by Mario Wilhelm called: "The Role of Community Resilience in Adaptation to Climate Change: The Urban Poor in Jakarta, Indonesia" suggests that instead of focusing on listening to experts and scientists on climate change issues taking place in big cities, so-called megacities like Jakarta, it is worth paying attention to the local population, especially those

living in poorer neighborhoods (slums). Research shows that educating the population and allowing them to carry out their own initiatives influences the development of collective action (so-called social capital) (Wilhelm, 2011, p.1)

There are about 30 million people in multi-city Jakarta, the vast majority of whom live in Kampungs (UN,2022). People living in these areas very often have no access to potable water and live in poor conditions. Nevertheless, due to climate change and the constant flooding of these areas, they are forced to look for solutions that will allow them to live in the best possible conditions. What they face is not only rising water levels, which affect flooding of streets and homes, especially during the Monsoon season, but also air and water pollution, resulting from, among other things, the dumping of garbage directly into nearby rivers and canals.

According to an article published on website of The Jakarta Post (2019) the Jakarta government has repeatedly emphasized the development of kampungs, often regarded as the city's informal settlements or slums. Efforts have included construction projects and evictions in these areas, aimed at improving Jakarta's reputation as the major economic hub of Southeast Asia. Despite being disregarded in urban planning, kampungs have persevered, existing alongside towering skyscrapers, upscale gated communities, and along the city's riverbanks. While modern skyscrapers and apartments continue to be constructed, Jakarta's kampungs, which originated in a quieter and simpler era, persist.

c) The socio-economic factors in Indonesia

It is important to highlight the socio-economic and political background of Jakarta when analysing migration. By considering these factors and background – in connection with the analysed theory - I was able to identify the push and pull factors that may drive migration. Additionally, understanding these factors are essential when formulating policies or from the government’s perspective it is beneficial in creating participatory strategies.

Indonesia’s economic past can be described with industrialisation and urbanisation. A study has been carried out by the Reserve Bank of Australia. According to their findings, over the last few decades, Indonesia has experienced robust economic growth, and in recent years, this steady expansion has been coupled with decreased fluctuations in output and a comparatively stable

inflation rate. The country's economic progress has been influenced by government policies, its abundant natural resources, and a youthful and expanding workforce. Concurrently, as Indonesia's economy has become more industrialized, its engagement in international trade has risen over the past fifty years and successfully integrated into the global economy. (Elias, S. and Noone, C., 2011, p. 33.)

Table 1: Indonesia – GDP Population

	1960–67	1968–82	1983–96	1997–99	2000–10
Growth[a]					
Real GDP per capita	2.0	7.5	7.2	−6.4	5.2
Real GDP per capita	−0.5	4.9	5.3	−7.7	4.0
GDP deflator	291	25	8	34	12
Population	2.5	2.4	1.7	1.3	1.2
Share of world[b]					
GDP[c]	0.4	1.0	1.4	1.2	1.4
Population	3.2	3.4	3.5	3.5	3.5

(a) Average annual rate
(b) End of period
(c) On a purchasing power parity basis

Sources: IMF; Penn World Table Version 7.0; World Bank

Table 1. Indonesian economic situation during the last decades. Source: Elias, S. and Noone, C. (2011). The Growth and Development of the Indonesian Economy. p.34.

One of the most interesting factors that can influence the country's industry and GDP is that Indonesia boasts a median age of 28, making it the third youngest in East Asia and approximately a decade younger than most prominent advanced nations. (Elias, S. and Noone, C., 2011, p. 34.)

As it was seen in Table 1, the GDP was strongly affected by the Asian financial crisis of 1997 which hit most of the "Asian Tigers". (Stern, J. J., 2003). When applied to an economic system, the concept of self-organized criticality implies that the economy can withstand numerous minor shocks that appear to have little long-term impact. However, eventually, a significant

shock occurs, and its effects are harder to overcome. This is partly because the prior small shocks have weakened the economic framework and its ability to handle a major crisis.

It remains uncertain whether the concept of "self-organized criticality" is universally applicable to economic systems. However, it aptly describes the evolution of Indonesia's political and economic situation in the 1990s. To many, it seemed like an economy with a reasonably successful track record of economic management. In reality, it was a political and economic system that had gradually been eroded by minor actions or inactions. While none of these actions alone appeared to foreshadow trouble, their cumulative impact, when combined with a failure to address emerging weaknesses, ultimately paved the way for a major economic collapse. In hindsight, the growing vulnerability of the political and economic situation becomes clear. It also raises the question of why so many analysts, including international credit rating agencies and firsthand observers among private investors, failed to recognize the fragility of the economy in a timely manner.

What went unnoticed was that in an open economy where financial markets have been freed from regulations but lack effective oversight, substantial policy reversals are expected to greatly affect economic stability. This is because domestic money and equity markets play a more significant role in influencing investment, particularly foreign investment flows. When seen from this perspective, the diminishing prestige and influence of the economic team, along with the shift of political and economic power to the "technologists" and nationalists, should have raised greater alarm.

The country’s economy was shaped due to the European “intrusion” – the Portuguese being first, followed by the Dutch. (Widodo, T., 2006, p. 329.) In the 18th century, sugar and coffee were the most commonly traded and most important exported goods, with Java emerging as the primary region of trade, while the Portuguese tried to monopolize the trade of spices. In the early 19th century, Indonesia experienced not just the transition from company rule to Dutch government control but also a complete transformation of Java into a colonial society. Additionally, colonial rule successfully expanded to Sumatra and the eastern archipelago. The modern nation of Indonesia can be considered primarily a product of the 19th century. During this period, the majority of its borders were defined, and a process of generally exploitative political, military, and economic integration was initiated.

Following the Dutch colonial power's relinquishment of control over all Indonesian territories in 1949 (with the exception of the western half of New Guinea), the newly formed nation faced

the challenging task of governance and building a cohesive nation through a parliamentary system. It soon became evident that the country was composed of diverse groups vying for political influence and seeking to assert their ideologies on the emerging nation.

These groups had already existed during the colonial period, but they had a common adversary - the Dutch colonizers - which somewhat suppressed their differences. However, after gaining independence, these disparities became more pronounced. In 1945, Sukarno attempted to unify these various factions within the newly established, highly diverse nation by introducing his Pancasila concept, which represented the five principles serving as the official philosophical foundation of Indonesia (H.W. Dick,2002).

Indonesia's Pancasila incorporated elements of socialism, nationalism, and monotheism, serving as a unifying framework for all the ideologies present in Indonesian society. Notably, Sukarno's successor, Suharto, would later exploit the Pancasila concept as a potent tool of control during his authoritarian New Order government. The only group that opposed Sukarno's formulation of Pancasila were the more conservative Muslims. They aimed to include a provision mandating the implementation of Islamic Law (Shariah), a proposal that Sukarno rejected because it could potentially threaten the nation's unity. Despite having the world's largest Muslim population, Indonesia is also home to millions of Christians, Catholics, Hindus, Buddhists, as well as a substantial group of nominal Muslims who would not support the introduction of Islamic Law. (Indonesia Investments, 2015)

As Van Der Eng (n.d.) stated, history offers numerous instances of authoritarian governments being unable to consistently achieve long-term economic growth. Therefore, it is crucial to delve into the political positions of both regimes. Since both of these regimes held power for periods exceeding 25 years, examining their political stance requires more than just brief snapshots. Instead of solely focusing on one perspective, a holistic understanding of political change compels us to examine the factors that propel these shifts. This inquiry requires us to investigate if the two autocratic political systems in Indonesia's recent history were associated with inequalities in wealth distribution and whether changes in wealth distribution can be seen as the means by which economic development and political change were intertwined.

Nevertheless, there are many more resources that Indonesia can rely on. The country plays a significant role in the global export of crude petroleum and natural gas. Moreover, Indonesia is a leading provider of rubber, coffee, cocoa, and palm oil worldwide. It also generates a diverse array of other goods, including sugar, tea, tobacco, copra, and spices like cloves. The vast

majority of these commodities are produced on large estates. Extensive exploration for oil and mineral deposits has led to numerous large-scale initiatives that have greatly bolstered general development funds. From 1969 to 1998, a sequence of five-year plans placed a strong emphasis on the government's involvement in advancing the economic infrastructure of the nation, particularly in sectors like agriculture, irrigation, transportation, and communications. As a result, the government, along with foreign aid, played a pivotal role in driving progress in areas where private businesses were initially hesitant to invest. One outcome of these government efforts was the establishment of the state-owned oil company, Pertamina. Toward the end of the 20th century, there was a growing focus within the public sector on creating autonomous, financially self-sustaining state enterprises. (Indonesia - Trade, agriculture, manufacturing, 1998)

The beginning of the 21st century brought about events that have shaken the Indonesian economy. The tsunami in 2004, which was triggered by a 9.2 strong earthquake in the Indian Ocean, took more than 168 000 lives. (Lucich, M., Dal Bon, N. and Houston, E., 2006) As it was mentioned previously, extreme weather conditions, earthquakes can be the result of climate change. However, it is not possible to ignore the fact that climate change has an impact on the economy – unemployment rate, GDP, significant changes within industrial sectors -, politics, and infrastructure. This means that people are forced to leave their homes in order to provide for their families, their livelihoods depend on rapid and efficient reaction to the above-mentioned changes. The 2004 catastrophe sparked an immense global initiative aimed at assisting the victims affected, resulting in the collection of billions of dollars to support disaster relief efforts. The tsunami occurred in the midst of a period of notable transformation and turmoil in Indonesia, encompassing the downfall of the Suharto regime, the shift towards democracy, and the Asian financial crisis.

In 2006, the Indonesian Government arranged a three-pillar plan, with the aim to reduce the rate of unemployment and poverty. This consisted of the following. (Lucich, M., Dal Bon, N. and Houston, E., 2006)

- Enhance confidence in economic stability by significantly lowering the inflation rate through the inflation targeting approach implemented by Bank Indonesia. The inflation target for 2006 was adjusted to 7-9 percent, up from the previous range of 5-7 percent, due to further reductions in fuel subsidies.
- Boost economic growth to exceed 6 percent by advancing a variety of structural reforms. These reforms encompass:

1. Modifications to tax systems, including a gradual reduction in the corporate tax rate, addressing issues in tax administration, and reducing regional taxes that hinder trade and business.

2. Financial sector reforms, as outlined in the Financial Sector Reform Package announced on July 5, 2006. These reforms involve strengthening coordination between fiscal and monetary authorities, altering regulations to allow state-owned banks to dispose of their non-performing loans, and implementing measures to enhance the liquidity, efficiency, and integrity of capital markets.

3. Labor market flexibility improvements.

- Encourage increased private investment by mobilizing funds for infrastructure development and enhancing the rule of law while simplifying government regulations. Indonesia has an ambitious investment agenda, with infrastructure investment requirements estimated at US$63 billion over the next five years. However, progress toward these targets has been limited, and there has been minimal advancement in the numerous infrastructure measures announced by the government.

By 2014 the Indonesian economy has become the sixteenth largest in the world, (AsialinkBusiness, n.d.) with services, agriculture and industry – including manufacturing – sectors accounting for the annual GDP. (Figure 1.) Japan, China, Singapore, South-Korea and the United States are Indonesia's main trading partners. Its main export continues to be of products such as petroleum and natural gas, minerals, crude palm oil, electrical devices, and rubber goods. It is worth noting that the most elevated wholesale rice prices among emerging Asian nations were found in Indonesia in 2016, posing a notable challenge for low-income families. This is particularly important considering that half of the dietary energy supply is made up rice. (OECD, 2016)

A 2022 article focusing more specifically on Jakarta mentioned the following industries. Jakarta boasts a diverse economy encompassing various sectors and industries. (City spotlight: Investing in Jakarta, 2022) The skilled and cost-effective workforce in Indonesia makes it an appealing choice for foreign investors. The primary economic sectors in Jakarta comprise:

1. Banking

2. Trade

3. Financial services

4. Manufacturing
5. Services

Moreover, the city excels in the following key industrial areas:

1. Automotive
2. Electronics
3. Mechanical engineering
4. Chemicals
5. Biomedical sciences manufacturing

Furthermore, Jakarta offers an enticing luxury real estate investment market.

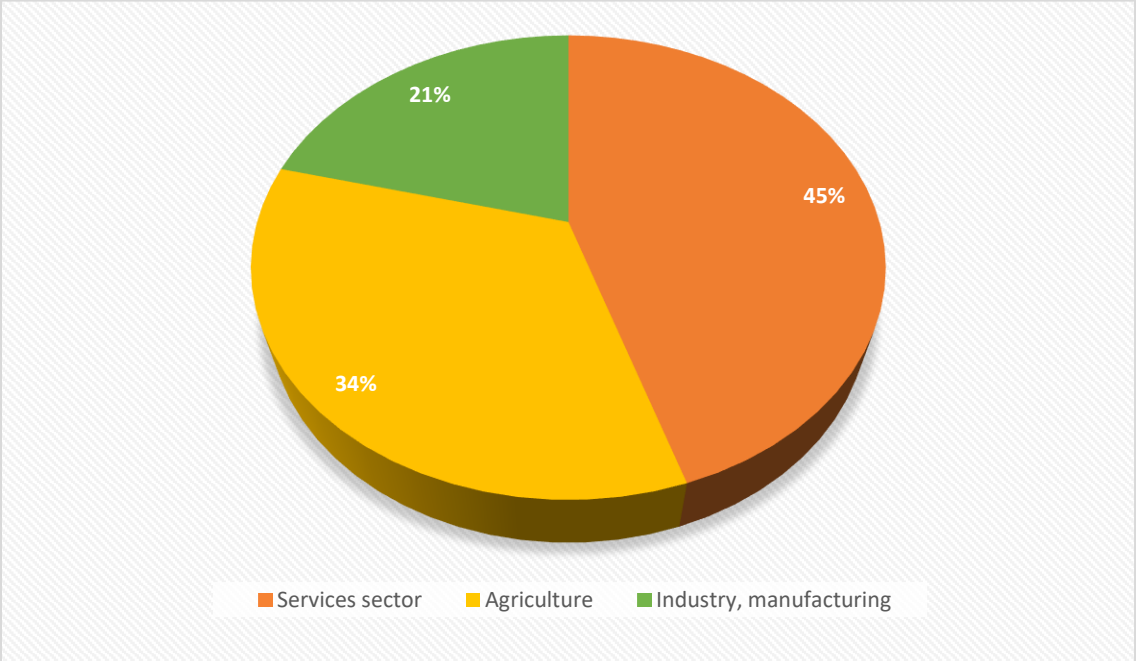

Figure 2. GDP distribution in Indonesia, 2014. Source: AsialinkBusiness. (n.d.). *Indonesia's economy*.

Jakarta in 2013 launched a project which was not only beneficial for achieving economic growth, but also for the environment as it reduced pollution, above all, created thousands of jobs, which – it was expected – reduced migration rate. (PT. Mass Rapid Transit Jakarta, 2013) MRT Jakarta contributes to the advancement of Indonesia's economy and the rapid development of its infrastructure. It offers a swift, convenient, secure, and dependable mode of transportation

for the people of Jakarta, while also creating prospects for growth and rejuvenation in proximity to transit stations and along MRT routes. Additionally, it helps alleviate traffic congestion and reduce pollution.

Nonetheless, the authorities seemed pessimistic by the 2020 pandemic and at that time predicted that 3.5 million people would become unemployed. In mid-September, Jakarta, the capital city, initiated a second partial lockdown lasting four weeks due to an increase in cases that put significant pressure on its healthcare system. (*Indonesia in recession for first time in 22 years*, 2020) In a study carried out by McCarthy (2003) an approximate 20-25% of the residents were said to live in poverty, in kampungs and possibly "4-5% more squatting illegally in riverbanks." (McCarthy, 2003)

In the context of the nation, Jakarta holds a unique position as both Indonesia's capital city and its primary metropolitan area. Since gaining independence, the president has closely supervised the physical form and growth of Jakarta. During Sukarno's leadership, Jakarta underwent a transformation that reflected the ideals of national identity, self-governance, and modernization. This included the construction of Monas, the national independence monument, along with the establishment of important national institutions. Additionally, iconic statues with a socialist realist style were commissioned to mark significant intersections along the newly reconstructed roads. In the era of Suharto, extensive plots of land were allocated to well-connected developers, facilitating the development of extensive suburban areas to the south and west of DKI Jakarta, catering primarily to the middle class. The progression of land development in Jakarta can be divided into three distinct periods: Firstly, there was the autocratic nationalist urban planning of the New Order, spanning from 1988 to 1997. Secondly, we witnessed the era of post-crisis democratic neoliberal urban development from 1998 to 2006. Finally, the current phase, from 2007 onwards, represents a rescaled form of neoliberal urban development. Each of these periods had a particular emphasis on land transformation: the creation of peri-urban new towns during the New Order, the establishment of shopping centres in DKI Jakarta during the post-crisis period, and the development of metropolitan-wide super-blocks in the present era. The following sections will delve into these trends and examine how they were influenced by the prevailing contextual factors.(Herlambang et al., 2018)

Regarding long-term government policies, Puspitawati collected the following government policies in their paper. (2021). In early March 2015, the President of the Republic of Indonesia issued Government Regulation No. 14 Year 2015, which pertains to the Master Plan of National Industry Development (known as RIPIN) for the period 2015-2035. RIPIN was formulated to

fulfil the requirements outlined in Law No. 3 Year 2014 on Industry, in alignment with the National Medium-Term Development Plan (RPJMN) for 2015-2019. It serves as a guiding framework for the government and stakeholders in the industrial sector.

Since then, the government has structured Indonesia's industrial development from 2015 to 2035 into three distinct phases. The initial phase, spanning 2015-2019, focuses on enhancing the value-added aspects of natural resources within agricultural, mineral, and oil processing-based upstream industries. Concurrently, it involves selectively nurturing supporting and dependable industries, fostering a skilled and proficient industrial workforce, and advancing technological expertise.

The subsequent phase, spanning 2020-2024, is dedicated to achieving competitive advantages and environmental awareness. This is pursued through the strengthening of the industrial structure, technological mastery, and the cultivation of a highly qualified labor force.

Finally, the third phase, spanning 2025-2035, aims to establish Indonesia as a robust industrial nation. This entails building a solid and diversified industrial base, bolstering global competitiveness, and fostering a foundation for innovation and technology. It is worth noting that despite the onset of the digital era 4.0, the industrial policies in Indonesia have yet to fully support technological advancement, with such support primarily being emphasized in the second and third phases.

Oberman (2012) investigated the future of Jakarta, and the findings demonstrate that over the next 15 years after the study, the global consuming class is expected to expand by 1.8 billion people, with more than 75 percent of this growth occurring in Asia. This growth is primarily driven by the unprecedented economic transformations in India and China, with their average incomes increasing at a rate ten times faster and on a scale 200 times larger than England's Industrial Revolution. This economic growth in Asia, particularly in China and India, is increasing the demand for resources and commodities, many of which are supplied by Indonesia. Indonesia's exports to these Asian economies have been growing rapidly, with notable exports including palm oil and coal. Urbanization is also a significant trend in Indonesia. The proportion of Indonesians living in urban areas is expected to rise to 71 percent by 2030, with millions of people moving from rural to urban areas. This urbanization will lead to the creation of new cities, contributing to the overall increase in Indonesia's GDP generated by urban areas.

Furthermore, Indonesia's young and expanding population is expected to reach 280 million by 2030, contributing positively to economic growth. The country is also poised to become a mobile and digital nation, with a growing number of mobile subscriptions and increasing Internet access. Indonesia holds significant potential in green technologies, particularly geothermal energy sources, which could play a substantial role in meeting the country's energy needs in the future. Asia, particularly India and China, is experiencing unprecedented economic growth, leading to increased demand for resources from countries like Indonesia. Indonesia is also undergoing urbanization, has a growing young population, is embracing digital technology, and has the potential to tap into green energy sources. As Hanneman (1999) put it, in his paper on the development of sociology in Indonesia international sociology has influenced Indonesian sociology more than the reverse. Nevertheless, Indonesian sociologists have also made contributions to their own context, establishing a community amid unequal power relations between the state and society. Over a quarter of a century, they have played a role in rebalancing this relationship.

Despite these efforts, the equilibrium between the state and society in Indonesia remains elusive. There is still a lack of clear distinction between safeguarding social dynamics and strong state patronage of society. The structure of Indonesian society has evolved, and Indonesian sociologists have been actively engaged in addressing related issues. They have grown in tandem with Indonesia's development and must continue to contribute to the nation's future direction, albeit without the expectation of solving all its problems. Indonesian sociologists can undoubtedly make meaningful contributions to their society.

Report about the second quarter of 2023 (Sulaiman, et al 2023) stated that the government intends to increase spending in the current quarter in order to achieve its annual growth target of 5.3%, as stated by the chief economic minister, Airlangga Hartarto, in remarks to reporters on Monday. Additionally, the finance ministry is forecasting that GDP growth for the year will be approximately 5.1%, underscoring concerns about the potential impact of a global economic slowdown on exports. According to data from Statistics Indonesia, the largest economy in Southeast Asia expanded by 5.17% in the April-June quarter compared to the same period the previous year, surpassing the 4.93% growth forecasted by economists surveyed by Reuters. The first-quarter growth was also slightly revised upward to 5.04%.

d) Migration, forced eviction and displacement – the current situation in Jakarta

Land disputes frequently lead to conflicts in Indonesia, and the issue of forced evictions has been a persistent and recurring problem in Jakarta's history. During the presidencies of Sukarno and Soeharto, government forces carried out brutal and extensive evictions to fulfil the urban development visions of city and national leaders, often serving the interests of a select group of privileged developers. However, even with Indonesia's transition to democracy, forced evictions have not come to a halt. Over the nine years of Governor Sutiyoso's administration in Jakarta, many tens of thousands of individuals have witnessed the security forces demolishing their residences and confiscating their belongings with minimal notice, due process, or compensation (Australian Institute of International Affairs, 2015). For many thousands more of Jakarta's impoverished residents, there is a constant fear that one day, security forces and bulldozers will arrive in their communities. “Indonesian nongovernmental organizations have been working on the issues of forced evictions, land acquisition, land rights, and housing rights in Jakarta and Indonesia for decades” (Hrw.org, 2006). The presence of gangs and youth groups organized around ethnic, religious, or political ties, engaging in activities like extortion and the use of force, is not a recent development in Indonesia. In Jakarta, there is a well-known gang called the Forum Betawi Rempung (FBR), which asserts its mission as safeguarding the rights of the indigenous Betawi population. (Hrw.org, 2006)

The article published by the Indonesia water portal (2022) has risen awareness by providing detailed information on the sinking capital. The sinking of Jakarta is a long-standing issue due to overuse of groundwater, population growth, and climate change. Rising global temperatures and urbanization have worsened the situation. Jakarta's sinking serves as an example of how countries respond to climate risks. Efforts to protect Jakarta with concrete walls have failed, and much of the city's northern part may be underwater by 2030. In response, Indonesia plans to relocate its capital to a sustainable city in Borneo called Nusantara. However, this plan's $32 billion cost and lengthy development process raise doubts.

While the government relocates, Jakarta's population continues to grow, leaving many at risk. Infrastructure projects like a seawall will proceed, but these won't help the majority of the population still living on Java. The situation in Jakarta illustrates the challenges of climate-induced urban destruction. This is part of a broader issue of climate-induced displacement. While specific data on climate-related displacement is lacking, disaster-related displacement

hit a decade-high in 2020. By 2050, over 200 million people could face environmental displacement, and the international community must address this problem. Climate migrants, unlike traditional refugees, lack legal protections. As climate change intensifies, more cities like Jakarta will face similar crises, highlighting the need for global cooperation to address climate-induced displacement. The world must prepare for the impact of climate change on the 21st-century international system.

In 2022, the situation is described by Milko (2023) as approximately 300 miles (equivalent to 500 kilometres) away from Jakarta, complete villages along the Java Sea find themselves engulfed in turbid, brownish waters. Analysts point to a variety of factors contributing to this situation, including the effects of climate change such as rising sea levels and more powerful tides. Additionally, the gradual subsidence of the land and ongoing development activities play a role in exacerbating the issue.

According to McCarthy (2003), the 2003 administration in Jakarta initiated a flood control and urban enhancement campaign, which, unfortunately, has largely served as a pretext for forcibly displacing squatters. In the initial nine months of 2001, over 17,000 individuals were compelled to vacate their homes, and approximately 5,800 residences were demolished. Media reports have extensively covered incidents of resistance met with police brutality. Beyond a nominal 'relocation' stipend, typically ranging from US$10 to $15 per household, there has been no provision for alternative housing, forcing many to return to squatting along roadsides or beneath bridges. Consequently, residents have found themselves in a precarious situation where they lack any legal tenant rights, often resulting from non-payment of rent or the property owner's desire to sell or renovate.

On a different note, expectations from the government regarding public service delivery are quite low. Both kampung residents and municipal officials appear to have lost sight of the notion that public services can or should respond to citizens' needs and demands. When reminded of their entitlements, such as access to water supply and waste disposal, most individuals simply exhibit indifference, uncertain about the process for asserting such rights. For instance, the sight of a garbage truck in or around the kampung is an unheard-of rarity. Instead, it is accepted as customary for residents to pay a weekly fee, ranging from Rp. 3,000 to 5,000 (significantly higher for warung owners), for manual collection and incineration of their refuse at a makeshift landfill situated adjacent to the cassava garden.

In 2017, the provincial government of Jakarta carried out a study with the objective of improving the treatment of kampungs based on their distinct classifications (Figure 1.) and attributes. The study categorized Jakarta's kampungs along a spectrum ranging from 'non-slum' to 'highly impoverished,' taking into account their income levels and the quality-of-life indicators derived from demographic information.

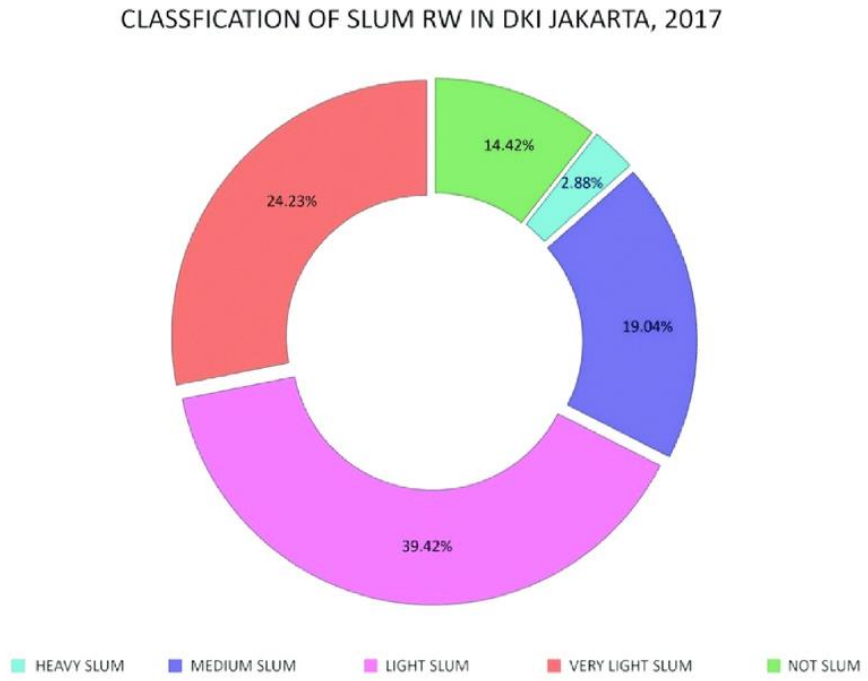

Figure 3. Classification of slums 2017. Source: Nie, 2021, *Empowering informal settlements in Jakarta with urban agriculture: exploring a community-based approach*

The President of Indonesia declared in 2019 the intention to relocate the capital to a new city in East Kalimantan, a move driven in part by the growing issue of rising sea levels in Jakarta. This significant shift serves as only one of the consequences of the rising sea levels in Jakarta, with the primary goal being to alleviate the challenges faced by the capital, such as severe traffic congestion and overcrowding. However, it's important to note that residents in North Jakarta remain vulnerable, as their homes continue to submerge. They are often referred to as the "neglected casualties of climate change". (Kayla, 2021) The author also mentioned that the Muara Baru district in North Jakarta bears the brunt of the city's sinking problem. From 1980 to 2001, the residents witnessed the construction and subsequent sinking of the Waladuna Mosque. The area had to relinquish the mosque as it gradually sank into knee-deep water,

prompting the government to construct a barrier around the irreparable building. This mosque serves as a perpetual symbol of what awaits 95% of North Jakarta by 2050 if proactive measures are not implemented. The potential solutions to the issue include limitations on groundwater extraction, efforts to replenish aquifers naturally and artificially, the development of alternative water sources (rather than relying solely on groundwater), and enhancements in governance and decision-making processes.

The Waladuna Mosque. Source: Kayla, A. (2021, August 14). *The rise of climate refugees in Indonesia*

In the case of Jakarta's subsidence problem, it is evident that excessive groundwater extraction is the primary culprit, exacerbated by lax regulations. The absence of stringent controls has allowed individuals to freely engage in groundwater extraction, far exceeding allowable limits over the years. In May 2018, Jakarta city authorities discovered that out of 80 buildings on Jl. Thamrin in Central Jakarta, 56 had their own groundwater pumps, with 33 of them operating illegally. The solution becomes clear: a shift towards alternative sources of clean water is imperative. Unless there is a halt to unregulated groundwater extraction and an increase in regulatory measures, Jakarta will inevitably continue to sink. Most critically, as more land succumbs to climate change-induced challenges, communities across Indonesia will face disintegration, leading to the emergence of climate refugees.

The patterns of internal migration - according to Sierra Leal et al (2019) – are not perfectly reliable. Most of the information regarding migration in Indonesia primarily centres around international migration. Over recent decades, there has been a notable rise in international

migration to and from Indonesia, primarily driven by economic factors. In contrast, environmental migration tends to occur within the country's borders, making data collection a challenging task. The available data concerning environmental migration in Indonesia is quite limited, but it does suggest that a substantial portion of the population comprises internal migrants. For instance, in just the year 2010, an estimated 9.8 million individuals were believed to be internal migrants. Sierra Leal investigated the areas of livelihood that are affected by environmental changes. These are the following.

1. Low-income urban coastal communities in Indonesia heavily rely on natural resources, particularly fishing, fish farming, and agriculture, for their income. However, residents have been facing various challenges. Fishermen and women have reported decreasing fish stocks, leading to inconsistent and reduced earnings. This decline can be attributed in part to rising ocean temperatures, ocean acidification, pollution, and unsustainable fishing practices. Fishpond farmers also face challenges such as coastal erosion and storms damaging their infrastructure, reducing productivity, and increasing maintenance costs. Despite these difficulties, some farmers have switched from rice paddies to fishponds because they are more cost-effective to maintain. For those who still depend on agriculture through rice cultivation, they encounter issues like soil salinization and reduced yields due to persistent coastal inundation (rob). Moreover, unpredictable rainfall patterns and droughts negatively impact crop yields and agricultural incomes.
2. As mentioned earlier, "rob," leads to substantial harm to income-generating assets such as fishponds and agricultural fields. This frequent occurrence of rob also degrades both private and public infrastructure, encompassing roads, residences, mosques, factories, healthcare facilities, and schools. Maintaining the existing infrastructure necessitates ongoing and expensive repairs, impacting households, businesses, and government agencies financially. In severe instances, entire villages have been obliterated by rob, and coastal erosion has resulted in the irreversible loss of land.
3. The increasing frequency and unpredictability of heavy rainfall (referred to as "rob") have a significant impact on daily activities such as school, commuting, and business operations. The extent of this impact depends on the duration and intensity of the rainfall, as well as the quality of existing infrastructure. For example, schools may need to change their schedules or even cancel classes when faced with heavy rainfall, which can also prevent children from attending school safely. Sometimes, lessons may have to be conducted in unsafe conditions. Furthermore, heavy rainfall disrupts the daily commute for individuals in affected areas

because roads and homes may become flooded. This leads to additional challenges as scooters and motorcycles often require frequent maintenance or replacement, hindering people's ability to travel and adding extra financial burdens to households. Additionally, local businesses may need to modify their operating hours or even close their shops when heavy rainfall occurs.

4. The heavy rainfall has been reported to have adverse effects on water sources. It can lead to increased salinity and reduced groundwater quality, impacting existing water storage facilities. This can result in water that is unsafe for drinking, cooking, and basic hygiene purposes. People have mentioned experiencing skin issues like rashes and a persistent feeling of not being clean when using water contaminated by rob. It can also carry inland waste and pollution, which often leads to diarrhoea and skin problems becoming more common. Many individuals have also noted an increase in mosquitoes and the risk of waterborne diseases. When rob persists for several days, it poses a threat to food security by hindering the transportation of food to coastal areas and causing losses in crops, livestock, and fish stocks.
5. The effects of climate change differ between genders, so it's essential for adaptation plans and future research to include women's specific knowledge, vulnerabilities, and abilities to adapt. Women who have more traditional roles, like managing households and caregiving, have expressed unique concerns related to health, education, and nutrition that men typically overlook. Moreover, while both men and women face similar obstacles when it comes to migration, women often encounter greater challenges due to limitations in mobility, financial resources, transferable skills, and their responsibilities tied to households.

Since 1999, Governor Sutiyoso has been leading a campaign against the informal sector, which employs a significant portion of Jakarta's impoverished population (Hutabarat Lo,2010). This campaign targets various groups, including street vendors, homeless children, pedicab drivers, commercial sex workers, and beggars. Public order officials forcibly remove individuals working in the informal sector from their workplaces. In response, a broad coalition of non-governmental organizations (NGOs) has formed to oppose this anti-poverty campaign and the forced evictions. This coalition has united evicted residents with urban poor communities, students, indigenous groups, local NGOs, farmers, and even religious scholars. Governor Sutiyoso, who is not originally from Jakarta, also attributes various urban issues in the capital, such as unemployment and flooding, to migrants, as well as the existence of informal settlements in the city. To address what he perceives as an "overcrowding" problem, the

Governor employs heavy-handed tactics, including conducting house-to-house raids targeting migrants who cannot provide evidence of employment and official residency. Under a stringent regulation enacted by the Governor, new internal migrants in Indonesia who fail to register with the city's population agency and obtain a visitor's identity card within fourteen days of their arrival – a process requiring proof of permanent employment and residence – can face imprisonment for up to three months or a fine of Rp. 5,000,000 (US$550). (Hrw.org, n.d.)

The challenges faced by migrants in Jakarta due to Governor Sutiyoso's anti-informal sector campaign resonate with the principles of environmental migration theory. Environmental migration theory recognizes that people often move due to a combination of factors, including not only environmental degradation but also socio-economic and political pressures. In this case, while Governor Sutiyoso attributes urban issues in the capital to migrants, it's crucial to acknowledge the interconnectedness of these issues (Hutabarat Lo, 2010). The campaign against the informal sector may indeed have environmental implications, as displaced individuals may seek refuge in vulnerable areas, contributing to overcrowding and further straining resources, potentially exacerbating issues like flooding. Furthermore, these migrants, often forced from their livelihoods in the informal sector, may find themselves without viable options for employment or housing, making them more susceptible to displacement driven by economic and environmental factors. This situation underscores the need for a comprehensive approach that considers both the socio-economic and environmental aspects of migration in Jakarta.

The research of Hunter, et al (2015) and McLeman (2017) have provided valuable data and information. One significant aspect to consider is the relationship between environmental migration and sustainable development. Environmental migration can have a profound impact on both the areas of origin and destination. While migration might provide individuals with an escape from immediate environmental threats, it can also lead to environmental and social challenges in the receiving areas. For example, rapid urbanization resulting from environmental migration can strain infrastructure, increase demand for resources, and create social tensions. Understanding the dynamics between environmental migration and sustainable development is critical for crafting policies that promote resilience and prosperity for all.

As climate change accelerates, it becomes increasingly evident that environmental migration is intrinsically linked to the broader issue of global warming. The changing climate has far-reaching consequences, such as extreme weather events, rising sea levels, and altered precipitation patterns. These environmental changes directly affect livelihoods, food security,

and water resources, pushing people to migrate. Environmental migration theory should encompass the role of climate change as a primary driver and focus on strategies to mitigate and adapt to climate impacts.

Indigenous communities are often disproportionately affected by environmental changes, such as the melting of Arctic ice, deforestation, or the loss of biodiversity. Their unique relationships with the environment, reliance on traditional practices, and cultural ties to specific territories make them particularly vulnerable. Environmental migration among indigenous communities often raises complex questions of cultural preservation and the protection of indigenous rights. Recognizing the specific challenges faced by these communities is essential in the context of environmental migration.

It is vital to recognise that reliable and comprehensive data on environmental migration patterns are often lacking, making it challenging to quantify the scale of the phenomenon accurately. Additionally, distinguishing environmental factors from other drivers of migration can be difficult. Researchers must continue to develop robust methodologies for data collection and analysis, and international collaboration is essential to overcome these challenges.

Environmental migration often leads to transnationalism, where migrants maintain connections to both their areas of origin and destination (Jakubowicz,2012). The remittances sent by migrants to their home communities can have a substantial impact on the economic well-being and development of these areas. However, it's crucial to explore the potential for sustainable development projects that harness the resources and knowledge brought back by returning migrants to create positive change in their areas of origin (Jakubowicz,2012).

To address environmental migration effectively, policies must be integrated across various domains, including environmental management, disaster risk reduction, urban planning, and social welfare. This interdisciplinary approach is crucial to ensure that environmental migration is not viewed in isolation but as part of a broader context. Collaborative efforts involving governments, international organizations, civil society, and academia are essential to develop holistic solutions.

e) Government efforts – Participatory strategies

The Indonesian government has been actively engaging local citizens in flood prevention measures in Jakarta, taking into account the challenges posed by climate change. Recognizing

the importance of community involvement and participation, the government has implemented various participatory strategies to enhance flood resilience in the city. These strategies aim to empower local citizens, increase their knowledge on flood prevention and response, and encourage them to take an active role in managing flood risks (Nugroho, F., & Shaw, R., 2019).. One of the key initiatives by the government is the establishment of community-based early warning systems. These systems involve equipping local communities with the necessary tools and knowledge to monitor flood conditions, allowing them to take proactive measures such as evacuating or safeguarding their properties before a flood occurs. This approach not only facilitates faster response times but also promotes community ownership and responsibility in flood prevention. With regards to this, Jakarta Regional Disaster Management Agency and The Provincial Government of Jakarta has several flood warning devices .e., Disaster Warning System (DWS), Automatic Weather System (AWS) or weather gauge, and Automatic Water Level Recorder (AWLR) to measure water levels (Yayasan Plan International Indonesia,2020.).

Another participatory strategy is the implementation of flood resilience education programs. The government has partnered with local community organizations, schools, and universities to raise awareness and educate citizens about the causes and impacts of floods, as well as the measures they can take to mitigate and adapt to them (Adiyoso, W., & Furuhata, M. ,2016). These programs often incorporate practical training sessions on flood preparedness, such as first aid, emergency response, and evacuation procedures, ensuring that citizens are well-prepared when flood events occur. Furthermore, the Indonesian government has been actively engaging citizens through the establishment of participatory planning mechanisms. This involves involving local communities in decision-making processes related to flood prevention and infrastructure development. For instance, in collaboration with the Australian Government, Plan Australia and Plan Indonesia's partner Yayasan Kausa Resiliensi Indonesia (YKRI) place great emphasis on the involvement of young people in flood prevention through capacity building by mentoring and maintaining networks with young people. They also managed to accelerate the collaboration of young people with the Agency for the Assessment and Application of Technology. By this collaboration participants have further developed the warning device by making it more durable and comprehensive (Yayasan Plan International Indonesia,2020.).

This participatory approach ensures that the solutions implemented are inclusive, realistic, and effective. The effectiveness of these participatory strategies in enhancing flood resilience in Jakarta has been largely positive. By involving local citizens in flood prevention measures, the

government has been able to tap into local knowledge and resources, resulting in more context-specific and sustainable flood management solutions. These strategies have empowered local communities, instilling a sense of ownership and responsibility in managing flood risks (Nugroho, F., & Shaw, R. ,2019). Moreover, the increased awareness and preparedness resulting from these participatory initiatives have helped reduce the negative impacts of floods on people's lives and livelihoods (Agus, I.,2017). However, it is important to acknowledge that there are challenges and limitations to the implementation of participatory strategies in Jakarta. The rapid urbanization and population growth in the city pose significant challenges to community engagement and participation. Nie (2021) stated that through interviews, it was discovered that the primary concern in kampungs revolves around the constant threat of eviction of vulnerable groups. The government does not permit kampung residents to officially register the urban land they inhabit, possibly due to the high land values that provide an incentive for the government to maintain land rights. Although, some government initiatives offer affordable flat rentals, their availability is limited. As an example of eviction, Kampung Kunir enhanced its surroundings with green spaces and public areas, winning a citywide competition for a clean environment. However, in 2015, the government, under the same governor who had previously recognized Kunir's efforts, demolished the community to construct a road along the river. Hence, relying solely on the government is not a practical solution; rather, there is a need for social recognition and production. The key to a viable solution lies in the realm of soft institutions. Since the land is collectively occupied and utilized by the community, and private land ownership is uncertain and unfeasible, there is potential for the community to organize under a collective title, embracing the embedded social values of this community-based self-organization.

Another option is to obtain a quantitative grasp of urban vulnerability. Enhance geospatial mapping, analyse the economic dynamics of communities and their adaptation measures, and collect data while measuring pertinent indicators across all city regions. Special emphasis should be placed on areas that have received limited attention, such as informal settlements and slums. This comprehensive data-gathering effort will enable the city to identify priority areas for both short-term and long-term interventions. The creation, upkeep, and sharing of such data are of utmost importance, particularly in urban impoverished communities where the circumstances and assets are not adequately comprehended on a citywide scale. This can be applied by giving precedence to spatial planning measures that simultaneously enhance existing infrastructure and reduce susceptibility to climate change impacts. This encompasses

significant endeavours such as dredging projects, the construction of sea walls, and the regulation of groundwater extraction, all of which are typically integrated into Jakarta's medium and long-term spatial blueprints. An analysis of the physical locations most susceptible to climate-related risks can guide the prioritization of necessary actions to bolster Jakarta's resilience to climate change. Considering the city's proximity to the sea and the high rate of land subsidence in North Jakarta, it is advisable to focus initial infrastructural interventions and regulatory measures in that particular area.

Additionally, the impact of climate change and the increasingly unpredictable nature of floods require continuous adaptation and reinforcement of the participatory strategies. Therefore, ongoing evaluation, feedback, and improvement of these initiatives are crucial to ensure their long-term effectiveness. The Indonesian government's engagement of local citizens in flood prevention measures in Jakarta, considering the challenges posed by climate change, has been a significant step towards enhancing flood resilience. Through community-based early warning systems, flood resilience education programs, and participatory planning mechanisms, citizens are empowered and involved in the decision-making processes. These participatory strategies have proven to be effective in increasing awareness, preparedness, and responsiveness to floods. Nevertheless, continuous efforts and improvements are essential to overcome the challenges and ensure long-term effectiveness in enhancing flood resilience in Jakarta.

VI CONCLUSION

The historical background presented in this thesis provides a comprehensive overview of the historical development of climate change research and the evolution of our understanding of the greenhouse effect. From the pioneering work of Jean-Baptiste-Joseph Fourier in the 19th century to the ground-breaking experiments of Eunice Newton Foote, and the more recent warnings from scientists like James Hansen and the formation of the Intergovernmental Panel on Climate Change (IPCC), the review demonstrates the gradual but crucial progression of our knowledge in this field.

The economic repercussions of climate change are also substantial. Extreme weather events, supply chain disruptions, and the growing costs of healthcare pose challenges to businesses and governments. The insurance industry is grappling with climate-related claims, and financial markets face risks associated with stranded fossil fuel assets and unpredictable climate events. Nevertheless, many businesses are recognizing the need to adapt to changing climate conditions, and industry guidelines are emerging to help them manage climate-related risks and opportunities. Geopolitically, climate change has the potential to exacerbate resource competition, regional conflicts, and geopolitical tensions. As the world transitions away from fossil fuels, economies heavily reliant on oil exports face the challenge of stranded assets, while countries exporting minerals may find opportunities in green practices. However, these shifts in global resource demand also bring environmental, social, and political complexities.

The urgency of addressing climate change and its diverse impacts cannot be overstated. International agreements like the European Green Deal and the Paris Agreement seek to unite nations in the fight against climate change, but challenges in implementation and enforcement persist. Global cooperation is essential, and climate diplomacy plays a vital role in addressing these challenges. The policies and responses of international organizations like the European Union and the United Nations are critical in addressing climate-induced migration. Both organizations acknowledge the role of climate change as a triggering factor for migration, and they recommend measures such as climate adaptation and resilience building in vulnerable regions. However, there is a need for more specific measures to address the challenges of increased climate-induced migration in recipient countries. The potential scale of climate-induced migration is significant, with estimates suggesting that millions of people could be forced to relocate due to water stress by 2030. Jakarta, as a megacity, is particularly vulnerable to climate change, with a high population density in hazard-prone areas. The role of local

communities, particularly those living in vulnerable areas, is crucial in addressing the impacts of climate change. Empowering and educating these communities to take their own initiatives can contribute to building resilience and adapting to climate change.

The research theroy employed in this study is based on environmental migration theory, the push and pull theory and the environmental justice theory. These theories investigates the relationships between climate change, population mobility and socio-economis factors. It encompasses various contexts, including natural disasters, civil conflicts, and climate change's effects on migration. The research follows a document analysis methodology, that combines historical, theoretical, and empirical data from various sources to support the research hypothesis and provide an overview when answering the research question. The focus is on urban poor communities in Jakarta, severely affected by environmental crises. Qualitative data collection methods are utilized to explore complex migration questions related to climate change, involving the collection and analysis of secondary data from reputable academic journals, reports, international organizations, and authentic online news sources.

The research findings have demonstrated that the socio-economic factors that have shaped Indonesia's past reveal a complex and evolving landscape. Over the past few decades, Indonesia has experienced robust economic growth, driven by government policies, abundant natural resources, and a youthful and expanding workforce. The country's economic history is marked by periods of growth and setbacks, notably the impact of the Asian financial crisis of 1997, which highlights the concept of "self-organized criticality" in economic systems. The colonial legacy, marked by Portuguese and Dutch presence, had a significant influence on the development of the nation. Post-independence, Indonesia's political and economic history has been shaped by diverse ethnic groups and ideologies, with efforts to find a unifying framework such as Pancasila.

Indonesia's economic activities have been diverse, ranging from agriculture and natural resource exports to manufacturing and services. The nation has sought to attract foreign investment, and Jakarta, as the capital and largest city, plays a central role in these economic endeavours. Jakarta's urban development has undergone various phases and planning, reflecting the evolving economic and political landscape.

The current situation in Jakarta is emblematic of the challenges posed by urbanization, climate change, environmental degradation, and social justice. Jakarta has been grappling with a history of forced evictions, land disputes, and political motivations driving urban development, leading

to the displacement of vulnerable communities. The city's sinking due to overuse of groundwater, coupled with climate change impacts, exemplifies the impending environmental threats faced by coastal cities worldwide. Governor Sutiyoso's administration-initiated policies targeting the informal sector and internal migration, further complicating the situation. The challenges faced by migrants in Jakarta resonate with the principles of environmental migration theory, where a combination of environmental, socio-economic, and political factors can drive displacement.

Understanding the linkages between migration, climate change, and socio-economic factors is crucial for crafting effective policies and strategies that promote resilience and prosperity for origin communities. As the world grapples with the consequences of climate change, it is clear that environmental migration will become an increasingly pressing issue. Policymakers, researchers, and international organizations must work collaboratively to develop comprehensive solutions that address the root causes of environmental migration and provide support to affected communities. This is not just a Jakarta issue; it's a global challenge that necessitates global cooperation and proactive measures to protect vulnerable populations and ensure a sustainable future for all.

The government's efforts in addressing the challenges faced by kampung residents and the broader community in Jakarta have been examined from various angles. The central role of education in mitigating the impact of climate-induced migration and reducing unemployment rates has been highlighted. In conclusion, the Indonesian government's engagement of local citizens in flood prevention measures in Jakarta, considering the challenges posed by climate change, has been a significant step towards enhancing flood resilience. Through community-based early warning systems, flood resilience education programs, and participatory planning mechanisms, citizens are empowered and involved in the decision-making processes. These participatory strategies have proven to be effective in increasing awareness, preparedness, and responsiveness to floods. Nevertheless, continuous efforts and improvements are essential to overcome the challenges and ensure long-term effectiveness in enhancing flood resilience in Jakarta. Regarding the thesis hypotheses, the research provides information related to increased citizen participation, particularly in the context of community-based self-organization and resilience in the face of eviction threats. It highlights the importance of education and community empowerment.

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a) List of Figures

b) List of tables