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ARNEC
Asia-Pacific Regional Network for Early Childhood

# MICRO RESEARCH

## KNOWLEDGE, ATTITUDES AND PRACTICES OF PARENTS AND ECCD TEACHERS ON THE IMPACTS OF CLIMATE CHANGE AND IMPROPER WASTE MANAGEMENT ON EARLY CHILDHOOD DEVELOPMENT

# ACKNOWLEDGMENTS

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# EXECUTIVE SUMMARY

Climate change and environmental degradation have become pressing global challenges, profoundly impacting communities worldwide, especially young children and parents. The Republic of Indonesia, the world's largest archipelagic state, consists of over 17,500 islands and 81,000 kilometers of coastline. As of 2023, it has a population of 280.3 million, including 30.2 million young children aged 0 to 6. According to the findings from the Children's Climate Risk Index Report, Indonesia ranks 46 out of 163 countries at high risk of climate change; 96.6% of children in Indonesia face two or more climate and environmental shocks that threaten their education, health and safety.

One contribution to climate change is improper waste management; the waste sector, especially household waste, contributes significantly to greenhouse gas emissions in methane (CH4) and carbon dioxide (CO2) emissions. In 2023, the Indonesia MoEF noted that the national waste production had reached 25 million tons. Household activities contribute 44.7% of the waste in Indonesia; based on the type of waste, food and plastic waste still contribute significantly to landfills. Of the total waste generated, 66.24% has been managed, while 33.76% still needs to be managed. Improper waste disposal methods, such as burning, burying, and dumping into waterways, lead to severe air, water, and land pollution. These practices adversely affect young children's health and development, increasing the risk of acute respiratory infections (ARI) and other health issues related to air pollution exposure.

Young children from conception to pre-primary school age are most vulnerable to the impacts of climate change and environmental degradation. But they are also our most valuable group in the fight against these impacts. The pivotal role of parents and the ECCD workforce is critical to minimizing the negative impacts of climate change and environmental degradation and engaging young children in eco-friendly and sustainable practices both at home and at the ECCD level. ECD has the potential to be a building block for climate adaptation, resilience, and sustainable development given its cross-cutting nature that has the power to transform the lives of our youngest populations.

Since 2019, ARNEC has been advocating for clean, safe and sustainable environments for early childhood. ARNEC’s ECD-Climate framework for action recognizes research and evidence generation as a key action pillar in elevating the needs of young children to inspire collective actions in addressing the impact of climate change and environmental degradation. To promote locally led research, evidence generation, and knowledge-sharing efforts on the lifelong impacts of climate change and environmental degradation on young children in Asia-Pacific, ARNEC collaborated with Envolvement,

a youth-led organization, to conduct the micro-research regarding the KAP of Parents and ECCD Teachers on the Impact of Climate Change and Improper Waste Management on Early Childhood Development.

The study locations focused on South Jakarta City, Bekasi City, South Tangerang City, and Bogor Regency. This report provides the level of parents and ECCD Teacher KAP regarding the impact of climate change and improper waste management on early childhood development, barriers and enablers faced by parents and teachers in engaging young children in waste management and eco-friendly activities, and recommendations based on the key findings.

The key findings in this research are almost all parents and ECCD teachers have experienced the impact of climate change; in fact, 79% of parents have experienced more than two impacts of climate change, such as changes in rain patterns, extreme weather, temperature changes, and even being affected by climate disasters such as floods and landslides, which caused them to be displaced. Parents also believe that climate change affects health, economics, and parenting patterns. Therefore, parents and ECCD Teachers must have the social and emotional skills to adapt.

There is still a need for socialization and training activities regarding climate change in relation to ECD for parents and ECCD teachers to increase their knowledge, capacity, and engage young children in eco-friendly activities. Social media is the source most often used by parents and ECCD teachers to access information and teaching media regarding climate change. Related to the ECCD Curriculum, MoECRT has integrated the environmental theme into the national curriculum. However, the curriculum needs to be further optimized by adding special sessions on climate change and supported by learning media such as videos, IEC materials, and actionable guidelines to make it easier for ECCD teachers to teach young children about climate change.

Regarding knowledge regarding waste management, parents and ECCD teachers stated that waste is one of the causes of climate change and also has an impact on the growth and development of young children such as young children are more susceptible to disease, the environment around young children becomes polluted, exposed to toxins and chemicals, can suffer from malnutrition, and disruption of education due to the absence of young children with health problems. It’s also show that climate change and improper waste management affected all aspects of NFC on ECD. However, knowledge about waste management is still lacking, especially among parents; 41% of respondents do not know about waste management.

In terms of attitude, parents and ECCD teachers stated that they were worried and aware of the impact of climate change and improper waste management on the growth

and development of young children. Parents and ECCD Teachers also believe teaching and involving young children in environmental education and eco-friendly activities is essential. However, on the one hand, from the survey results, there is a gap between ECCD Teachers and Parents where almost half of the parent respondents think they need to gain the knowledge and skills to teach and engage young children in environmental education and eco-friendly activities.

Even though the parent's attitude aspect is very high, the knowledge aspect still needs to be improved. It also influences the practical aspects parents and ECCD teachers carry out to engage young children in waste management and eco-friendly activities. ECCD teachers have many ways to teach and involve teachers in engaging young children in waste management and eco-friendly activities such as sorting waste, cleaning up, role-playing and storytelling, nature walks, and creating crafts using environmentally friendly materials. In contrast to the practices carried out by parents, as many as 80.6% of parents teach young children about eco-friendly and environmental activities to throw rubbish in the right place. It shows that the activities carried out by most parents are still simple, and they will end up in the dumpfill and still pollute because they produce methane gas. It will be different from processing it into compost, where parents can teach the waste recycling cycle so young children do not need to produce waste. The practices carried out by parents are also greatly influenced by the assignments given by ECCD teachers to their children.

Government programs and policies regarding ECD and climate change, MoECRT has integrated environmental themes into the national ECE curriculum. However, there is no specific policy regarding the issue of ECD and climate change. If we look at the MoFE side, environmental programs are already run both at the school-based and at the community level, such as Adiwiyata School, Climate Village, and Waste Bank. However, these programs focus on something other than ECD. The gap is because there needs to be an optimal assessment regarding the important of ECD engagement in environmental issues. Apart from this gap, this report also shows an opportunity to integrate environmental education and eco-friendly activities into the agenda of community-based organizations at the community level, such as community health workers, waste banks, and women-led organizations, to increase parents' and community awareness of ECD and environmental issues.

Finally, this micro-research summarizes recommendations based on the key findings to strengthen the KAP level of parents and ECCD teachers on the impact of climate change and improper waste management on early childhood development. At least five recommendations need to be realized.

**Strengthen collaboration between MoFE and MoECRT and expand and strengthen multi-sectoral ECD-sensitive environmental program at all levels**

**Optimize the ECCD Curriculum, provide teaching materials and training for ECCD Teacher.**

**Strengthen Capacity and Engagement of Parents and Community on ECD**

**Strengthen Communication and Advocacy on ECD and Environmental issue**

**Conduct more evidence based practices and local studies**

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# LIST OF ACRONYMS

| | |
|---|---|
| ARI | Acute Respiratory Infections |
| ARNEC | Asia-Pacific Regional Network for Early Childhood |
| ECCD | Early Childhood Care and Development |
| ECD | Early Childhood Development |
| ECE | Early Childhood Education |
| FGD | Focus Group Discussion |
| HI ECD | Holistic Integrative Early Childhood Development |
| IEC | Information, Education, and Communication |
| MoECRT | Ministry of Education, Culture, Research, and Technology |
| MoEF | Ministry of Environment and Forestry |
| NFC | Nurturing Care Framework |
| KAP | Knowledge, Attitude, and Practice |
| KII | Key Informant Interview |

# CHAPTER 1
# INTRODUCTION

This chapter explains the research background and the context of the impact of climate change, the amount of waste generated, and air pollution on ECD. Apart from that, this chapter also explains the sites study of micro research and the objectives of micro research.

- This research provides an overview of the KAP level of Parents and ECCD Teachers on the Impact of Climate Change and Improper Waste Management on ECD.
- This micro research was conducted in four regions, South Jakarta, South Tangerang, Bekasi and Bogor Regency.
- This study also aims to indetify barriers and enablers faced by parents and teachers in engaging young children in waste management and sustainability practices and provide recommendations based on the key findings of the micro research

## 1.1 Micro Research Background

The Republic of Indonesia is the world's largest archipelagic state, consisting of over 17,500 islands with over 81,000 kilometers of coastline. As of 2023, it has a population of 280.3 million, with approximately 30.2 million young children aged 0 to 6, equivalent to 10.91% of Indonesia's total population.[1] Indonesia is highly vulnerable to climate change impacts, including extreme events such as floods and droughts, as well as long-term changes from sea level rise, shifts in rainfall patterns, and increasing temperature. According to the findings from the Children's Climate Risk Index Report, Indonesia ranks 46 out of 163 countries at high risk of climate change; 96.6% of children in Indonesia face two or more climate and environmental shocks, such as highly exposed to vector-borne diseases, air pollution and coastal floods that threaten their education, health and safety.

Moreover, Indonesia's vulnerability to climate change is compounded by its geographical makeup, with a significant proportion of its population residing in low-lying coastal areas. It places the country at heightened risk of sea-level rise, amplifying the threat of flooding and inundation. Without proactive adaptation measures, projections suggest these coastal communities could face irreversible flooding impacts between 2070 and 2100.[2] In 2023, over 5.400 disasters occurred in Indonesia, of which 99,35% were dominated by hydrometeorological disasters, such as extreme weather, floods, landslides, and drought that caused 8.491.288 people to be displaced.[3]

One contribution to climate change is improper waste management; the waste sector, especially household waste, contributes significantly to greenhouse gas emissions in methane (CH4) and carbon dioxide (CO2) emissions. With the significant population growth and the current consumption patterns of Indonesia, the amount of household waste will increase over time. In 2022, the Indonesia Ministry of Environment and Forestry noted that the national waste production had reached 35.8 million tons. Approximately 99.52 tons of waste are generated daily by 270 million people. Household activities contribute 38.4% of the waste in Indonesia, followed by traditional markets at 27.7%, public areas at 30.7%, and other sources at 3.2%. Of the total waste generated, 62.63% has been managed, while 37.37% still needs to be managed.[4] Waste management in Indonesia is carried out in various ways, but unfortunately, improper waste management practices still occur.

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[1] BPS (2023). Profil Anak Usia Dini 2023 Volume 4. Retrieved from www.bps.go.id/id/publication/2023/12/12/profil-anak-usia-dini-2023.html

[2] Climate Risk Country Profile: Indonesia. 2021. Retrieved from https://www.preventionweb.net/publication/climate-risk-country-profile-indonesia

[3] BNPB (2024). Data Bencana Indonesia 2023 Volume 3. Retrieved from https://bnpb.go.id/buku/buku-data-bencana-indonesia-tahun-2023

[4] Indonesia Waste Management Information System. (2023). Retrieved from https://sipsn.menlhk.go.id/sipsn/

Based on national survey, out of 75 thousand household respondents, 65.54% are still burning waste, 12.86% are burying waste, 7.96% are throwing it into waterways and rivers, and 7.33% are throwing it carelessly.[5] Improper waste management causes various types of pollution, such as air pollution, water and land pollution, and environmental degradation, which also affect young children's growth and development.

There is a significant relationship between the open burning of household waste and Acute Respiratory Infections (ARI) experienced among Indonesian children. A higher proportion of open burning is associated with a higher risk of ARI.[6] Exposure to air pollution that damages health can occur in the womb when pregnant mothers are exposed. Exposure will continue after birth and throughout childhood into adulthood. Children born to mothers who are exposed to high levels of air pollution during pregnancy have a high tendency to experience growth restriction in the womb, be underweight at birth, and be born prematurely. Apart from that, in Indonesia, air pollution is one of the third highest risk factors causing death in children under five. Air pollution's impacts on young children include stunted lung growth, reduced lung function, greater susceptibility to lung infections, including pneumonia, and other developmental effects.[7]

Based on ECD Climate Introduction and consultation workshop conducted by ARNEC in partnership with Indonesia HI ECD-Coalition on 18 October 2023 in Tanoto Foundation, there are some challenges related to ECD, especially the issue of climate change and environmental degradation, such as limited awareness and education within ECCD communities, there is still limited data and research regarding the impact of climate change and environmental degradation on young children, need to optimize the policy and curriculum related to climate education for young children. Moreover, parents and ECCD teachers still need a sense of urgency to engage young children regarding an environmentally friendly lifestyle. The problem of waste management is one of the entry points; this is because there is still a high amount of waste that has not been appropriately processed; apart from that, the habit of burning rubbish and throwing rubbish carelessly can cause air pollution and environmental degradation, besides that the waste management facilities available in the public area are still lacking and not yet optimal. Addressing this gap is important as a first step to building a resilient community that can safeguard its youngest members against the adverse effects of climate change and environmental degradation.

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[5] Erlina Santika. "Percentage of Indonesian Household Waste Handling Methods". Databoks. September 12, 2024. Retrieved from https://databoks.katadata.co.id/datapublish/2023/09/12/masih-banyak-warga-ri-yang-membakar-hingga-membuang-sampah-ke-sungai

[6] Sri Iranti and Puguh Prasetyo. Burning of Household Solid Waste and Child Respiratory Heath: Evidence From Indonesia. Journal of Health Ecology Vol. 17 No 3, December 2018 : 123 - 134

[7] Vital Strategies. (2018). Air Pollution: A Threat to Children's Health in Indonesia

Since 2019, ARNEC has been advocating for clean, safe and sustainable environments for early childhood. ARNEC's ECD-Climate framework for action recognizes research and evidence generation as a key action pillar in elevating the needs of young children to inspire collective actions in addressing the impact of climate change and environmental degradation. To promote locally led research, evidence generation, and knowledge-sharing efforts on the lifelong impacts of climate change and environmental degradation on young children in Asia-Pacific, ARNEC collaborated with Envolvement, a youth-led organization, to conduct the micro-research regarding the KAP of Parents and ECCD Teachers on the Impact of Climate Change and Improper Waste Management on Early Childhood Development in Indonesia.

## 1.2 Study Sites

This micro research focuses on four regions comprising Indonesia's most populous metropolitan area, Jabodetabek (Jakarta, Bogor, Depok, Tangerang, and Bekasi). This region includes the national capital, five satellite cities, and four surrounding regencies. The research locations focused on South Jakarta City, Bekasi City, South Tangerang City and Bogor Regency. The selection of research locations was based on three leading indicators: waste volume level, air quality index, climate and disaster vulnerability level. This micro research chose these locations because these three indicators are the main focus in analyzing environmental and sustainability issues in the Greater Jakarta area. First, the level of waste volume is an essential consideration because Jabodetabek has a large population, contributing to the amount of waste generated daily. Second, the air quality index is a concern due to the high levels of air pollution in this dense metropolitan area. Thirdly, the level of climate related disaster vulnerability is essential as the region is prone to various climate-related disasters such as floods and landslides. The overview of the specific selected locations is as follows:

### South Jakarta

Jakarta, a city with 11,34 million people[8] , Jakarta sits on a low, flat alluvial plain through which 13 rivers flow, all of which are prone to flooding during the Monsoon season. Forty percent of the city is below sea level, which exposes it to rising sea levels.[9] The combination of land subsidence and sea level rise poses a significant threat to Jakarta's future. The city's vulnerability is not only water-related. Jakarta also faces the problem of poor air quality, and the waste problem in Jakarta is one of the worst in Indonesia. The root causes are complex and tangled, from population density to community behavior and the availability of waste management facilities.

[8] Irfan Fadhurrahman. "Population of DKI Jakarta by Regency/City". Databoks. April 3, 2024. Retrieved from https://databoks.katadata.co.id/datapublish/2024/04/03/penduduk-dki-jakarta-capai-1134-juta-jiwa-29-ada-di-kota-jakarta-timur-pada-desember-2023

[9] Charlotte Owen-Burge. "Jakarta: The Sinking City". Race to Zero. August 22, 2022. Retrieved from https://climatechampions.unfccc.int/jakarta-the-sinking-city/

South Jakarta is ranked third among the most significant areas in the DKI Jakarta province, covering 144.94 square kilometers. The total population of South Jakarta reached 2,235,606 people in 2023, with children ages 0-9 comprising 13.8% of the population[10] and South Jakarta has 1,145 ECE. This city ranks second in the region for the highest volume of waste generation in DKI, producing 2.81 million tons between 2019 and 2022. According to the South Jakarta City Health Office, there was a 22% increase in visits to health centers for Acute Respiratory Infections (ARIs) during the May-July 2023 period, likely due to poor air quality. Most ARI patients are from the age group 0-5 years or toddlers, with a total of 62,186 patients.[11] Regarding disasters, South Jakarta has a disaster risk index of 51.53 in the medium category, and some of the highest threats are floods and drought.[12]

## South Tangerang

South Tangerang has an area of 164.8 km$^2$ and a population of 1,930,556, with children aged 0-9 comprising 16.7% of the population and 913 ECE.[13] The city is close to DKI Jakarta, known as the largest city in the world, making it vulnerable to migration. This results in rapid population growth and increasing pressure on infrastructure, public services, vehicle mobility, and the environment. The disaster risk index Report in South Tangerang places it at 79.86 in the medium category. Several disaster threats in the South Tangerang area include earthquakes, drought, and land fires.[14] In 2023, the Tangerang government stated that as many as nine sub-districts in Tangerang are threatened by drought caused by the El Nino phenomenon. In addition, based on the air quality index value, South Tangerang has been the city with the worst air quality in 2023 at 199 US AQI. It was caused by 65% of vehicle emissions and the burning of illegal waste. Based on the data reported by Puskesmas in South Tangerang City, the total number of Acute Respiratory Infection (ARI) patients increased by 20% from 2022 during the January-August 2023 period. Regarding the waste aspect, in 2023, the amount of waste generated in South Tangerang City reached 369,177 tons.[15]

[10] BPS-Statistic Indonesia. 2023. Population by Age Group and Regency/City in DKI Jakarta Province from Population Projections Census Results. Retrieved from https://jakarta.bps.go.id/indicator/12/1316/1/jumlah-penduduk-menurut-kelompok-umur-dan-kabupaten-kota-di-provinsi-dki-jakarta.html

[11] Ilham Kausar "The South Jakarta Health Department noted that visits to community health centers for ISPA sufferers increased by 22 percent". Antara News. August 16, 2023. Retrieved from https://www.antaranews.com/berita/3683514/dinkes-jaksel-catat-kunjungan-puskesmas-penderita-ispa-naik-22-persen

[12] Badan Nasional Penanggulangan Bencana. (2022). Indonesian Disaster Risk Index 2022 Volume I. Jakarta: Badan Nasional Penanggulangan Bencana

[13] BPS-Statistics of Tangerang Municipality. (2024). Human Development Index Tangerang City 2023 Volume 7. Tangerang: BPS-Tangerang City Statictic

[14] Badan Nasional Penanggulangan Bencana. (2022). Indonesian Disaster Risk Index 2022 Volume I. Jakarta: Badan Nasional Penanggulangan Bencana

[15] Indonesia Waste Management Information System. (2023). Retrieved from https://sipsn.menlhk.go.id/sipsn/public/data/timbulan

## Bekasi

Overall, Bekasi City's population is 2,564,941 million people, with 15.2% of the total population aged 0-9 years.[16] With its expansive area of 213.1 square kilometers, Bekasi City will be home to a significant population of 2,513,669 residents by the end of 2023. However, the city faces serious environmental challenges, mainly related to waste management, in 2022 waste generation, which accumulated 668,179 tons.[17] One pressing issue in Bekasi is the accumulation of waste, mainly due to its role as a dumping ground for Jakarta's garbage. Each day, approximately 7,800 tons of waste from Jakarta are transported to Bekasi, resulting in massive landfill sites reaching up to 40 meters. This influx of waste poses environmental concerns and impacts the health and well-being of Bekasi's residents. In addition to the waste problem, Bekasi grapples with frequent flooding, particularly in 15 vulnerable areas across four districts.[18] These flood-prone locations are situated along the Bekasi River basin, which originates from the confluence of the Cileungsi and Cikeas rivers. The lack of adequate flood mitigation and management exacerbates the impact on local communities, disrupting daily life and causing damage to property and infrastructure. Moreover, Bekasi faces several high-risk disaster threats, including earthquakes, drought, extreme weather, and land fires.[19] Regarding the air pollution index, Bekasi City's average air quality index is 101 – 200 AQI US, which is in the unhealthy category.[20]

## Bogor Regency

Bogor Regency has an area of 2,992 km$^2$ and a population of 5,627,021 with 16.2% of the total population is aged 0-9 years, and there are 3,931 ECE.[21] Bogor Regency is the most disaster-prone area in West Java with a record 229 disaster events in 2022, mainly floods and landslides.[22] The geographical location of Bogor Regency mostly consists of highlands, hills, and mountains, and has high rainfall and is drained by 6 watersheds. This indicates that Bogor Regency is a disaster-prone area, especially landslides, strong winds, land shifting, and floods. As a result of global climate change, Bogor Regency also faces increasing disaster risks. Increased sea surface temperatures can amplify the intensity of rainfall in the region, potentially causing floods and landslides to occur more frequently. Regarding waste accumulation, in 2021, Bogor Regency ranked out of

[16] BPS-Statistics of Bekasi Municipality. (2022). Bekasi Municipality in Figures 2022. Bekasi: BPS-Statistics of Bekasi Municipality
[17] Indonesia Waste Management Information System. (2023). Retrieved from https://sipsn.menlhk.go.id/sipsn/public/data/timbulan
[18] Rhama Jati. "Rainy Season Arrives, There Are 15 Locations Prone to Flooding in Bekasi". Kompas. November 16, 2023. Retrieved from https://www.kompas.id/baca/metro/2023/11/06/titik-rawan-banjir-di-bekasi-diwaspadai
[19] Badan Nasional Penanggulangan Bencana. (2022). Indonesian Disaster Risk Index 2022 Volume I. Jakarta: Badan Nasional Penanggulangan Bencana
[20] Air quality in Bekasi City. Retrieved from https://www.iqair.com/id/indonesia/west-java/bekasi
[21] BPS-Statistics of Bogor Regency. (2024). Bogor Regency in Figures 2024 Volume 41. Bogor Regency: BPS-Statistics of Bogor Regency
[22] Septi Nulawam."229 Disaster Events During 2022, Bogor Regency with the Most Disasters". BPBD Kabupaten Bogor. November 21, 2022. Retrieved from https://bpbd.bogorkab.go.id/229-peristiwa-selama-2022-kabupaten-bogor-terbanyak-bencana/

27 cities and regencies with the most significant accumulation of waste in West Java Province, with a figure of 972 tons per day. [23] Unfortunately, data regarding waste management in Bogor Regency has yet to be integrated with national waste management data managed by the Indonesian Ministry of Environment and Forestry. In terms of air quality, based on data published by the Bogor district government in 2022, the air quality index is at an average of 78.91% of the US AQI in the medium category.

## 1.3 Micro Research Objectives

The overall objective of this study was to provide information on the KAP intersectional of improper waste management and climate change on the growth and development of young children among parents and ECCD Teachers. Data findings from this micro research can be used to inform program and policy development. Findings can also be used to formulate key messages for communications initiatives that can drive and influence improvement in intersectional ECD and environmental issues such as climate change, waste management, environmental degradation, and ECD practices to improve the lives of all children. The specific objectives of the study are as follows:

1. To examine the KAP level of parents and ECCD teachers regarding the impact of climate change and improper waste management on ECD;
2. To indetify barriers and enablers faced by parents and teachers in engaging young children in waste management and sustainability practices;
3. To provide recommendations based on the key findings of the micro research.

[23] Total Waste Production by Regency/City in West Java. Retrieved from: https://opendata.jabarprov.go.id/id/dataset/jumlah-produksi-sampah-berdasarkan-kabupatenkota-di-jawa-barat

# CHAPTER 2
# METHODOLOGY

This section provides a brief overview of how data was collected, the various methods used and limitations in the study.

- This micro research uses a mixed method to explore data qualitatively and quantitatively.
- The sample in this micro research was targeted at 253 parents with children aged 4 - 6 years and 40 ECCD Teachers.
- Considering time constraints, this research was conducted in three sub-districts and one village.
- Data collection techniques used in micro research are surveys, focus group discussions, and key informant interviews.

## 2.1 Study Design

This study employed a cross-sectional analytical design incorporating both quantitative and qualitative approaches. Between February and April 2024, a survey questionnaire (to collect quantitative data **was administered parents and ECCD Teachers to explore their level of KAP of Parents and ECCD Teachers on the Impact of Climate Change and Improper Waste Management on ECD.** A sub-sample of parents and teachers participated in focus group discussions to gain a deeper understanding of parents' and ECCD teachers' KAP. The sample size was calculated by using the Slovin formula:

$$n = \frac{N}{1 + (Ne^2)}$$

n = sample
N = the total number of sample population
e = margin of error

Additionally, qualitative interviews were conducted with key informants from key local champions like ECCD head principal, community health workers, Sub-District ECCD Coordinator, and government agencies involved in overseeing the implementation of waste management and climate education, such as the Directorate General of Early Childhood Education of MoECRT and Department of the Environment. Quantitative and qualitative approaches used different methods of data collection and analysis. Thus, the researchers presented qualitative and quantitative results simultaneously to enrich the analysis and interpretation of findings. This approach ensured coherence in discussing key findings, as both methods offered complementary insights.

## 2.2 Data Collection

The development of this micro research instrument is based on the KAP Survey Model Conceptual Framework to examine a comprehensive analysis of awareness and actions related to climate change and waste management, particularly in early childhood development. The adaptation of this research instrument is tailored to the online and offline data collection methods. Survey questionnaires, FGD, and KII will be used to gather comprehensive information on the level of KAP of Parents and ECCD Teachers on the Impact of Climate Change and Improper Waste Management on ECD.

### 1. Survey Questionnaries

The questionnaire consists of 28 questions comprehensively designed to explore the KAP of parents and ECD teachers regarding the impact of climate change and improper waste management on ECD. Data obtained from the survey provides information regarding the level of knowledge and attitudes of parents and ECCD Teachers regarding climate change, waste management, and its impact on early childhood. This survey also provides an overview of the attitudes and practices required by parents and ECCD teachers to engage young children in climate education and eco-friendly activities.

### 2. Focus Group Discussions

The FGD were conducted with ECCD teachers, parents, and community-based organizations in four targeted research areas, focusing on their KAP regarding the impact of climate change and waste management on early childhood development. Enumerators from the Envolvement team facilitated the FGDs. The sessions were attended by the teachers, ECCD head principals, members of the ECCD student parent committee, community health worker, women-led organizations and parents who also represented community-based organizations, such as community-based women-led organizations, waste bank members and community health worker.

### 3. Key Informan Interviews

KII is a qualitative interview with individuals (key informan) recognized for their inside knowledge and unique perspectives on a specific topic. KII was conducted using a set of semi-structured questions designed to gain information from stakeholders or key informants. The aim is to identify the challenges, gaps, policies, and programs that support implementing climate education and waste management activities in early childhood settings. KII participants were Directorate General of Early Childhood Education, Early Childhood Association of Educators and Education Personnel at sub-district level, ECCD head principal and Community Health Worker.

## 2.3 Sample


The micro research locations focused on South Jakarta City, Bekasi City, South Tangerang City and Bogor Regency. This study focused on intersectional improper waste management and climate change on the growth and development of young children and was administered to two different target groups:

1. Parents of children aged 4 - 6 years, i.e., parents whose children attend ECCE institutions.
2. Teachers who serve young children aged 4 - 6 years in ECCD institutions.

Due to budget and time resource limitations, this study did not aim to represent the entire Jakarta Greater area. However, it focused on the Jakarta Greater area, which covers four of five areas, one of three cities and one regency. The regions selected included three sub-districts: South Jakarta, Bekasi, South Tangerang and one village in Bogor Regency. The regions were selected based on three indicators: 1) the amount of waste generated, 2) the air quality index, and 3) climate and disaster vulnerability. Below are the names of sub-districts and villages in the targeted areas:

| No | City / Regency | Sub-District / Village |
|---|---|---|
| 1 | South Jakarta | Gandaria Sub-District |
| 2 | Bekasi | Jatikramat Sub-District |
| 3 | South Tangerang | Bakti Jaya Sub-District |
| 4 | Bogor Regency | Cileuksa Village |

## 2.4 Limitation

These limitations underscore the need for caution when interpreting the study's findings and considering their broader implications. Which include:

1

**Limited Representation**

One significant limitation of this study is the small sample size and the narrow focus on surveying participants from a single sub-district and village. By restricting the survey to a specific locality, the findings may not accurately represent the diverse range of perspectives and behaviors related to climate change and waste management across the entire city or region.

2

**Potential Bias**

This limited scope raises concerns about the generalizability of the study's conclusions to a broader population. Findings derived from a small, localized sample may be biased towards the unique context of that sub-district and village. They may not be applicable or representative of other areas within the city and village. It can limit the applicability of the study's conclusions to other parts of the city where conditions and community dynamics may differ significantly.

3

**Imbalanced Regional Characteristics**

The micro research sites covered four areas, three sub-districts, and one village. Characteristically, people living in urban villages can be categorized as urban, with income levels, knowledge, and behaviors that are generally more advanced or complex than those in rural areas. With a composition of three urban villages compared to one village, there is a slight imbalance in data comparison between sub-district and village areas. It may affect the representation and interpretation of data obtained from both areas in the study context. In analyzing the data, the differences in characteristics between urban and rural areas must be considered to understand the social, economic, and cultural context that may influence the study results.

These limitations emphasize the need for broader sampling and a more inclusive approach in future research endeavors to increase the validity and relevance of findings relating to climate change and waste management impacts in early childhood education settings. By addressing these limitations, researchers can better ensure the reliability and applicability of their findings to inform more comprehensive and effective strategies for addressing environmental challenges on a larger scale.

# CHAPTER 3

# KAP SURVEY PARENTS

This chapter describes parents' knowledge, attitudes, and practices regarding the impact of climate change and improper waste management on early childhood development.

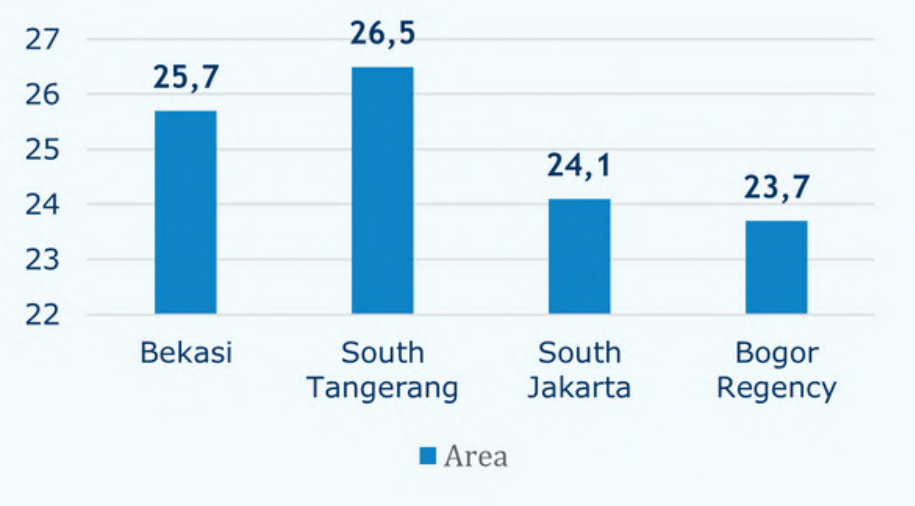
## Key Findings

- 90.5% of parent have experienced the impacts of climate change, moreover 79% have experienced more than one impact of climate change. Some parents believe climate change affects health, economics, and parenting patterns. It’s shows that climate change affected NFC aspects on young children.
- Due to climate change impacts and disaster events, parents need to be equipped with the social and emotional skills to adapt.
- Social media is one of the sources most widely accessed by parents in accessing information about climate change.
- 74% of parents believe that waste contributes to climate change, but 41% of parents stated that they did not know about waste management.
- 90.5% parents are concern about the impact of climate change and improper waste management on young children.
- Parents' practice in engaging young children in waste management and sustainability practices is still relatively low. They also experience several challenges, such as a lack of waste management infrastructure and knowledge.

## 3.1 Socio-Demographic Characteristic of Survey Respondents

This section explains the demographic conditions of the parent sample, including based on the research area, age range, education, employment status and economic status of the parents. Chart 3.1 shows that the total sample of parents was 253, with an equal representative of respondents from each of the four areas. The sample consisted of 65 (25.7%) respondents from Bekasi City, 67 (26.5%) respondents from South Tangerang City, 61 (24.1%) respondents from South Jakarta City, and 60 (23.7%) respondents from Bogor Regency. The sample was determined using the Slovin formula from the total population of parents of ECCD students in an urban village and village in each area.

**Chart 3.1 Sample of parents by area N = 253**




All parents were 18 years of age or older, but the majority were 26- 35 years (56%) and 36-45 years (35%). Far fewer parents were 18-24 years (5%) or 46 years or older. In terms of education, (46%) of parents had a secondary education, (31%) had a university education or equivalent, and (23%) had a primary education or less. Regarding employment status, Table 3.2 shows that most parents (70%) were unemployed and stay-at-home parents, whereas 40% were private employees, 6% were self-employed, 5% were teachers, and below 5% were civil servants and farmers.

| Table 3.1 Demogrsaphic of parents | All Parents N=253 | |
|---|---|---|
| | n | % |
| **Parents Status** | | |
| Mother | 241 | 95.3 |
| Father | 12 | 4.7 |
| **Age Group** | | |
| 18 - 25 years | 12 | 5 |
| 26 - 35 years | 142 | 56 |
| 36 - 45 years | 88 | 35 |
| 46 - 55 years | 11 | 4 |
| **Parents Level of Education** | | |
| Primary education or less | 57 | 23 |
| Secondary education | 117 | 46 |
| University education or equivalent | 79 | 31 |
| **Employment status** | | |
| Unemployed stay at home parents | 176 | 70 |
| Civil servant | 7 | 2.7 |
| Private employees | 40 | 16 |
| Self-employed | 17 | 6 |
| Teacher | 12 | 5 |
| Farmer | 1 | 0.3 |

Understanding the relationship between parents' age and level of education in targeted research areas is very important. Chart 3.2 shows that 44 parents (17.4%) aged 26 – 35 years old and 30 (11.9%) aged 36 – 45 years old were most likely to receive a university education or equivalent. Most parents' education levels from the four research areas were secondary school, 117 people (46%). These findings may reflect the fact that younger generations are far more likely to receive a university education.

**Chart 3.2 Level of Education among Parents by age group N = 253**

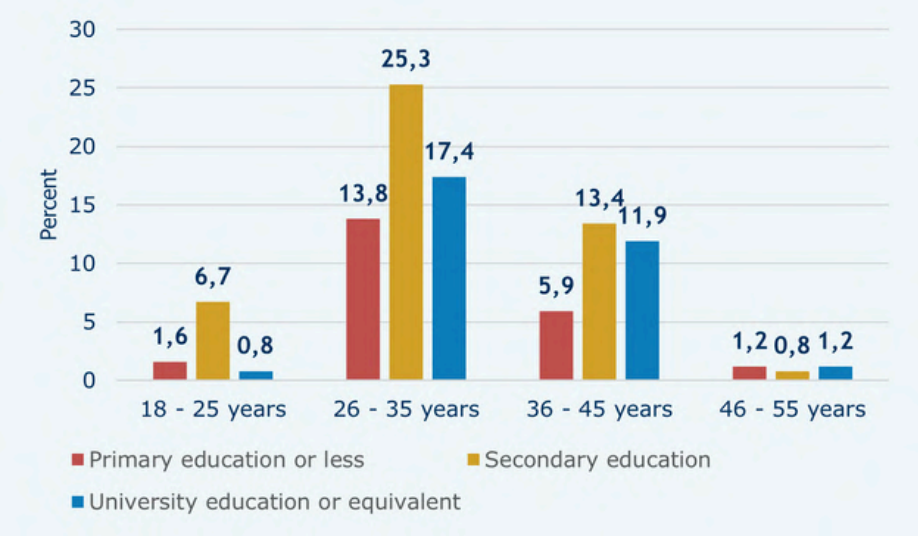
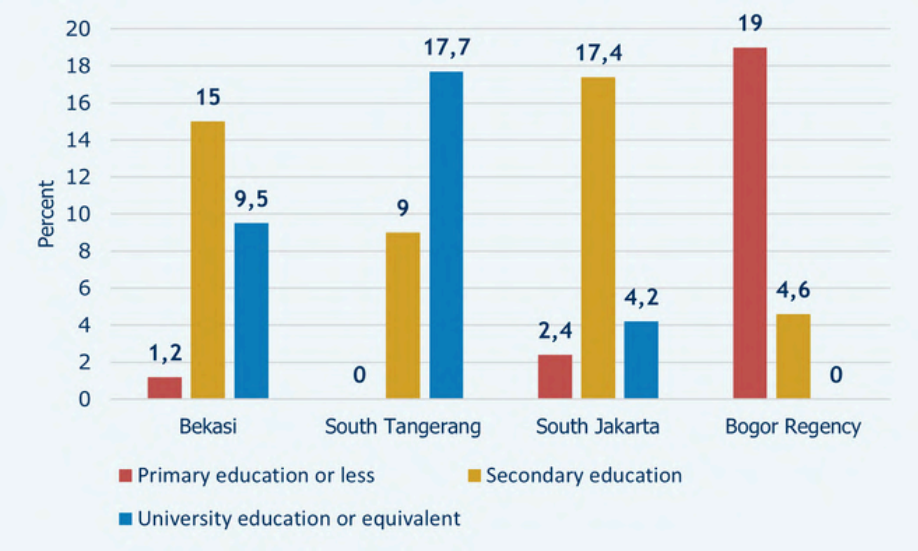


Chart 3.3 also shows that most of the level of education of parents, 48 parents (19%) from Bogor Regency, were primary education or less because of geographical conditions and the distance of the school from the village. These findings are important because there is a relationship between higher levels of education and KAP toward climate change and waste management.

**Chart 3.3 Level of Education among Parents by areas**



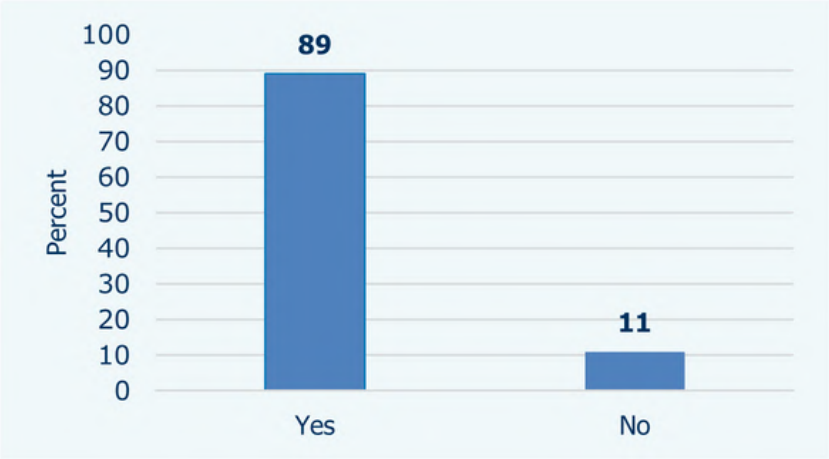

## 3.2 Parents's Knowledge of Climate Change and Waste Management on ECD

This section is divided into five sections, including 1) general knowledge of climate change, 2) Impact of climate change, 3) resource information, 4) general knowledge of waste management, and 5) the Impact of improper waste management on the environment and young children.

### 3.2.1 General knowledge of climate change

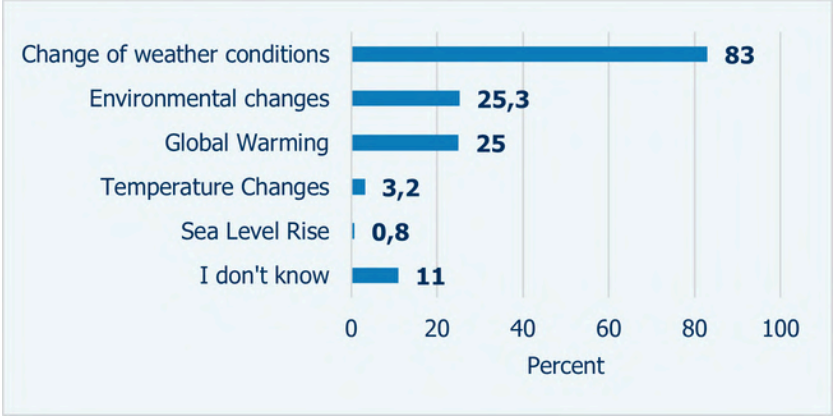
This section presents findings on respondents' knowledge of climate change. It includes responses on general knowledge and specific factors contributing to or associated with climate change. **According to the respondents, as many as 89% of the parents have ever heard about climate change, while 11% have never heard the term.**

**Chart 3.4 Have you ever heard of "climate change?" N = 253**



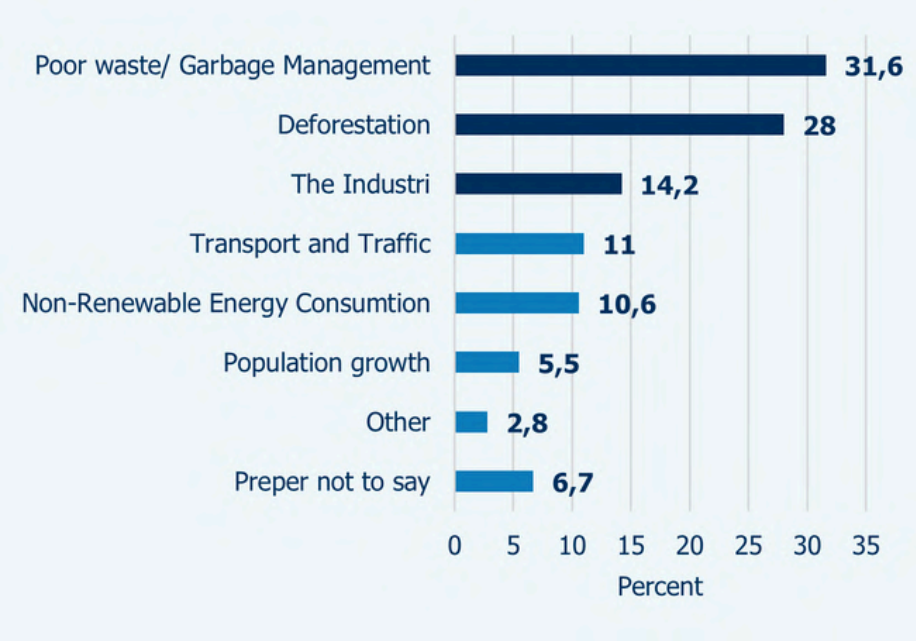

From a simplified linguistic point of view, climate change is a coinage of two words: change and climate. This term is mentioned daily, but what it means and how the respondents understand it is shown in the analysis below. In this section, respondents were able to choose more than one option; chart 3.5 shows that most of the parents (83%) felt that the term climate change associated them with changes in weather conditions, while the second most common association was environmental change (25.3%) and global warming (25%). For 3.2% of respondents, climate change is associated with temperature change, while (0,8%) means sea level rise. **An interesting finding was that (11%) of parents stated they did not know more about climate change terminology.** **This points towards the need for more advocacy on climate change to develop a simple message to understand climate change and its impact on the parent group.**

**Chart 3.5 What do you understand by the term "climate change"? N=253 (multiple answers possible)**



To the question “What do you think contributes the most to climate change?” where multiple answers are possible, chart 3.6 shows that most of the surveyed parents answered that it was Improper waste management (31.6%); this is followed by deforestation – a response prominent in (28%) of respondents, while (14.2%) of respondents say that the industrial activity is also a significant factor. Improper waste management was often referred to among parents in four of each research area as a response to waste incineration at illegal landfills and the lack of waste management facilities, such as in the Bogor Regency case. Most parents in the Bogor Regency area also mention deforestation as a significant factor in climate change due to the geographic condition of Bogor, which is forest and mountain.

**Chart 3.6 What do you think contributes the most to climate change? N=253 (multiple answers possible)**




### 3.2.2 Impact of climate change

**Chart 3.7 Is climate change something that has affected or will affect you, personally? N=253**

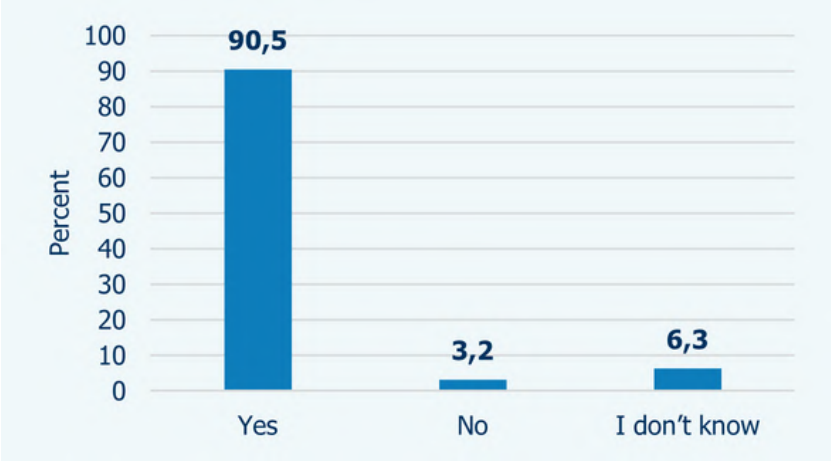
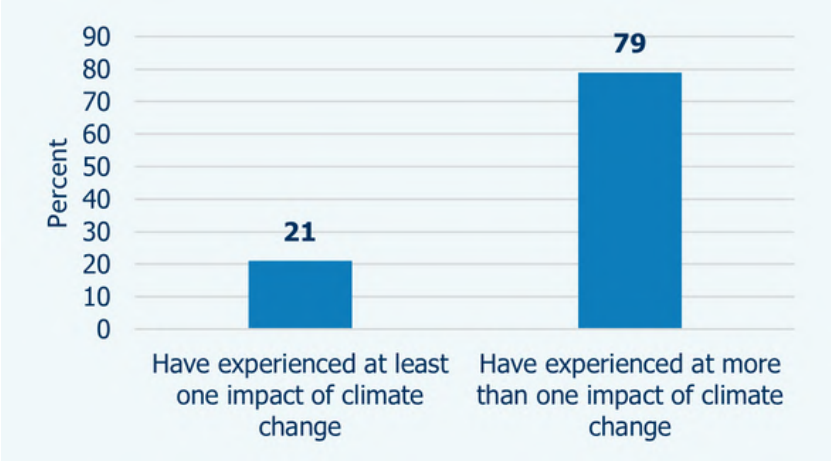


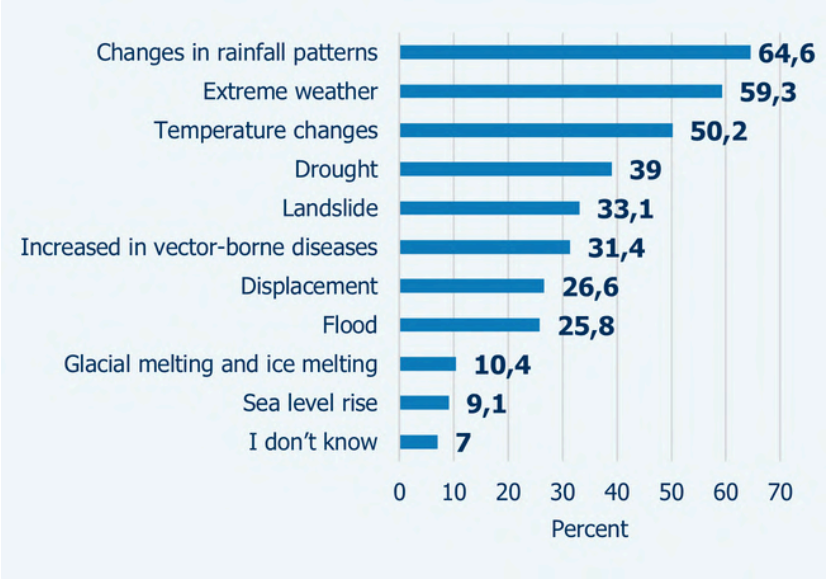

Chart 3.7 shows that most parents (90.5%) reported that they experienced the impact of climate change. Chart 3.8 shows that most of the respondents (79%) that their family experienced more than one impact of climate change. Then (11%) of respondents reported that their family experienced at least one impact of climate change event at some point.

**Chart 3.8 How many impacts that affected you personally? (%) N=229**




To the question "What impacts of climate change have you felt?" where multiple answers are possible. Chart 3.8 shows that most reported climate change impacts included changes in rainfall patterns (64.6%), extreme weather (59.3%), and temperature changes (50.2%). Parents also felt disasters caused by the impacts of climate change, such as drought (39%), landslides (33.1%), and floods (25.8%), which required them to be evacuated and displaced, around (26.6%) of respondents stated that their families had been displaced due to disasters that occurring due to climate change. Regarding health factors, (31.4%) of parents believe that climate change is causing an increase in vector diseases.

**Chart 3.9 What impacts of climate change have you felt? N=229 (multiple answers possible)**




The following are the opinions of parents' experiences obtained in the FGD session regarding the impacts of climate change that they felt. **Some parents believe climate change affects health, economics, and parenting patterns. It's shows that climate change affected the NFC aspects on ECD such as adequate nutrition, responsive caregiving, and good health.**

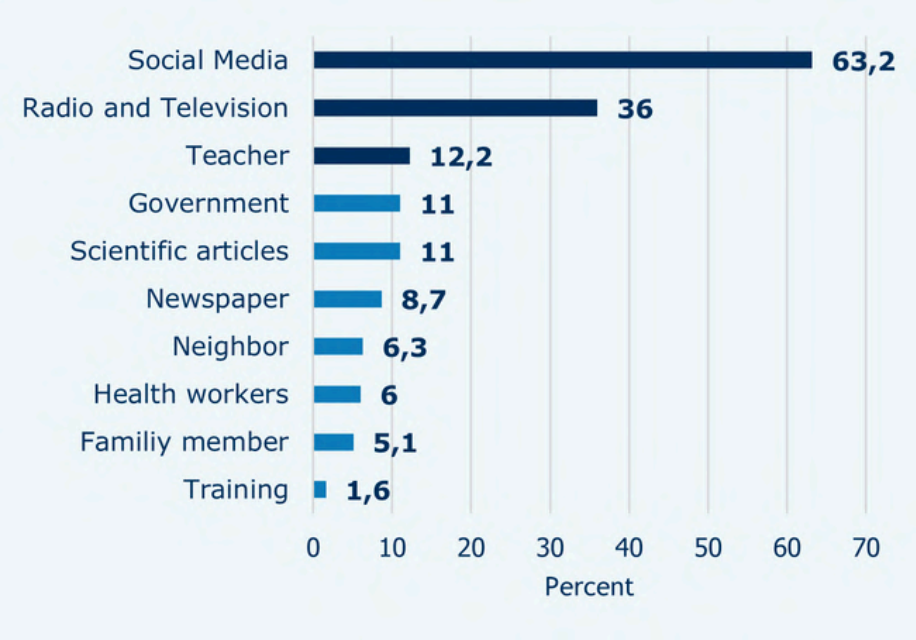
> *"The weather is now unpredictable, hot and rainy at unknown times. Children whose immune systems are still adapting are more susceptible to disease. In addition, moreover at the beginning of 2024, dengue fever cases will increase in several areas in Jabodetabek (Jakarta, Bogor, Depok, Tangerang, and Bekasi); this could also be a threat to families, especially young children". (Parent, in Bekasi)*
>
> *"The impact we feel here is that in 2023, we experienced a drought for six months; apart from that, there are many crop failures, which automatically make the price of necessities also expensive". (Parent, in Bogor Regency)*
>
> *"The landslide disaster also affected parenting patterns, as parents were afraid and perplexed and often daydreamed a lot, disrupting their daily activities. Usually, young children should be asleep and resting, but because they are evacuated, they tend to play until they stay up late. Moreover, young childrens were afraid when it rains because they fear landslides again". (Parent, in Bogor Regency)*

**Based on the FGD result above regarding the impact of climate change, parents and ECCD teachers need to be equipped with the social and emotional skills to adapt and address the fact that young children are often traumatized after disaster events.**

### 3.2.3 Resource Information of Climate Change

This section aims to identify the information media used by parents to access information about climate change. Chart 3.10 shows that most parents access climate change information through social media (63.2%), such as Instagram, TikTok and WhatsApp; at the second level are radio and television (36%). In third place, parents also received information about changes from teachers (12.2%) when they had discussions at the ECCD. The results of this survey show that it is important to use social media as an advocacy channel to disseminate information about ECD and the environment.

**Chart 3.10 What is your main source of information about climate change? N=253 (multiple answers possible)**



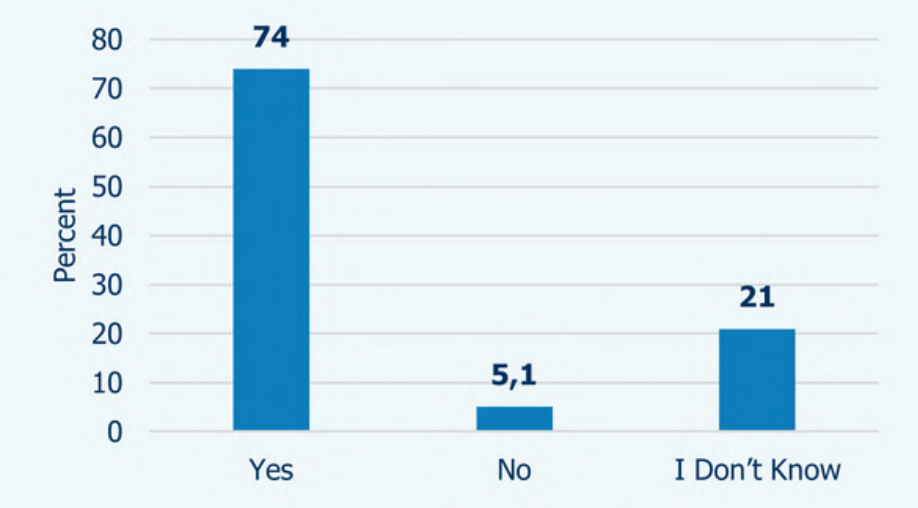

Very few parents still receive information from the government and scientific articles (11%), and only about 1.6% of parents have attended training or socialization activities regarding climate change. **The result shows that there is still a need for government programs and the availability of access to training for parents regarding climate change**. The survey has resulted in climate change still needing serious discussion in society, which can be seen in the sources of information obtained from neighbors (6.3%) or family members (5.1%). **Based on this survey, social media should be used as an advocacy channel to leverage the message regarding climate education**.

### 3.2.4 General Knowledge of Waste Management

This section explains parents' opinions regarding knowledge of waste management in general, including the relationship between waste and climate change, waste management, types of waste, the impact of waste on the environment, and the impact of Improper waste management on young children.

Chart 3.11 shows that (74%) respondents stated that waste impacts to climate change, while (5%) respondents stated that waste does not contribute to climate change. Apart from that, as many as (21%) of respondents stated that they did not know whether waste could contribute to climate change; this shows the need for information regarding the relationship between waste and climate change.

**Chart 3.11 Does waste contribute to climate change? N=253 (multiple answers possible)**




Regarding general knowledge of waste management, some respondents (59%) stated that they knew about waste management, while others (41%) did not. The availability of waste management infrastructure and programs in the community, such as waste banks, influences this. These findings will impact how parents manage the waste they produce. In addition, the source of waste management education and practice that uses friendly language that is easy for parents to understand should be disseminated to the community.

**Chart 3.12 Do you know about waste management? N=253 (multiple answers possible)**

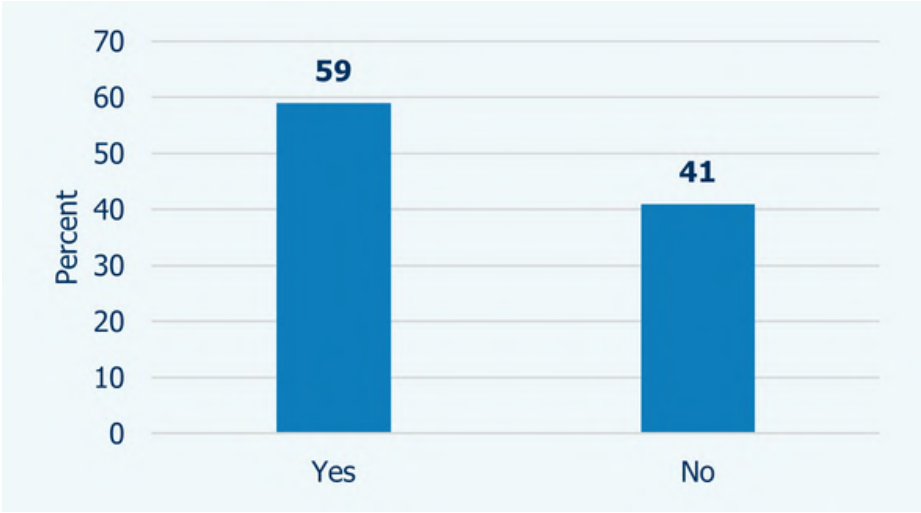


Chart 3.13 shows respondents' knowledge regarding types of waste. Most parents already know the types of organic waste (85%) and inorganic (76%). Meanwhile, for the other three types of waste, only under 40% of respondents knew about hazardous waste (36.4%), paper waste (30%), residual waste (23.3%). There are various reasons why people do not prioritize hazardous waste management, including lack of knowledge about the proper procedures, lack of awareness of the potential harmful impacts, and laziness due to the perceived complexity of hazardous waste management.

**Chart 3.13 What types of waste do you know? N=253 (multiple answers possible)**

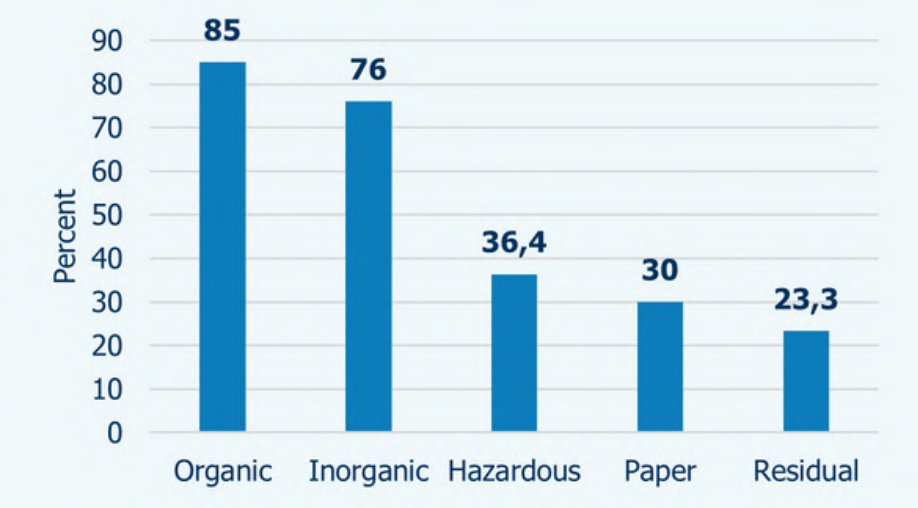
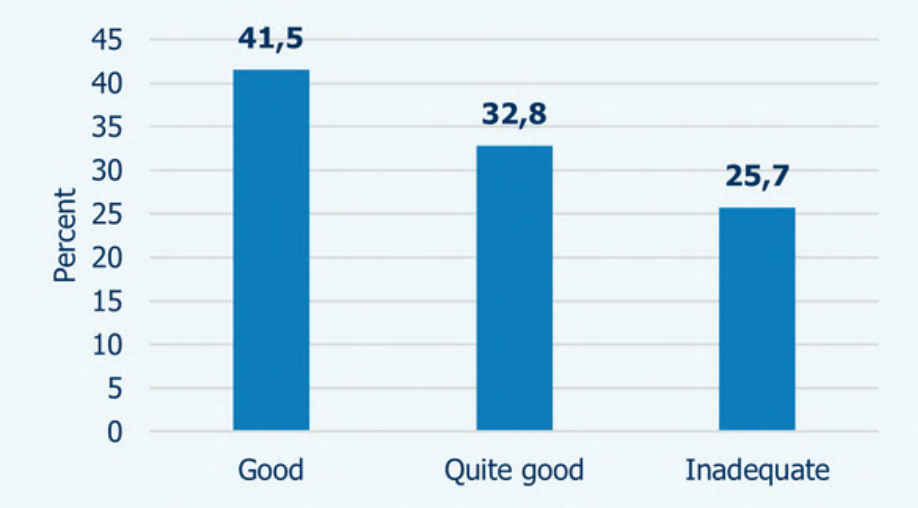



Chart 3.14 Showing the condition of waste management in the respondents' environment, 41.5% of respondents stated that their living environment had good waste management, 32.8% thought it was quite good, and 25.7% thought that waste management in their environment was inadequate.

**Chart 3.14 What is the condition of waste management in your environment? N=253**



Based on regional aspects, chart 3.15 shows that in the Bogor Regency area, Cileuksa Village, 81.7% of respondents stated that waste management in their environment was inadequate. Meanwhile, in South Tangerang, 52.2% of respondents thought that waste management in their environment was quite good. In the Bekasi and South Jakarta areas, more than 50% of respondents stated that waste management in their environment was good. The availability of waste management infrastructure and the geographical conditions of the region influence this. The city's waste management infrastructure is complete, but there is still no adequate and lack of waste management infrastructure in rural areas. It can be affected the practice aspect on waste management.

**Chart 3.15 The condition of waste management on each research area**

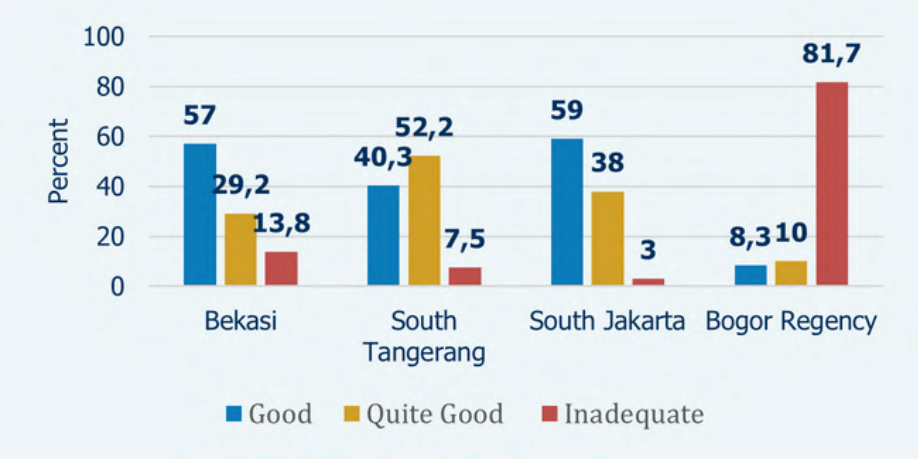
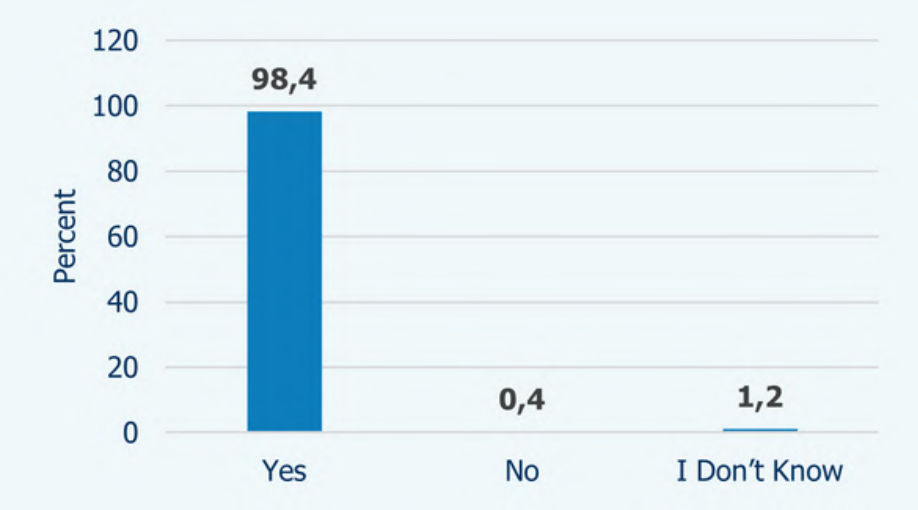



Chart 3.16 shows parents' knowledge regarding the impact of waste on air pollution and the environment, **almost all parents (98.4%) agree that waste can cause air pollution and environmental degradation.**

**Chart 3.16 Does Improper waste management have the potential to cause air pollution and environment degradation? N=253**



Regarding the impact of waste on environmental degradation, based on chart 3.17 respondents believe that waste can cause air pollution (79.4%), water pollution (77%), and land pollution (57.3%). Respondents also believed that Improper waste management resulted in environmental degradation and air pollution caused by burning rubbish and throwing rubbish carelessly.

> "Some neighbors like to burn waste, which causes smoke, which is dangerous for young children". (Parent, in Bekasi City)

**Chart 3.17 What is the impact of waste on the environment degradation? (%) N=253 (multiple answers possible)**

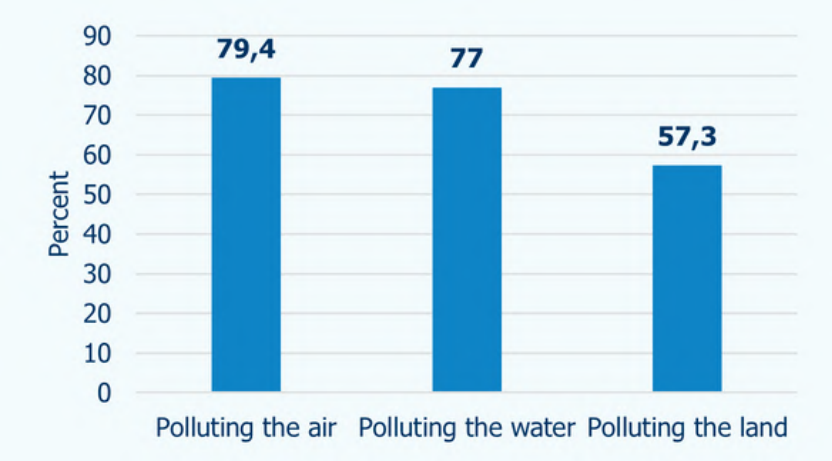
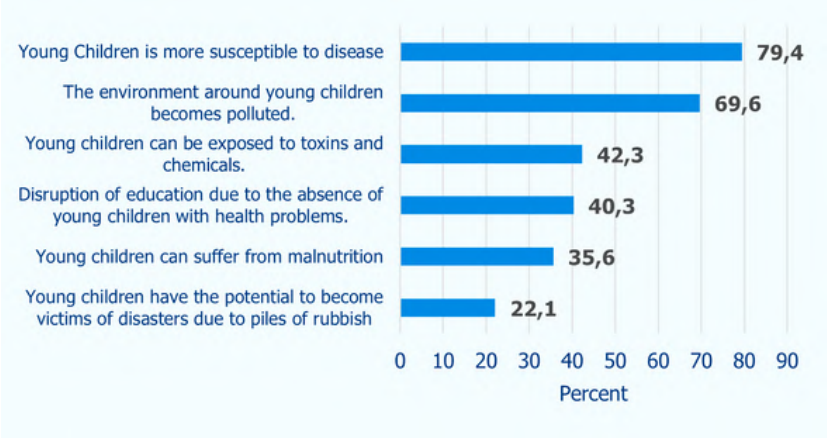



Chart 3.18 shows that improper waste management can affect the growth and development of young children. (79.4%) of respondents stated that improper waste management greatly influences the health aspects of young children because an unhealthy environment can make children vulnerable to disease (69.6%) of respondents thought that improper waste management could make the environment around young children polluted (42.3%) believe that children are vulnerable to exposure to toxins and chemicals. **Meanwhile (40.3%) of respondents believe that improper waste management can cause young children to lack nutrition because it can pollute food and water.**

**Chart 3.18 What is the impact of Improper waste management on the growth and development of young children? N=253 (multiple answers possible)**



Apart from environmental and health aspects, improper waste management can also affect educational aspects and cause disasters; as many as (35.6%) of respondents reported that young children could miss school because they were sick, and (22.1%) of respondents thought that improper waste management could cause problems for young children. Become victims of disasters caused by waste, such as floods.

> *"Waste thrown carelessly can clog waterways and cause flooding, which prevents my young children from going to school". (Parents, in Bekasi City)*
>
> *"Near my house, the ECCD was once flooded, this caused the children to not be able to go to school and become gloomy". (Parents in South Tangerang)*
>
> *"The accumulation of rubbish causes lots of flies, so they can stick to food and cause young children to get sick, such as diarrhea". (Parents, in Bekasi City)*

Based on an FGD session with the parent group in South Jakarta, as many as 7 out of 10 parents reported that their children were often exposed to seasonal illnesses such as flu, coughs, acute respiratory infections, and prickly heat, and they believed that this was closely related to the environmental degradation. **The parents statement also show tthat improper waste management affected NFC aspects to ECD especially in good health, opportunities for early learning, and safety and security aspects**.

## 3.3 Parents Attitude toward Climate Change and Waste Management on ECD

| Table 3.3 Parent attitude toward climate change and waste management | All Parent N=253 | |
|---|---|---|
| | n | % |
| **What is your level of concern after learning about the impact of climate change and improper waste management on young children?** | | |
| Very concerned | 229 | 90.5 |
| Somewhat concerned | 33 | 9 |
| Not concerned | 1 | 0.5 |
| **Is waste management the responsibility of parents?** | | |
| Strongly Agree | 231 | 91.3 |
| Somewhat Agree | 20 | 7.9 |
| Strongly Disagree | 2 | 0.8 |

Table 3.3 shows that (90.5%) of parents reported concern about the impact of climate change and improper waste management on young children. Almost all parents (91.3) realize that waste management is the responsibility of parents so that the impact of waste does not interfere with the growth and development of young children. Although many parents are concerned about climate change and waste management in relation to ECD, there are no specific policies regarding climate change and ECD.

> *"Local governments must provide outreach to invite parents to become waste bank customers so that parents can be motivated to sort waste from home". (Parent, in South Tangerang)*
>
> *"The government has issued many regulations regarding waste management, but societal practice still needs improvement. Socialization, programs, and community commitment are required to support these regulations". (Parent, in Bekasi City)*
>
> *"In the village, there has been an order to take collective action regarding the environment, but unfortunately, this is only done on certain days. For example, when it is Independence Day, we do clean up, and the village, together with the PKK (women-led organization)". (Parent, in Bogor Regency)*

Regarding the waste management issue in the four research areas, local governments already have policies regarding waste management, but monitoring is still required to ensure these policies are implemented. Parents also believe that communal activities are needed, such as outreach and training at the community level. Parents' own commitment also influences the implementation of proper waste management.

| Table 3.4 Parent attitude to engage young children in eco-friendly activties | All Parent N=253 | |
|---|---|---|
| | n | % |
| **As a parent, how important is it to show eco-friendly activities to young children?** | | |
| Very Important | 250 | 98.8 |
| Somewhat Important | 3 | 1.2 |
| **Can you influence eco-friendly behavior to young children?** | | |
| Strongly Agree | 226 | 89.3 |
| Somewhat Agree | 20 | 7.9 |
| Strongly Disagree | 4 | 1.6 |
| I don't know | 3 | 1.2 |
| **I have sufficient knowledge and skills to teach young children about the climate change and eco-friendly activities** | | |
| Strongly Agree | 169 | 66.8 |
| Somewhat Agree | 45 | 17.8 |
| Strongly Disagree | 38 | 15 |
| I don't know | 1 | 1 |

Table 3.4 shows that almost all parents (98.8%) reported that it is very important to show eco-friendly behavior to young children. Moreover, 89.3% of parents stated that they believed they could influence young children to adopt eco-friendly behavior. However, only 66.8% of parents stated that they had sufficient knowledge and skills to teach young children about environmentally friendly behavior, and 15% stated that they did not yet have the knowledge and sufficient skills. This is also influenced by parental education and the access to information they receive. The results above show that there is a need to increase awareness of environmental issues and sustainable lifestyle practices among parents and young children

## 3.4 Parents Practice toward Climate Change and Waste Management on ECD

Chart 3.19 shows that around (27.3%) of parents know that they have not implemented proper waste management at home, (and 30%) stated that they sometimes implement proper waste management. In comparison (42.7%) stated that respondents had implemented proper waste management consistently.

**Chart 3.19 Have you implemented waste management practices at home? (%) N=253**

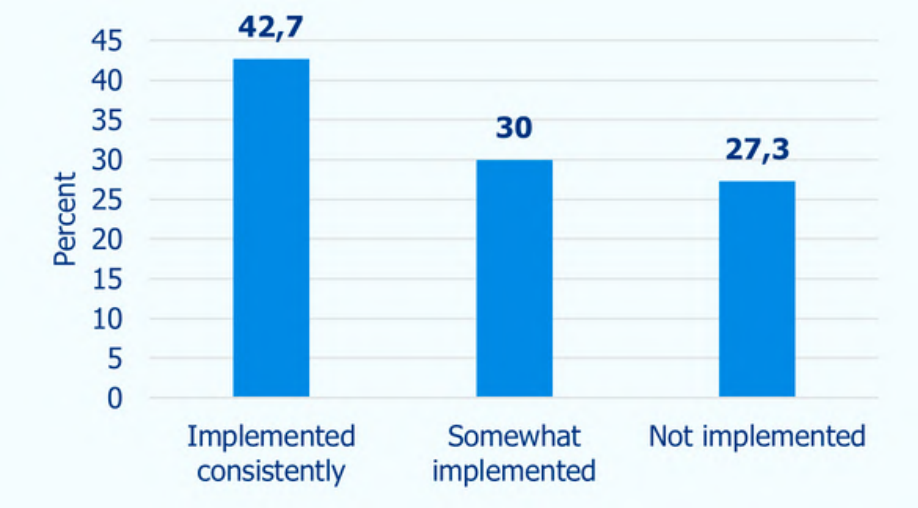



Chart 3.20 shows the good practices of parents in managing their waste at home; more than 50% stated that they separate recyclable waste from non-recyclable waste, 28.5% do it using reduce, recycle and reuse methods, 2% make organic fertilizer, and (1.6 %) take the waste to the waste bank. Some parents have not implemented proper waste management, so they still carry out irresponsible practices in managing waste, such as open waste burning (30%), throwing waste in rivers or waterways (21%), littering (15%), and buried solid waste (0.8). **In the context of ECD, parents still need to increase their awareness of how to manage the recycling of toys and clothes, that children use and outgrow, also how safe are the toys, plastic toys with lead coloring are scope for awareness on all these issues**.

**Chart 3.20 How do you manage waste at home? N=253 (multiple answers possible)**

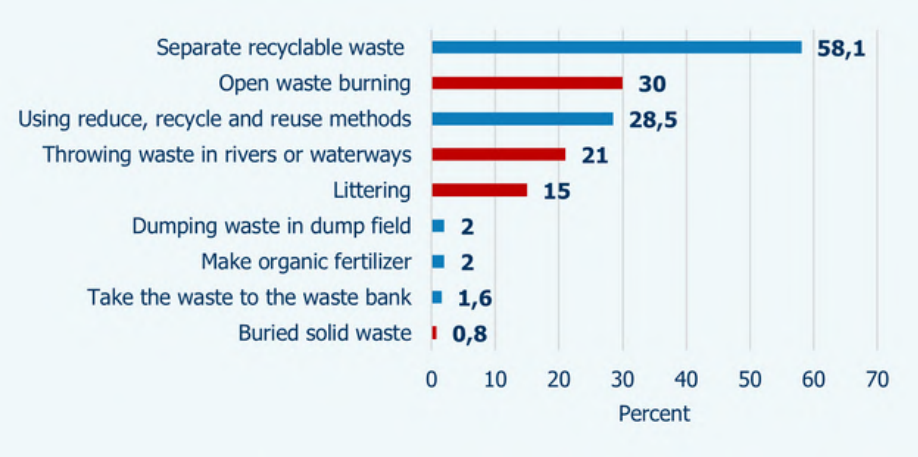



Chart 3.21 shows the challenges faced by parents in implementing proper waste management. The two biggest challenges faced by parents are a lack of waste management infrastructure (75.5%) and a lack of knowledge about waste management (60%). Several other challenges are implementing appropriate waste management, which requires costs (11.9%) and lack of time (11%) because some parents have other activities, so they don't have time to manage waste properly.

**Chart 3.21 What challenges do you face in implementing good waste management practices? N=253 (multiple answers possible)**

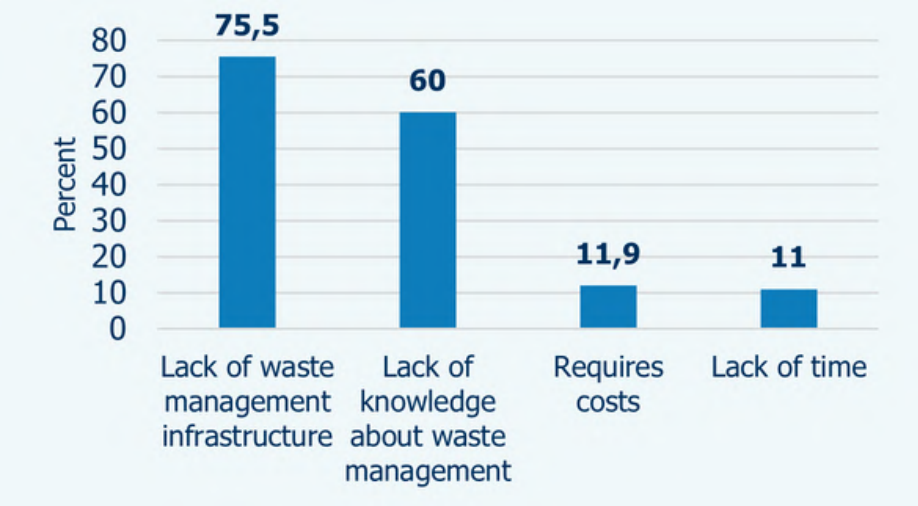
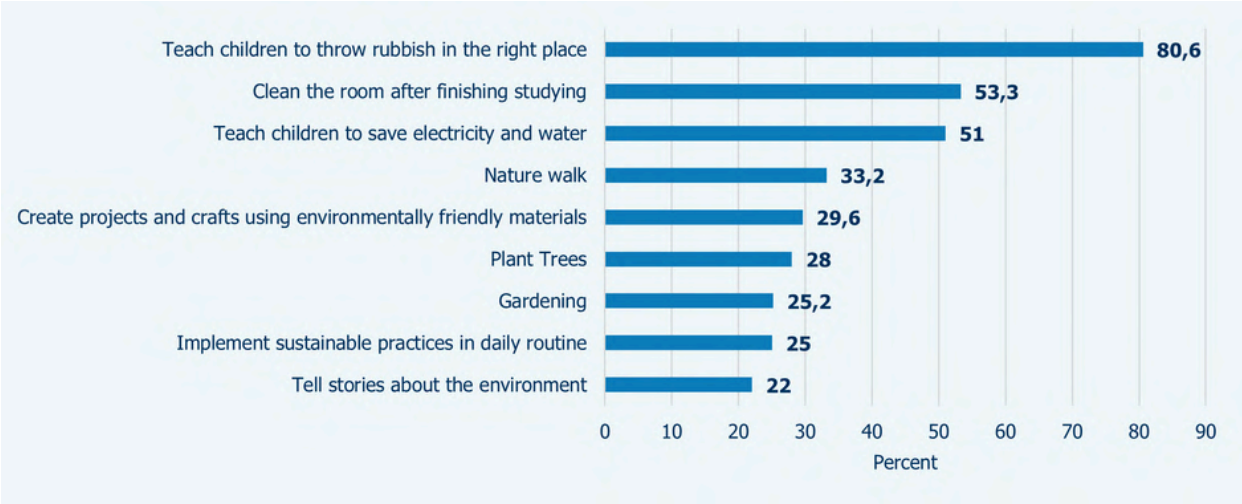


Chart 3.22 Shows ways that parents can teach young children how to manage waste at home. As many as (47%) parents mentioned cleaning trash cans, (46.2%) making fertilizer from organic waste, (38.3%) recycling inorganic waste. Regarding making fertilizer from organic waste and recycling inorganic waste, it is greatly influenced by teachers giving school assignments so that parents do this. However, it is not done too intensely if there is no assignment from school. It shows that there is still a need for practical guidance and increasing knowledge regarding engaging young children in waste management. If parents only encourage young children to throw rubbish in the rubbish bin, it will end up in the dumpfill and still pollute because it produces methane gas. It will be different from processing it into compost, where parents can teach the waste recycling cycle so young children do not need to produce waste. However, waste can be used as something of value, and everything can return to nature.

**Chart 3.22 What waste management practices can you teach young children?**
**N=253 (multiple answers possible)**


Chart 3.23 shows how parents can engage their young children in environmental activities. Respondents conveyed three activities that could involve young children: Teaching children to throw rubbish in the right place (80.6%), cleaning the room after finishing studying (53.3%) and teaching children to save electricity and water (51%). It shows that the environmental activities carried out by most parents are still very simple. These results show that it is necessary to form a parent group champion and engage community-based organizations such as women-led organizations, health care, and ECCD parent committees at the local level to bring awareness to this issue. It can be a targeted parent education program already implemented or using community healthcare centers to provide sustainability practices and go out into nature.

**Chart 3.23 How do you engage young children in environmental activities?**
**N=253 (multiple answers possible)**




# CHAPTER 4

# KAP SURVEY TEACHER

This chapter describes ECCD teachers' knowledge, attitudes, and practices regarding the impact of climate change and improper waste management on early childhood development.

## Key Findings

- Almost half (45%) of the ECCD teachers from the total respondents still only have a diploma from a secondary school.
- All respondents had heard about climate change, and 97.5% had experienced its impact. Social media is one of the channels that ECCD teachers widely access to find information on climate change and also as a learning medium at school.
- 74% of parents believe that waste contributes to climate change, but 41% of parents stated that they did not know about waste management.
- 80% of respondents stated that the impact of waste on young children is that they are more susceptible to disease and 90.5% parents are concern about the impact of climate change and improper waste management on young children.
- The attitude level of ECCD Teachers is high, more thatn 90% of respondents stated that they were concerned about the impact of climate change and waste on young children and that environmentally based education needed to be taught to them.
- Regarding the level of practice, ECCD teachers have various way in engaging young children in waste management and sustainability practices. However, teaching materials, experience, education level, and access to information greatly influence this.

## 4.1 Socio-Demographic Characteristic of Survey Respondents

This section reveals the demographic make-up of the sample of ECCD teachers. The sample of teachers in each research area was 10 people from ECCD at random. Table 4.1 shows that all samples of teachers were female and only (2.5%) were teachers with civil servant status, while the other (97.5%) were non-civil servant teachers. In terms of education level, (45%) of teachers have secondary education and the other (55%) have university education.

| Tabel 4.1 Demographic of ECCD Teacher | All ECCD Teachers N=40 | |
|---|---|---|
| | n | % |
| **Sample of teachers by Area** | | |
| Bekasi | 10 | 25 |
| South Tangerang | 10 | 25 |
| South Jakarta | 10 | 25 |
| Bogor Regency | 10 | 25 |
| **Gender** | | |
| Female | 40 | 100 |
| Male | - | 0 |
| **Teacher Status** | | |
| Civil Servant | 1 | 2.5 |
| Non-Civil Servant | 39 | 97.5 |
| **Age Group** | | |
| 18 – 25 years | 8 | 20 |
| 26 – 35 years | 9 | 22.5 |
| 36 – 45 years | 8 | 20 |
| 46 – 55 years | 9 | 22.5 |
| 56 – 64 years | 6 | 15 |
| **Parents Level of Education** | | |
| Secondary education | 18 | 45 |
| University education or equivalent | 22 | 55 |

## 4.2 Teacher Knowledge toward climate change and waste management on ECD

This section is divided into two sections, including: 1) ECCD teacher's knowledge of climate change and it's impact; 2) ECCD teacher's knowledge of waste management and it's impact to young children.

### 4.2.1 Teacher Knowledge toward climate change it's impact

Table 4.2 shows that all teacher respondents agree that they have heard the term climate change. Almost all respondents stated that climate change was a change in weather conditions (90%). Nearly half of respondents think climate change can be

interpreted as temperature changes (52.5%). Moreover, several respondents also stated that climate change can be interpreted as environmental changes (35%), global warming (30%), and sea level rise (10%).

Several sources of information used by teachers to access information about climate change include social media (70%), radio and television (32.5%), and fellow teachers (15%). Only around (12.5%) of respondents use sources from scientific articles and government, apart from that there is still not much access to training on climate change for teachers, this is shown by only (2.5%) of respondents who get climate change information through personal involvement in training.

| Tabel 4.2 Teacher Knowledge toward climate change and it's impact | All ECCD Teachers N=40 | |
|---|---|---|
| | n | % |
| **Have you ever heard of "Climate Change"?** | | |
| Yes | 40 | 100 |
| No | 0 | 0 |
| **What do you understand by the term of "climate change" (multiple answers possible)** | | |
| Change of weather conditions | 36 | 90 |
| Temperature Changes | 21 | 52.5 |
| Environmental changes | 14 | 35 |
| Global Warming | 12 | 30 |
| Sea Level Rise | 4 | 10 |
| **What is your main source of information about climate change? (multiple answers possible)** | | |
| Social media | 28 | 70 |
| Radio and Television | 13 | 32.5 |
| Fellow teacher | 6 | 15 |
| Scientific article | 5 | 12.5 |
| Government | 5 | 12.5 |
| Newspaper | 3 | 7.5 |
| Family member | 1 | 2.5 |
| Personal involvement in training | 1 | 2.5 |
| Health worker | 1 | 2.5 |
| **Is climate change something that has affected or will affect you, personally?** | | |
| Yes | 39 | 97.5 |
| No | 1 | 2.5 |

Regarding the impact of climate change, all respondents reported that they had experienced the impact of climate change. Most teachers stated that the impacts they felt were temperature changes (57.5%), changes in rainfall patterns (47.5%), extreme weather (40%). Regarding the impact of climate change on disasters, 37.5% of respondents had experienced drought and landslides, another 25% said they had been affected by floods and were displaced. In the health aspect, respondents stated that climate change caused an increase in vector-borne disease (37.5%).

### 4.2.2 Teacher Knowledge toward waste management and it's impact to young children

Table 4.3 shows that (90%) of respondents stated that waste contributes to climate change. Regarding teachers' knowledge of waste management, (75%) reported that they knew about waste management, while (25%) stated that they did not know about waste management. Based on the survey results, all teachers reported that waste can cause environmental degradation, 75% of respondents think that waste can cause water pollution (75%), polluting water (65%), and polluting land (60%).

| Tabel 4.3 Teacher Knowledge toward waste management | All ECCD Teachers N=40 | |
|---|---|---|
| | n | % |
| **Does waste contribute to climate change?** | | |
| Yes | 36 | 90 |
| No | 3 | 7.5 |
| I don't know | 1 | 2.5 |
| **Do you know about waste management?** | | |
| Yes | 30 | 75 |
| No | 2 | 5 |
| I don't know | 8 | 20 |
| **What is the impact of waste on the environment degradation? (multiple answers possible)** | | |
| Polluting air | 30 | 75 |
| Polluting water | 26 | 65 |
| Polluting land | 24 | 60 |

Regarding the impact of improper waste management on young children, as many as (92.5%) of respondents agreed that improper waste management can affect the growth and development of young children. 80% of respondents stated that improper waste management can cause young children to be more susceptible to disease. Improper waste management can cause the environment around young children to become polluted (50%) and expose them to toxins and chemicals (45%). Other impacts: 35% of respondents stated that young children can suffer from malnutrition, 30% have the potential to become victims of disasters, and 27.5% have a disruption of education due to the absence of young children with health problems.

| Tabel 4.4 Teacher Knowledge toward the impact of improper waste management to young children | All ECCD Teachers N=40 | |
|---|---|---|
| | n | % |
| **Is improper waste management has impact to young children?** | | |
| Yes | 37 | 92.5 |
| No | 2 | 5 |
| I don't know | 1 | 2.5 |
| **What is the impact of Improper waste management on the growth and development of young children? N=37 (multiple answers possible)** | | |
| Young Children is more susceptible to disease | 32 | 80 |
| The environment around young children becomes polluted | 20 | 50 |
| Young children can be exposed to toxins and chemicals | 18 | 45 |
| Young children can suffer from malnutrition | 14 | 35 |
| Young children have the potential to become victims of disasters due to piles of rubbish | 12 | 30 |
| Disruption of education due to the absence of young children with health problems. | 11 | 27.5 |

> *"In our village, there was a landslide in 2020 caused by non-stop rain since evening, when the landslide occurred in the morning. It impacted teaching and learning activities, which stopped for two weeks, and classrooms were used for evacuation. Teachers were also affected and fled to safe places". (ECCD Teacher, in Bogor Regency)*

## 4.3 Teacher Attitude toward climate change and waste management on ECD

Table 4.5 shows that **90% of teachers are very concerned with the climate and improper waste management issues for young children.** This is also supported by (92.5%) the attitude of teachers who consider it important to teach young children about environmental subjects. Regarding teachers' ability to influence environmentally friendly behavior to young children, 90% of respondents said they could influence young children.

| Tabel 4.5 Parent attitude toward climate change and waste management | All ECCD Teacher N=40 | |
|---|---|---|
| | n | % |
| **What is your level of concern after learning about the impact of climate change and improper waste management on young children?** | | |
| Very concerned | 36 | 90 |
| Somewhat concerned | 4 | 10 |
| **Is environmental learning important for young children?** | | |
| Very important | 37 | 92.5 |
| Somewhat important | 3 | 7.5 |
| **Can you influence eco-friendly behavior to young children?** | | |
| Strongly Agree | 36 | 90 |
| Somewhat Agree | 2 | 5 |
| Strongly Disagree | 2 | 5 |
| **I have sufficient knowledge and skills to teach young children about the climate change and eco-friendly behavior** | | |
| Strongly Agree | 26 | 65 |
| Somewhat Agree | 11 | 27,5 |
| Strongly Disagree | 3 | 7.5 |
| **I want to increase my knowledge and skill in teacher environmental subject** | | |
| Strongly Agree | 38 | 95 |
| Somewhat Agree | 1 | 2.5 |
| Strongly Disagree | 1 | 2.5 |

However, only (65%) of respondents stated they had sufficient knowledge and skills to teach young children about climate change and eco-friendly behavior, (27.5%) stated they were unsure whether they had sufficient knowledge and skills, and another (7.5%) stated they did not yet have sufficient knowledge and skills to teach young children about climate change and eco-friendly behavior.

## 4.4 Teacher Practice toward climate change and waste management on ECD

Related to teachers' practices in teaching climate change and waste management on ECD, table 4.6 shows that waste management practices that teachers can teach to young children at school, (85.7%) of respondents stated clean up in the school, (64.2%) sorting waste, (43%) role play and storytelling, 38% reduce the use of single use plastic, 35.7% cleaning trash cans. In relation to managing waste into fertilizer and crafts, only 19% and 12% respectively.

| Table 4.6 Teachers practice toward climate change and waste management | All ECCD Teacher N=40 | |
|---|---|---|
| | n | % |
| **What waste management practices can you teach young children at school? (multiple answers possible)** | | |
| Clean up in the school | 36 | 85.7 |
| Sorting waste based on type of waste | 27 | 64.2 |
| Role play and story telling about waste | 18 | 43 |
| Reduce the use of single-use plastic | 16 | 38 |
| Cleaning trash cans | 15 | 35.7 |
| Making fertilizer from organic waste | 8 | 19 |
| Recycling inorganic waste | 5 | 12 |
| **How do you involve young children in eco-friendly activities at school? (multiple answers possible)** | | |
| Teach children to throw rubbish in the right place | 34 | 85 |
| Teach children to save electricity and water | 25 | 62.5 |
| Create projects and crafts using environmentally friendly materials | 21 | 52.5 |
| Clean up | 21 | 52.5 |
| Nature walk | 17 | 42.5 |
| Plant Trees | 16 | 40 |
| Gardening | 13 | 32.5 |
| Integrate environmental subject in learning activities | 11 | 27.5 |
| Implement sustainable practices in daily routine | 8 | 20 |

Table 4.6 also shows how teachers engage young children in eco-friendly activities at school. (85%) involve young children to throw rubbish in the right place, (62.5%) teach children to save electricity and water, (52.5%) create projects and crafts using environmentally friendly materials and clean up, (42.5%) nature walk activity, (40%) planting trees, 32.5% gardening, (27.5%) integrate environmental subject in learning activities, and (20%) implement sustainable practices in daily routine at school.

> *"Learning about climate change and waste in class, apart from the themes available in the curriculum, we usually also relate it to everyday events; for example, when it rains, we teach young children about the process of rain and its impact". (ECCD Teacher, in Bogor Regency).*
>
> *"We familiarize young children and tell parents to bring drinking bottles and food containers to school". (ECCD Teacher, in Bekasi City).*

Teaching strategies about the environment and waste to students are available through storytelling, songs, videos, and eco-friendly activities such as planting plants, taking walks in nature, and waste sorting practices. Most teachers feel this is effective and understandable when conveyed to students. An exciting practice was carried out by teachers at ECCD Seruni, Cileuksa Village, Bogor Regency, who invited students to take a nature walk through the rice fields to understand the environment around them. Besides that, several teachers encourage the students to bring water bottles and food containers to school.

# CHAPTER 5

# ADDITIONAL DISCOVERIES

This chapter describes additional discoveries based on the KII and FGD results with the targeted stakeholders regarding the ECCD curriculum and the Environmental Program and the challenges ECCD teachers and parents in engaging face young children in environmental and sustainability practices.

## Key Findings

- ECCD Curriculum has integrated the environmental subject, but needs optimization to add climate change theme and training program to the ECCD workforce is required to increase their knowledge and capacity to engage young children in eco-friendly activities.

- Lack of optimal assessment and data regarding climate change and ECD issues that affect the policy and lack of resources to mainstream ECD in government environmental programs.

- Parents' engagement and community partnership are needed to involve young children in environmental education and eco-friendly activities to establish a parent champion group and mainstream climate education in a community-based organization agenda to raise awareness about the climate change issue in the community.

- Cross sectoral collaboration is needed between government agencies at both national and sub-national levels to mainstream ECD issues in environmental programs.

## 5.1 The Implementation of Environmental Education in ECCD

At the ECCD level, environmental learning is mainly implemented through learning about clean and healthy living behaviors. It includes education on the importance of maintaining a clean environment and healthy lifestyle, especially in waste management. Young children learn how important it is to protect the environment from waste and how to reduce and manage waste properly. Field trip activities are one of the effective methods to provide direct experience to children in recognizing and understanding the surrounding environment. Through field trips, children can visit various places such as parks, rivers, or other natural locations that allow them to see the beauty of nature firsthand and understand their role in protecting the environment.

> *"At ECCD Melati Peduli, South Jakarta, field trips are one of the approaches to learning about the environment, although they are not regularly scheduled. One activity that has been carried out is a visit to the park. During this visit, the children are encouraged to observe and learn about the importance of keeping the park and surrounding environment clean". (ECCD Teacher, South Jakarta)*
>
> *"Every year, an ECCD collective event is held at the district level namely "Gebyar PAUD", which is attended by all ECCD units from the villages level; this could be a momentum to integrate environmental education into the agenda through a competition, young children and parent activity, clean up, and planting trees". (Association of Indonesian Early Childhood Educators and Education Personnel, Bogor Regency)*
>
> *"Every month, community health worker conduct health checks on young children at the ECCD unit, and there are activities to provide additional food budgeted by the village government". (Community Health Worker, Bogor Regency)*

Based on the results of the FGD, there are several opportunities to integrate climate and environmental education through community agendas and events organized by ECCD units at the sub-district level. Therefore, **community partnerships are needed to increase parents' and the community's awareness of climate and environmental issues.** Apart from that, advocacy is also needed at the village and sub-district level at annual planning meetings so that the government at the village and sub-district level allocates resources to support environment-based activities in the community and at the ECCD level.

## 5.2 The Integration of Environmental Education in ECCD Curriculum

Based on the KII with the Directorate General of Early Childhood Education, **the environmental issue has been integrated into the ECCD curriculum, especially in the Merdeka Curriculum.** Climate and environmental education are incorporated through learning outcomes and topics discussed in the ECCD unit curriculum to build early childhood awareness of the importance of protecting and caring for the surrounding environment. It shows that the integration of learning about **the environment has been implemented in the activities of Strengthening the Profile of Pancasila Students (P5) with the topic "I Love the Earth" the material on the subject consists of several themes such as My Country's Food Hero Farmers, Zero Waste, My land is fertile, My plants grow, and Camping in the Forest.**

> *"We do not have a specific policy and budgeting regarding the issue of climate change and early childhood development, but learning about the environment has been integrated through an independent curriculum, and a module platform is available to be a reference for teachers in its implementation." (Directorate General of Early Childhood Education)*

The Merdeka Curriculum has learning resources such as waste management modules that ECCD teachers can use. This material can be accessed through learning videos on the Merdeka Mengajar Platform. In addition, to increase disaster preparedness in ECCD units, a safe school program is provided for ECCD in areas most at risk of disasters, including socialization, simulations, and other activities based on the National Safe School Program Framework.

> *"We also integrate disaster safe education unit programs at the ECE level to reduce disaster risks, but this program is still prioritized in ECE which have high vulnerability and threat of disasters". (Directorate General of Early Childhood Education)*

Even though the preschool curriculum is integrated with environmental learning, based on the results of discussions at ECD Climate Introduction and consultation workshop conducted by ARNEC in partnership with Indonesia HI ECD-Coalition on 18 October 2023, **it is necessary to optimize the curriculum by including a particular theme regarding climate change and training support for the ECCD workforce to implement it.**

## 5.3 Environmental Programs

Early childhood participation in community activities related to climate change and waste management is relatively rare, and there are no programs specifically targeted at early childhood development. **Based on the discussion with the Jakarta Environmental Departement, there is no specific environmental program is aimed at early childhood development.** The Indonesian government has national programs such as Climate Village and Waste Bank initiated by the Ministry of Environment and Forestry. The Climate Village and Waste Bank programs are one of the actions to mitigate and adapt to climate change. **However, these programs only reach adults, while children, especially in the early childhood development sector, have not directly participated.**

> *"Currently, the Environmental Department has no special programs for early childhood development. However, at the community level, education related to the environment, especially waste management, is often conducted. The Environmental Department does not directly organize this education, but through the Climate Village program administrators to ECCD units". (Head of Community Participation, the Environmental Department of DKI Jakarta)*

### Climate Village Program

The Climate Village Program is a national program managed by the Ministry of Environment and Forestry in order to encourage communities to increase their capacity to adapt to the impacts of climate change and reduce greenhouse gas emissions as well as providing appreciation for climate change adaptation and mitigation efforts that have been implemented in local level according to regional conditions.[24] For example, the Environmental Department helps with resources needed at the village level, such as seeds for planting, infiltration ponds, and compost, and helps provide facilities and infrastructure. **The main challenge to this climate program is the need for more budget allocation of funds committed. The training programs for the community are also often challenging to conduct due to budget constraints.**

> *"The budget allocation for capacity building for climate village program administrators is less than 1% of the total allocation of the overall realized local government budget". (Head of Community Participation, Environmental Department of DKI Jakarta)*

[24] National Climate Change Registration System. Retrieved from: https://srn.menlhk.go.id/index.php?r=home%2Findex&sektor=ippu#:~:text=Program%20Kampung%20Iklim%20merupakan%20program,serta%20memberikan%20pengharga an%20terhadap%20upaya%2D

## Adiwiyata School Program

Another program of the Indonesian Ministry of Environment and Forestry is the Adiwiyata School Program. Adiwiyata Schools care about a healthy, clean, and beautiful environment. This program is aimed at schools from primary to secondary. Generally, it aims to form schools that care about environmental culture and can participate in environmental conservation and sustainable development efforts to benefit current and future generations.[25] Unfortunately, **this program does not yet involve early childhood development.**

> *"One of the main challenges in engaging ECD in the Adiwiyata School Program is that there is a lack of optimal assessment, as young children at this age are still very young to understand complex environmental concepts. Early childhood involvement in environmental programs such as Adiwiyata School requires extra attention to age-appropriate and relevant teaching methods, as the teaching must be delivered in a fun and interactive way, often through play learning". (Head of Community Participation, the Environmental Department of South Jakarta)*

## Waste Bank Program

Waste Bank is a facility for managing waste with the 3R principle (reduce, reuse and recycle), as educational facilities, behavioral changes in management waste, and the implementation of a Circular Economy, which formed and managed by communities, business entities, and/or local government.[26] The waste bank program involves the sorted waste from the community and is usually deposited at the waste bank at the neighborhood or sub-district level. A parent in South Jakarta uses the waste bank program as a method to introduce her children to waste segregation. This aims to provide understanding and skills of waste sorting to children at an early age.

> *"I often engage my children in waste sorting activities at home and bring them to the waste bank. Because my child often sees me doing it, she is now starting to understand why it is important to dispose of waste in its place and sort it properly. Interestingly, my child often reminds and even scolds his father if he doesn't put the trash in its place". (Parents, South Jakarta)*

[25] Regulation of The Minister of Environment and Forestry of The Republic Indonesia Number P.53 Concerning Adiwiyata Award
[26] Regulation of The Minister of Environment and Forestry of The Republic Indonesia Number 14 of 2021 Concerning Waste Management in Waste Bank

Based on the KII result, the gap was found, and an optimal assessment was needed to engage early childhood development in environmental programs that the government conducted. **More evidence-based practice and data are needed regarding the importance of climate change and early childhood development issues** to advocate for specific policies and resource allocation as a basis for implementation and resources to mainstream early childhood development in climate change and environmental issues.

## 5.4 Challenges in implementing waste management and climate education

### 5.4.1 ECCD Teacher

1. In general, learning about climate education does not yet provide a comprehensive special curriculum. So, learning about climate change and waste is carried out through learning themes that relate to the environment; one example of a theme contained in the learning curriculum is "I Love the Earth".

> *"Learning about climate change and waste in class, apart from the themes available in the curriculum, we usually also relate it to everyday events; for example, when it rains, we teach young children about the process of rain and its impact". (ECCD Teacher, in Bogor Regency)*

2. The biggest challenge in teaching young children about the environment and waste is the need for teaching materials, the unavailability of waste management facilities and infrastructure, and ECCD teacher knowledge and capacity. In addition, the issue of climate change and waste mainly uses complicated terminology.

> *"Sometimes teachers have difficulty explaining material regarding environmental learning and climate change because they use terms that are too scientific". (ECCD Teacher, in Bogor Regency)*
>
> *"When we carry out waste segregation in the ECCD, the waste is transported by cleaning staff, who transport it unsorted". (ECCD Teacher, in South Jakarta)*
>
> *"Sometimes we feel we don't have enough capacity and knowledge to teach children about climate change". (ECCD Teacher, in Bekasi)*

Based on the FGD result, ECCD teachers need to develop key messages about ECD and environmental issues for ECCD teachers, provide training regarding climate change to the teachers, and provide teaching material or technical guidance.

3. Parents, community, and local government engagements are essential in **environmentally friendly practices and waste reduction.** **Cross-sectoral collaboration is needed because most of the time spent in early childhood is spent in the family and community.** One of the biggest challenges is synchronizing these things, especially regarding the limited resources owned by ECCD.

> *"Local governments such as neighborhood leaders and sub-districts must provide outreach to invite parents to become waste bank members so that parents can be motivated to sort waste from home. Young children and parents must understand the importance of sorting waste so that environmental education is not only obtained at school. However, it can be done within the family and community". (ECCD Teacher in Bekasi City)*
>
> *"Resource persons who are experts in the field of environment and waste management and regular meetings with parents are needed, but ECCD unit is still constrained by the costs of implementing this". (ECCD Teacher in Bekasi City and South Jakarta)*
>
> *"The challenge comes from parents. When in class, young children pay close attention to material on waste reduction efforts. The next day, we still found young children who were provided with food by their parents in plastic containers". (ECCD Teacher, in South Tangerang)*

### 5.4.1 Parents

In implementing and engaging young in waste management and sustainability practices, several challenges are faced, such as **lack of parental knowledge, lack of access to information, and unavailability of discussion space for parents to discuss environmental issues and climate change.**

> *"There is still minimal willingness to access information regarding waste management and climate change issues". (Parent, in South Jakarta)*
>
> *"As a parent, I have insufficient knowledge to carry out an environmentally friendly lifestyle and explain this to my young children". (Parents in Bogor Regency)*

Moreover, some parents said that societal conditions make implementing a sustainability practice and waste management challenging.

> *"When a child plays, he sees his friends throwing away rubbish. Later that day, when the child was with his mother, he threw rubbish randomly. His parents reminded him, and the child answered, "at that time I saw my friend throwing rubbish in the gutter". (Parent, in South Tangerang)*
>
> *"Neighbors still need to waste management. Some neighbors like to burn rubbish, which causes smoke, but there is no action from the neighborhood leader". (Parents, in Bekasi City)*
>
> *"It is also a challenge for my husband at home, where he has yet to be able to teach his young children to manage waste. In contrast, I have taught my young children to be environmentally friendly; he also often sees his father doing un environmentally friendly things". (Parent, in South Jakarta)*

Parents face several other factors in waste management, such as the high waste management cost, other neigbour's ignorance of recycling waste, and the absence of waste management facilities in the community.

> *"For example, there's several of my neighbors who do not want to pay waste fees, and the impact is that waste is thrown at neighbors or randomly, such as on roads and rivers". ( Parent, in South Jakarta)*
>
> *"I don't know how to manage waste so that it is worth selling or recycling, so sometimes it is burned and thrown away along the river, especially in the village without waste management infrastructure". (Parent, in Bogor Regency)*

# CHAPTER 6

# CONCLUSIONS AND RECOMMENDATIONS

## 6.1 Conclusions

Based on the data collected, we can draw several general conclusions, namely the knowledge of parents and ECCD teachers regarding waste management and climate change, including programs and policies therein, the attitudes of parents and ECCD teachers regarding the impact of climate change and improper waste management on growth and development young children, as well as the practices implemented by parents and ECCD teachers in practicing and teaching eco-friendly activities to young children.

### Knowledge of Climate Change & Waste Management

1. The knowledge of parents and ECCD teachers regarding climate change and waste management is greatly influenced by access to information, level of education, and the availability of waste management infrastructure in the community. Based on the data obtained, almost all respondents have heard of climate change; most of them interpret it as changes in weather patterns, and more than 70% of respondents stated that waste contributes to climate change. Parents and teachers stated that climate change and improper waste management have an impact on the growth and development of young children.

2. The main sources of information for parents and ECCD teachers regarding climate change and waste management are social media, television, and radio. Only a few parents and ECCD teachers still get sources of information from scientific articles and the government. The availability of training and socialization on issues of change for parents and ECCD teachers is still limited. Therefore, it is necessary to simplify information and socialization climate change so that parents gain comprehensive knowledge.

### Attitude toward Climate Change & Waste Management on ECD

Both parents and ECCD teachers are very concerned about the impact of climate change and improper waste management on the growth and development of young children. This is also shown by the attitude of parents (90.5%), who consider that proper waste management is their responsibility. Parents and teachers, especially, think that it is very important to show eco-friendly behavior to young children. However, around 30% of people are still not confident because parents need more knowledge and skills to teach it to young children.

## Waste Management Practice and Engage Young Children in Eco-Friendly Behaviour

1. Waste management practices are the availability of infrastructure, knowledge, and skills of parents greatly influence it. Most parents have implemented waste sorting based on type. However, sometimes, this has yet to be accommodated by the availability of infrastructure that manages waste in the community. Both in urban and rural areas, open waste burning and throwing waste in rivers or waterways still often occur, which can cause air pollution and flooding. Data also shows that only around 2% of parents manage waste into useful items such as making fertilizer and taking it to a waste bank.

2. Parents' biggest challenge in managing waste is the need for more infrastructure and skills to manage waste so that it becomes valuable goods.

3. While parents are actively involved in teaching their children about waste management and engaging them in eco-friendly activities, there is room for further education and engagement in more complex environmental issues beyond the basics. Additionally, the influence of school assignments on parental involvement in waste management suggests the potential for collaboration between ECCD teachers and parents to promote eco-friendly activities among young children.

## The Impact of Climate Change and Improper Waste Management on ECD

Based on the survey result and FGD with the parents and ECCD teacher climate change and improper waste management affected the five domains of NFC on ECD.

### 1. Health

- Climate change causes an increase in vector diseases that can threaten young children.
- Improper waste management causes the environment to become polluted and causes young children to get sick quickly.

### 2. Nutrition

- Drought affects parents' economies due to increases in the daily necessity price; it can affect the nutrition fulfilment of young children.
- Improper waste management can cause young children to lack nutrition because it can pollute food and water.

### 3. Safety and Security

- Improper waste management causes the environment around young children to become polluted and exposed to toxins and chemicals.
- Climate-related disasters can cause young children to be displaced, loss of safe space to play and risk of violence in emergencies.

### 4. Early Learning

- The impact of climate change on weather patterns can cause flooding, preventing young children from accessing school and learning services.
- The impact of the climate-related disaster caused the ECCD unit to be converted into an shelter, and the ECCD teachers were also affected, requiring them to be evacuated and displaced.

### 5. Responsive Caregiving

- The impact of Climate-related disasters affected parenting patterns, the stress and trauma are likely to disrupt the way a child and caregiver interacts.

## ECD Program and Policies Related to Environment

1. The ECE curriculum has integrated environmental learning, but development and optimization are still needed to accommodate the particular theme of climate change. Moreover, it is necessary to provide training for ECCD teachers and IEC materials to support the teaching and learning activities.

2. The government has already conducted Several environmental programs, such as waste banks, climate villages, and Adiwiyata School, but these programs have yet to mainstream ECD issues. The gap is that an optimal assessment regarding ECD and environmental issues has yet to be identified. No policy regarding ECD and environmental issues also affected the resourches allocation and program conducted by the government.

3. At a community level, there exists potential to strengthen awareness around, and resilience against, risks presented by climate change and environmental degradation for young children. Several initiatives carried out by community-based organizations, such as monthly health checks, outreach, and meetings between parents and teachers, can be integrated to increase community awareness regarding environmental issues. Therefore, collaboration is needed to mainstream environmental issues and waste management into the agenda carried out by community-based organizations.

## 6.2 Recommendations

This report presents the following recommendations based on the key findings to strengthen the knowledge, attitudes and practices of parents and ECCD teachers regarding the impact of climate change and improper waste management on early childhood development.

1. **Strengthen collaboration between MoFE and MoECRT and expand and strengthen multi-sectoral ECD-Sensitive environmental program at all levels**

    - Strengthen partnership and coordination to ensure that the agenda between MoFE and MoECRT is integrated into the ECD sector. ECD and environmental issues require an integrated approach that is beyond the capacity of any single actor; therefore, the delivery of integrated, multi-sectoral collaboration on ECD and the environment is required. Based on the findings in this report, many programs have been implemented by MoFE but have yet to focus on the ECD sector. There is a gap; therefore, multi-sectoral collaboration and partnership between MoFE and MoECRT is crucial to ensure that ECD is integrated into all environmental programs and integrate the NFC domains at all stakeholder programs and policies at national and sub-national levels.

2. **Optimize the ECE Curriculum, provide teaching materials and strengthen ECCD Teacher Knowledge and Capacity**

    - Even though the ECE curriculum has integrated environmental learning into one of its themes, optimization is still needed to add issues regarding climate change. Increasing teaching materials, such as modules, workbooks, practical guidance, and local resources, that are easily accessible to ECCD teachers to carry out environmental learning.

    - Training is needed for the ECCD teacher regarding climate change, waste management and ECD issues. Based on this report's findings, more training on environmental issues still needs to be conducted for the ECCD teacher to increase their knowledge and capacity to deliver and engage young children regarding eco-friendly activities. Based on the results of the FGD from this report, ECCD Teachers hope that there will be a research person who is an expert in the field of ECD and the environment and will provide more simple practices regarding environmental learning.

3. **Stengten Capacity and Engagement of Parents and Community on ECD**

- **Empower parents and establish a parent champion group with information regarding ECD and environmental issues.** Forming parent champions at the community level is one way to increase awareness about ECD, environmental issues, and Social Emotional Learning (SEL) to adapt the impact of climate change and environemntal degradation at both the family and community levels because young children spend much time with their families and in the community environment. Based on the findings of this report, ECCD teachers stated that the challenge in increasing awareness of environmental issues lies with parents, and parental support is needed so that the lessons taught in class can be applied at home and in the community. **Increasing parents' knowledge and skills through discussion forums, training, and simple practices regarding eco-friendly activities can encourage behaviour change at the family and community levels.**

- **Collaborate with community-based organizations and strengthen community-led environmental initiatives.** Based on the findings in this report, mainstreaming the issue of climate change and waste management with a **community-based organization agenda could be an entry point to increase awareness of parents and communities regarding ECD and environmental issues.** Various activities, such as health checks for young children by community health workers, outreach by waste bank members to parents, and activities carried out by women-led organizations, can be integrated with ECD and environmental issues. It also requires capacity building for community-based organizations to increase awareness of ECD and environmental issues and strengthen resources regarding community-led environmental initiatives to have a broad and sustainable impact at the community level.

4. **Strengthen Commuication and Advocacy on ECD**

- **Develop key message about ECD for the climate and environmental issues.** Findings from this report show that parents and ECCD teachers stated that the issues of climate change and waste management use terminology that is difficult to understand. **A key message is needed regarding climate change, waste management, and its impact on daily life and young children** because, based on survey results, many parents think climate change is limited to weather conditions.

- **Develop an Information, Education, and Communication (IEC) Materials and campaign through social media.** Based on the findings from this report, social media is one of the information channels that parents and ECCD teachers can access to learn about climate change and waste management issues. Therefore, developing IEC materials such as brochures, short videos, and posters is necessary. The IEC materials and campaigns must also pay attention to attractive design and language that is easy to understand and add practical guide that parents and ECCD teachers can do to engage young children in eco-friendly activities.

### 5. Conduct more evidence bansed practice and local studies

- Local studies and evidence-based practice regarding ECD and environmental issues are essential for policy advocacy. Based on the findings of this report, there is still a lack of optimal assessment and data regarding ECD and environmental issues, which has resulted in environmental programs implemented by various stakeholders still not emphasizing and involving ECD issues.

Envolvement
Environment Youth Involvement

ARNEC
Asia-Pacific Regional Network for Early Childhood