Waste Management Reform in Jakarta: Policy Solutions for Sustainable Cities

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ABSTRACT:

Jakarta, a metropolitan hub of over 30 million people, generates approximately 8500 tonnes of waste daily, with only 0.85% of it being processed by the waste banks (ASEF (2022)). Despite efforts such as Bank Sampah (community-based waste banks) and the World Wildlife Fund (WWF) Zero Waste School Program, the city faces severe environmental and social consequences from its inefficient waste management system. Overwhelmed landfills, river pollution, and greenhouse gas emissions highlight the urgent need for intervention.

This policy brief identifies key challenges, including the lack of public participation, especially among men, and inadequate government collaboration with NGOs. Cultural norms that assign waste management as a "woman's responsibility" further limit progress.

We propose the following recommendations to address these challenges:

1. Mandatory Bank Sampah Participation in Schools: Integrate Bank Sampah visits and waste management activities into the curriculum to bring awareness and participation from a young age.

2. Government-NGO Collaboration: Partner with NGOs like the WWF to expand educational campaigns through schools, TV, and social media, reaching a wider audience.

3. Encourage Male Participation: Develop initiatives to engage men in waste management, such as family-inclusive Bank Sampah events and government-led campaigns.

By implementing these policies, Jakarta can move towards a sustainable waste management system through community engagement, and finally reduce its environmental footprint.

Introduction: why waste management matters in Jakarta

Jakarta, the bustling capital of Indonesia, is home to over 10 million people and serves as the core of a metropolitan area exceeding 30 million. Every day, the city generates approximately 8500 tonnes of waste, with only 0.85% of it being processed by the waste banks according to ASEF (2022). However, the city's waste management systems struggle to keep pace with this output, leading to severe environmental, social, and economic consequences.

The city's landfills are at capacity, river pollution is at record highs, and the improper disposal of waste contributes significantly to greenhouse gas emissions (Purnomo Yusgiantoro Center (2024)). As Jakarta continues to grow, these issues intensify, threatening public health, urban sustainability, and the city's climate resilience. Efforts such as Bank Sampah (community-based waste banks) and the World Wildlife Fund (WWF) Zero Waste School Program have shown promise but remain insufficient to reverse the growing crisis.

Fig. 1. Landfill in Lenteng Agung, Jakarta Selatan. *Image credit: Andreas Tsatsanis*

1. Theoretical Framework

It is critical to accurately define the terms used throughout this proposal. To this end, we begin presenting the theoretical framework by answering the question: what is waste?

1.1 Define "waste". An unexpected insight from reviewing existing works defining the term "waste", is that the definition chosen plays an unmissable role on the impact of a policy (Cheyne and Purdue (1995)). Especially in the domain of waste reduction, different definitions result in policies targeting different groups, and requesting different changes. An unfortunate conclusion is that a catch-all definition seems impossible. This calls us to think about what is the definition that fits our research best. To do so, we first looked at pitfalls our definition would need to avoid.

Keiski et al. (2004) point out that most existing policies define waste simply as something to be managed or disposed of, rather than as a resource to be repurposed. They argue that such definitions inherently conflict with waste prevention goals, such as those of the Zero Waste School, because they focus on existing waste rather than addressing how to avoid its generation in the first place. Pongrácz and Pohjola (2004) give

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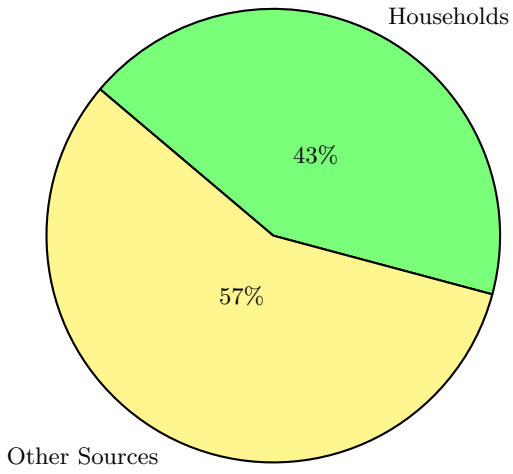

Fig. 2. Waste sources in Jakarta.
Adapted from Antara News (2024a).

examples in European legislation where policies define waste as "objects discarded by their owners", which inadvertently treats recoverable or reusable materials as potential pollutants rather than resources. This stifles recycling and creates trade barriers, because materials labelled as "waste" fall under strict regulatory controls that impede their movement across borders, and make resource conservation more difficult.

Our goal to aid movements on waste reduction and management means our definition should follow the objects dealt with on-site at the areas we are targeting. Because the Zero Waste School Program is organised and funded by the WWF, its end goal is wildlife preservation, and thus focuses mainly on plastic and contaminating pollutants disposed of in the Ciliwung River. In contrast, the Bank Sampah in our case study focuses on sorting organic from inorganic and hazardous waste (Interview in Appendix 3.5.2). However, since both of these programs are focused primarily on household and other human solid waste (as opposed to energy waste, supply chain waste/inefficiencies, air pollution, etc.), we want our definition to ensure the policy refers to byproducts from all relevant sources equally.

"Waste can be considered any byproduct of a human-centred process, for which the responsibility of disposal falls back on humans."

1.2 Jakarta is not the first case of a waste management crisis . A notable case in Europe is the story of Naples, which after years of inefficient waste management, illegal dumping, and overwhelmed infrastructure, declared a state of emergency from 1998 to 2008 (Mascitelli (2024)). Mentioning overflowing landfills, uncollected waste, toxic waste dumping, and serious health hazards layered on top of organised crime profiting from uncollected waste is just the surface of the problem.

Our interest is to draw parallels with the situation faced in Jakarta, as this allows us to also get inspiration for possible solutions. Both cities' waste management systems were/are victims of fragmented governance structures. In Naples, conflicts among municipal, provincial, and regional authorities hindered any cohesive action. As we will see later, similar is the case for Jakarta. In both cases, delayed responses from the government allowed waste problems to escalate exponentially. Naples saw prolonged inaction (with issues already appearing as early as the 1980s) before declaring a state of emergency in 1994. Similarly for Jakarta, while the issue has been prevalent for decades, decisive government action still seems but a distant dream.

Another crisis case for study is that of Australia and South Korea after the import ban China imposed on recyclable waste in 2017 (Jones (2020); Ko et al. (2020)). Both countries relied heavily on exporting its waste as a form of "waste management", and were far from prepared to deal with this sudden umbilical cutoff. Faced with overflowing landfills and a wholly overwhelmed recycling system, the imminent environmental damages caused political unrest. While Indonesia is definitely not exporting waste, it is relying on the monumental landfill in Bantar Geban, which as we will discuss later, constitutes a ticking time bomb.

Every country, at some point in time, has had to face the waste its population produces, in one way or another. Looking at countries that have had success with their approach is a practical way to decide which ideas to take inspiration from. In Europe, Germany has led in recycling, with over 67% of its waste getting recycled (OECD (2019)). This can be largely attributed to strong economic policies in favour of recycling and against incineration and landfills, prevalent throughout the European Economic Area (EEA (2023)). Singapore on the other hand, motivated by a geographical inability to rely on landfills, employs a waste minimisation strategy through education and recycling, and falls back on Waste To Energy (WTE) plants for industrial waste (Bai and Sutanto (2002)).

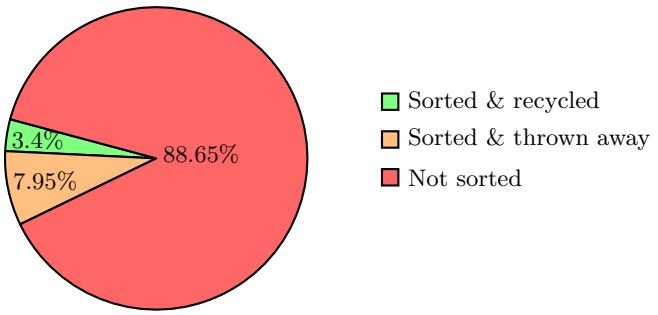

Fig. 3. Waste management in areas along the Ciliwung River.
Adapted from Nizardo et al. (2021).

1.3 Jakarta in a timeline. Growing at an ever increasing rate, Jakarta has seen a rapid and haphazard urbanisation, with consequences being observed since the 1980s (Goldblum and Wong (2000)). One such consequence is a consistently underperforming waste management system, which when faced with $19720m^3$ of waste per day in 1985 and $23708m^3$ in 1991, incidentally encouraged people burning waste on the streets (Goldblum and Wong (2000)), which in turn has brought Jakarta to a world-leading 2nd place for worst air pollution (Independent Observer (2022)). Some of the government's actions include the 2008 Solid Waste Management Act, issued in response to crises in Surabaya (citizen protests due to stench) and Bandung (150 killed by landslide in Leuwigajah dumpsite) (Lavigne et al. (2014); Circle Economy Foundation (2022)).

The policy pushed for waste reduction and encouraged local governments to implement more sustainable waste practices.

Present day, communities have risen up to the challenge by establishing Bank Sampah (87 present in Depok, Interview in Appendix 3.5.2), which serve as a form of local infrastructure for waste collection, transportation, processing and final disposal (Suryani (2014)). Bank Sampah incentivise recycling, sorting and proper disposal of waste by allowing people to exchange their recyclable waste for money, and by working to educate, support, and empower the local community (Interview in Appendix 3.5.2). Bank Sampah in Jakarta help reduce waste (15.2m3 per month, Nurhasana (2014)), while also serving as an economical model of independent business for the people of Jakarta (Zhuhri (2024)).

Despite these efforts, the situation remains dire. Jakarta Bay (Ancol and Pluit) has the highest abundance of microplastics (MP) in sediment, with $37440 - 38790$ MP particles/kg dry weight sediment (Lestari and Trihadiningrum (2019)). Jakarta still almost exclusively relies on landfills, which turn to major sources of methane (CH4, a potent greenhouse gas) as waste decomposes. Poorly managed landfills without gas extraction systems contribute significantly to methane emissions nationwide (Kristanto and Koven (2019)).

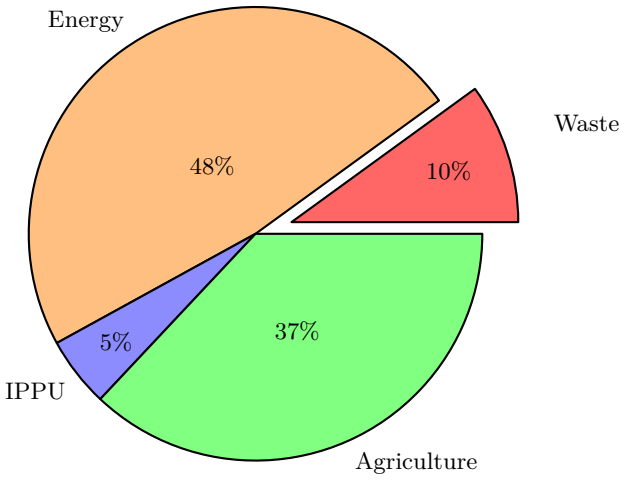

Fig. 4. Indonesia's carbon emmission contributors.
Adapted from Purnomo Yusgiantoro Center (2024).

Finally, we look at what the future plans for addressing these issues are. On May 15, 2024, the Jakarta Governor (Heru Budi Hartono) proposed a new island development to create more space for waste (Antara News (2024b)). Further, The Jakarta provincial government will impose a household waste levy on city residents starting January 2025, according to Asep Kuswanto, head of the Jakarta Environment office. Waste disposal service will be based on electricity usage. (The monthly charge for those using 3500 to 5500 VA will be Rp30000, and those using more than 6600 VA will be charged Rp77000) (Ministry of National Development Planning of the Republic of Indonesia (2024); Antara News (2024c)). These policies highlight the aim of the provincial government to enhance public awareness about environmental care, without increasing the burden on residents.

2. Key Findings from Our Research

Fig. 5. Man disposing of waste at a landfill. *Image credit: Andreas Tsatsanis*

2.1 Proper waste management is a lacking habit. Waste management is not ingrained as a daily habit for many residents in Jakarta. Field observations revealed rampant littering and minimal household-level, campus-level and city-level sorting of waste. Waste disposal is seen as a "household chore" and is predominantly assigned to women, reinforcing cultural norms that deter broader participation. Significant behavioural shifts are needed to normalise responsible waste management practices, especially across different demographics.

2.2 Even when people want to change their habits, there is no infrastructure to support sustainability. *It does not matter how many people sort their waste, if the recycling bins are ultimately dumped with the rest when collected.* The absence of infrastructure (recycling facilities, accessible Bank Sampah locations) makes sustainability unattainable for many, and these are critical government responsibilities. An infrastructure reform is a necessary first step to enable meaningful public participation in waste management.

2.3 Prominent under-involvement of men in waste management initiatives. We observed that men are significantly underrepresented in waste management activities:

- Less than 1 in 10 participants in the WWF's Zero Waste School Program and Bank Sampah initiatives are male.
- Interviews with students revealed that fathers often resist adopting waste-sorting practices, despite their children's willingness to engage.
- Cultural Barriers: this imbalance reflects deep-rooted cultural norms that exclude men from environmental responsibilities.

Engaging men in waste management is essential to achieving widespread behavioural change.

2.4 Grassroots movements are making progress but lack scale. Programs like Bank Sampah and the WWF's Zero Waste School Program are effective at engaging local communities and raising awareness, but are limited in scope: Bank

Sampah units are often limited to specific neighbourhoods, and participation depends on individual effort. NGO-led educational programs primarily target women and children, leaving other demographics underserved. In order for these efforts to be effective, they must be scaled up and made much more inclusive.

Fig. 6. Trash in Ciliwung River. *Image credit: Andreas Tsatsanis*

3. Recommendations

3.1 Mandatory Bank Sampah participation in schools.

The government should mandate that all schools integrate Bank Sampah visits and activities into their curriculum. As part of the Profil Pelajar Pancasila (P5) program, students should visit a Bank Sampah at least once a year to learn about waste sorting and recycling.

Implementation

1. Schools can collaborate with nearby Bank Sampah locations for fieldwork.
2. Introduce a school-based Bank Sampah program offering vouchers (e.g. for canteen food) in exchange for sorted waste, creating a tangible incentive for students to participate.

Expected Outcomes

1. Early exposure to waste management will help instill the necessary habits among younger students.
2. Increased participation will boost Bank Sampah operations and their role in helping manage the waste crisis.

3.2 Government-NGO collaboration on waste management education.

The government should partner with NGOs like the WWF to develop and implement large-scale educational campaigns across schools, social media, and traditional media.

Implementation

1. The Ministry of Education and Culture and Ministry of Environment and Forestry should formalise partnerships with NGOs to create interactive educational materials and digital campaigns targeting younger audiences.
2. Use influencers and social media platforms to increase engagement among urban youth.

Expected Outcomes

1. Increased public awareness and understanding of waste management.
2. Scaled outreach to urban and rural communities, encouraging broader participation, especially through peer pressure.

Fig. 7. Presentation at the WWF's and YPBB's Youth Activist Program. *Image credit: Andreas Tsatsanis*

3.3 Encourage male participation in waste management.

Design initiatives that directly engage men in waste management activities, addressing the gender imbalance in existing programs.

Implementation

1. NGOs such as the WWF could host family-focused events, encouraging women to bring their spouses and children to the Bank Sampah or educational programs.
2. The government should organise an annual climate event featuring prominent male role models advocating for sustainable waste management.

Expected Outcomes

1. Greater male involvement in community-based waste management initiatives.
2. Cultural shift towards shared responsibility for environmental sustainability.

3.4 Improve Bank Sampah infrastructure and accessibility.

Improve the operational efficiency and reach of Bank Sampah units through logistical and financial support from the government.

Implementation

1. Provide Bank Sampah units with pick-up trucks for efficient waste collection.
2. Expand the network to the RT administrative level, increasing accessibility for households.

Fig. 8. Weighing at a Bank Sampah near Pondok Cina. *Image credit: Andreas Tsatsanis*

3. Strategically locate Bank Sampah units in high-traffic areas such as markets, mosques, and shopping centres to encourage broader community use.

Expected Outcomes

1. Increased household participation due to improved convenience.
2. Higher recycling rates
3. Reduced reliance on landfills.

3.5 Capacity building for Bank Sampah staff. Bank Sampah volunteers and staff should be equipped with the skills and knowledge necessary to operate effectively.

Implementation

1. Organise training programs and excursions to exemplary Bank Sampah models, such as those in Banyumas, to share best practices.
2. Establish certification programs to incentivise skill development among staff.

Expected Outcomes

1. Professionalisation of Bank Sampah operations.
2. Improved efficiency and effectiveness in waste collection and recycling.

Conclusion: What's at Stake?

Jakarta is at a critical point in addressing its waste management crisis. With over 8500 tonnes of waste generated daily, the city's current systems are inadequate to manage it, resulting in many environmental, social, and economic repercussions. Overburdened landfills, toxic river pollution, and escalating greenhouse gas emissions highlight the unsustainable trajectory of the status quo.

Failure to act decisively will only worsen all these issues, threatening public health, urban resilience, and the city's ability to adapt to climate challenges. The sinking city already faces significant environmental risks, and its waste management system is a key lever for mitigating further damage.

However, by implementing the recommendations outlined in this policy brief:

1. mandatory waste education in schools,
2. infrastructure reform,
3. and broader community engagement

Jakarta can reverse this trend. This is an opportunity to transform waste management into a shared societal responsibility, to adopt sustainable practices and to improve quality of life for millions of people. Our research showed how the path forward is clear: investing in sustainable waste management practices today will secure a cleaner, healthier, and more resilient Jakarta for future generations.

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Landfill in Lenteng Agung, Jakarta Selatan. Image by Andreas Tsatsanis

Appendix A: Notes from Bank Sampah Interview 07/11/24

- In Depok, there are 87 waste banks
- This bank sampah founded in August 22nd 2022, because of an instruction from Dinas Lingkungan Hidup that every RW must have a waste bank (in order to reduce the Cipayung landfill whose waste reached 40 metres high)

Motivation from 4 interviewed women:

- “Our motivation is mainly because we want to clean the environment, and to have social activity". Money is a bonus, but not their main reason to be part of the Bank Sampah.
- In addition, the women wish to support the government program.

The Bank Sampah is one of the biggest with 45 clients (from 378 families) who sort out their trash from home, and come to this Bank Sampah to get their waste weighed every month. (10% of people that lived there). After the waste is weighed and sorted, it can be determined how much money they can get for each type of waste.

The waste is sorted in different categories:

1. Organic
2. Inorganic
3. Residue
4. B3 (hazardous waste)

Next to the Bank Sampah there is a landfill with unsorted waste.

The landfill often is used by people as a dumpster where they put their own personal trash. They tried to prevent it by putting up a sign but this did not help. They are thinking about CCTV.

The landfill consists of multiple trash bags and unpacked trash lying unorganised in one pile. Besides the landfill there is a small fire place which looks like a burn pile.

The bank sampah does not receive any government help and they need to pay for the trash to be collected. After the trash is collected the different categories will go to different places (not the landfill) From the money that the trash is worth the women get 25% (for operationalisation of the waste bank).

All current clients are women from their age (middle aged), and they all have different employment status. Some are working as entrepreneurs and some are watching their children or grand-children. When they sort trash and work, they work from 9.00-11.00

We asked if they thought about what could be improved about the waste bank. They answered that the waste should be picked up more often than once a month. Most people do not want to participate in the Bank Sampah because they would have to keep their trash for one month in their home and they do not like that because their house is too small.

The way they have amassed a participating group of 45 people is by mouth to mouth advertisement. Additionally, during Covid-19 the Bank Sampah was used as a place where people could get their food packages.

The Women usually save up all the money that they have earned over the year to get food / meat for Ramadan. “The waste becomes the meat". In total they earn 8 million Rupiah a year (45 people)

Appendix B: Observations from visits to the Zero Waste School program

School 1: SMPN 52 Jakarta, November 18th

- Interesting to see that in the school they divided trash in 3 categories (dry trash, wet trash, and Toxic and Hazardous Materials)
- There is various team in school that focused on environment, ecobrick team (recycle trash), hydroponics team, environment police (they will take notes if there is student use single use plastic and it will be noted as violation points in the student's report/paper, where they got final grade, green house team (planting). This team, created in 2022 after the school won Adiwiyata award is Ministry of Environment program to increase awareness and knowledge of school residents about environmental conservation like the Green School award.
- How can they be part of a team? They are just chosen by their teacher or student council. At that time, the school ask 3 representatives from each class to become members. Do they feel burdened? They said no, like it's not a really hard feeling to become a member.
- The students look enthusiastic about WWF socialization (but for me because they are all representatives from the team that concern the environment, student council meaning they are aware of the environment). Some of the students in the back play with their handphones, but most of them engage with the socialization.
- Ibu Dwi WWF asked why urban waste is more than other areas. One of the students answered "because urban areas have a higher population"

- Separate bins for organic and non-organic waste
- Also use of small grey bins that do not state the type of waste
- Grey bins emptied in non-organic bin
- Children were motivated to answer questions asked by wwf about the environment. The children would earn a keychain if they answered a question.
- The school has won number 1 environmental friendly school
- The children upcycle waste and make art with it such as bags, keychains, chair/stool etc.
- WWF showed the children a short video and presentation and ended with an interactive conversation and quiz.
- Interview: group of boys between the age of 13-15
- Exercise: Solution for climate change
- There were also a group of students that were the waste police and they needed to count when someone would use single-use plastic. You will be chosen to be a police by the school staff.
- When asked if they implemented their behaviour learned in the school about waste management at home the children would answer no.
- They thought that this was one of the first generations that are this aware of the climate and the consequences of the lack of waste management.
- They thought that this was one of the first generations that are this aware of the climate and the consequences of the lack of waste management.
- Education seen as the main way to get people involved into waste management
- Because the government does not prioritise waste management

School 2: SMPN 15 Jakarta

- All plastic packaging is prohibited, so the school prepares a box where students can put the plates and glasses from the canteen
- The socialization of zero waste school program is part of P5 (Pancasila Student Profile Strengthening Project) Curriculum, where the government provides a different theme for each semester. For this semester, the theme is sustainability. It is not part of class or become a subject, but it is a value or character education that applies in the school.
- The participants were in their 3rd year of junior high school, and some student councils were in their 2nd year of junior high school. Why does the student council also join? The teacher said it to share the awareness to other students.
- The student council didn't feel forced to join it, they said they usually often join this kind of event, even if they have to leave their class for this.
- All students take notes about socialization in their literacy note (it's a school program). The literacy note will be collected and the homeroom teacher will give a signature as a "proof" that students write their notes. So, the notes are not graded, but they have to collect it in order to get the teacher's signature.
- Principal seems to have a big ambition to make the school more sustainable and "green." She said it is because she knows that mostly the students in the school are from families with middle to lower class backgrounds and not educated enough, so she really wants to build the character, the value when students in the school so hopefully the students can apply it in their home. In addition, she also grew up in Kampung Melayu, where she often experiences floods.
- She also said that this school used to be known as a school that often fights, during her first days as principal in that school, she had to go to the police. This motivates her to make school better.

- The school isn't spacious, so there are 2 sessions of school.
- The socialization is more conducive compared to SMPN 52 jakarta. Probably: the room is not really hot, students sit in the chair, not the floor.
- By quiz, not focus group discussion
- Students still pay attention even if they sit far from the projector, there is one student sleep and sometimes they chit chat each other (but still conducive)

Interview: girl 13 years old, international elementary school
Q: How to increase involvement?
A: Give people explanations why it is important to sort waste and why it helps the environment. Also give them examples. Some people are demotivated because they think they are on their own or think they cannot make a difference. Reuse plastic and recycle plastic into different things such as pencil cases or bags.

- She brings her own water bottle to school: example what she does for waste management and environmental friendliness.
- She started being more aware of the environment and her choices because of her English teacher. The teacher told the other student about the waste problem in Jakarta.
- Besides doing things on her own she also tries to spread awareness to her surroundings such as friends and family.

School 3: Elementary School in Jakarta Selatan

Interview with WWF Storyteller.

What was your reason to join WWF, and did you start as a speaker?
I'm really interested in the kids' character development here, and that's a way to give an inspirational mindset to understand the nature of things. That's why WWF invited me to collaborate on these activities to get the message through my storytelling. I'm a professional storyteller, and this is a collaboration with WWF. The stories are about plastic waste, endangered animals, etc.

The kids were very active today. Is this normal?
Yes, this is normal when I deliver stories. This is the engagement that's needed to get the message across well. They understood the meaning of the story is not only about the fish or the shell or the turtle but about the plastic that's destroying.

What's the effect you're trying to get as a speaker?
It's easy for them to understand all the messages and theory (plastic waste management), but if you tell them theory, it will be so hard for them to understand. So, through this storytelling, it's the easiest way for them to understand and apply these activities. They say they won't do this anymore—throw plastic into the sea, waste plastic, etc.

So you want to change their behaviour?
Yes, exactly. One of the students said she will tell her family at home to stop wasting plastic!

How old are the students?
11-12. To the younger students it's a bit harder to get the message across because they only care about the fables and the cuteness more than the actual message.

In the Netherlands, 12 would be too old for this.
Here they jump at these stories; they get very excited.

How long have you been speaking for WWF?
Four years, since the COVID era when I had to do it online. That was the beginning of the collaboration.

Have you seen improvement?
Yes! By telling them the stories, we get a lot closer to the students. The storytelling has improved too. I'm currently working on an animated video so we can send it all over Indonesia, not just Jakarta. It's in collaboration with WWF as part of Plastic Smart Cities.

How do you think we can involve other people from this age group other than through education?
It's an idea to have a youth camp so the youth can understand more things about nature.

Is that something subsidised by the government?
Yes, it's organised by WWF but sponsored by the government—a special camp for teenagers. If I tell them this story, they won't accept it because it's only for kids.

What's the most effective age to teach them this?
This age, 11-12, because they've grown up but haven't made any decisions yet. Later, at 15-16, they've already made decisions in life and [..]

Are you the only speaker for WWF?
As far as I know, yes, but I'm giving instructions to other people across Indonesia to give the same stories. So also, in different NGOs, they can make the same workshops.

What do you see as future improvements to this programme?
It's better for them to see the real thing!

Interview with Principal from School.

Did you reach out to the WWF, or did they reach out to you?
I found out about this from a community of teachers in Jakarta and Bogor. There is a ZWS programme, and I applied for it. The team from WWF tested what the school had already done, and this school was chosen by WWF to receive a socialisation like this.

Is it competitive for schools to get this programme?
Before that, there was a Zoom meeting with other schools. WWF explained and shared examples from schools that were already good role models. Yes, it is competitive—selection has been going on since September.

How many times have you had programmes like this here?
This is the first time we've collaborated with WWF, but we've had collaborations with other NGOs about green buildings, quality assessments, etc.

Why is it competitive?
WWF has quotas, and schools need to match schedules in order to be approved.

Are there requirements the school needs to fulfil to be selected by WWF?
The school must have a programme related to zero waste. This school has three programmes to offer WWF:

1. *Zero waste canteen.*
2. *Movement of Indonesian Children Love Environment ("Environment Police")—students in grades 4, 5, and 6 take turns analysing and taking notes on waste.*
3. *Bangdilan Nopor: Proud to recycle organic waste.*

Do the students prefer this over normal school days? Are these methods effective?
Yes, because they use games, which help children understand and become more aware. After this session, the students will act as tutors for younger students.

In this school, there are no trash bins except for paper and leaf waste. Does this make students more likely to dispose of trash in the wrong place?
It's still a process for 1st and 2nd graders because they aren't used to it, but older students are already accustomed to it. Teachers tell students that there's no place to throw trash, so they need to take it back home.

Is the idea of this (no waste bins) to reduce waste in general or just at school?
It's about building a habit and changing mindsets. The goal is to cultivate the habit of not producing trash.

Does this programme have any positive effects on the teachers as well?
For now, it's only for the students, but after the upcoming Saturday meeting, it might have an impact on the teachers too.

Will all teachers attend the meeting?
Only representatives. The teacher conference is here, not at the WWF office, with 105 teachers attending.

Can't this school bring more because they're hosting it?
Yes, they can.

Do you think the teachers already know about zero-waste concepts, or could they learn more from WWF?
They are already well-informed. In every meeting, we discuss and get reminded, but hopefully, after the meeting on Teachers' Day, they'll gain more knowledge and information.

Does he think there are improvements needed in the way WWF conducts this programme?
The first meeting was a digital meeting, but physical meetings would have been better and more interactive. There were four online meetings before the event. He hopes more schools from other cities can apply for the zero-waste school programme, not just schools in Jakarta and Bogor. He also hopes a school can act as a role model to spread awareness to schools that can't participate. From his perspective, the content is great.

Are there other ways to educate students (other than games and storytelling) to make them more aware of the environment?
Showing real examples, with visualisations of what happens when they produce trash, and videos of real-world impacts, can help.

Would it be better to implement this for younger classes?
Yes, it would be great if all students joined. Initially, representatives from each grade were chosen, but they decided to include the whole 5th grade so they could tutor younger kids. For 6th graders, it's harder to involve them because of exams.

Does he already integrate this into the school curriculum?
Yes, for 1st and 2nd graders, but it's simple programmes like bringing their own lunchboxes and bottles.

What does he hope the students will change in their behaviour?
The school already has a zero-waste culture. He hopes after students join the programme, this culture becomes stronger and they become more concerned about zero waste and the environment.

Are more of these days needed?
He would like more sessions so that all 700 students can join this programme.

Interview with Kids from School.

How old are you?
11.

About the programme, what is your experience? How did you experience it?
I feel great!

What did you like about it?
Learning about trash and the sea!

Did you learn something new?
Yes! I learned about how fish can get stuck in the trash.

In your school, did you already learn about zero waste?
Yes.

What is the difference?
This one teaches about the sea, and the other is about normal things in daily life. This one is more about a global problem that I don't usually see.

What was your favourite part?
Knowing about floods!

Not the storytelling?
I like it, but I prefer learning about the flood.

Are you too old for the storytelling?
Yeah, a bit. . .

Do you feel something can be improved in the programme?
All of it is good; I like everything.

Are you going to tell anyone?
My friends and family.

Why do you want to tell them?
To tell them to stop throwing trash in the wrong place.

Will you change your behaviour?
Yes! I will not throw trash in the wrong place.

Did you use to throw trash in the wrong place?
Yes, a bit.

Do you think your friends have the same experience?
Maybe. I'm more enthusiastic.

Will they tell their parents?
Maybe. I think so.

Why do you think this programme is better at teaching these things?
I think I got older, and now I know.

What do you want to do to reduce your waste? Did they give you information?
[Struggling. . .] Something with carrying my trash.

Do you think you and your family can improve? What can you tell your parents about?
Yes, stop throwing trash.

Did the programme tell them about not creating trash?
No. . .

Did they tell you how to not make trash?
Yes, they told us to bring our own [lunchbox, bottle, etc].

Would you want to learn more?
Yes!

Would another programme be useful?
This is enough, but I think we need to learn more!

Do you think people your age care?
Some of them care, a lot of them care, but some of them don't. Much more than their parents. My parents care; other people's parents maybe not. . .

Do you have siblings?
A small sister and a small brother.

Do they try to reduce waste?
Yeah, my sister, because she knows. She never throws trash away.

Ideas:
The privileged schools have a significant advantage in getting in contact with WWF. Schools that already have programmes tend to get more opportunities.
Suggestion: Send 1-2 volunteers out to give guest lectures to reach more schools.

Appendix C: YPBB Interview Notes

Interview with an organiser from YPBB for the WWF Youth Activism Days.

What does she do at YPBB?
YPBB is a partner of WWF, specifically in the Plastic Smart Cities program. Within this program, there is an initiative called Youth Activists, which has been running for three years with a focus on reducing $100m^3$ of waste (particularly plastic waste) in the Greater Jakarta area (Jabodetabek). The program serves as a catalyst for students aged 18-24, involving approximately 100 students each year over a six-month period.
Previous Years (2022, 2023):
The focus in these years was on reducing plastic waste at an individual level. The program aimed to change students' beliefs about plastic use within their families, fostering personal responsibility and awareness.
Current Year (2024):
This year, the selection process has shifted to competitions at universities, with students representing their institutions. The focus is on systematic change, advocating for better waste management and creating zero-waste systems in their universities. The goal is to promote collective power in addressing waste issues.

Organisational Structure. YPBB's team consists of 12 members (8 female, 4 male), divided into:

- **Planning Division:** Prepares knowledge and resources needed for the program.
- **Management Team:** Oversees timelines, budgeting, and communication with partners.
- **EduCommunity Team:** Organises youth activists, designs curricula, and conducts offline and online meetings to deliver educational content. Mega is part of this team.

Teaching and Objectives:
Students are taught to advocate for better waste management in their universities and communities, aiming for systematic change. Recommendations include financial planning, sustainable practices, and implementation strategies.

Challenges and Observations.

- Some university administrators resisted recommendations, perceiving them as intrusive. Adjustments were made to improve communication and alignment.
- It is challenging to see immediate systematic changes, though connections with ministries and ongoing advocacy show potential for long-term impact.

Program Impact and Insights.

- Students act as unofficial ambassadors for zero-waste activism, spreading awareness in their campuses and communities.
- Performance measurement involves regular reporting to WWF and monitoring progress through chat groups.

Mentors' Role.

- Mentors support students with bureaucracy, event planning, and communication with university faculty. They remain available for consultation even after the program ends.
- Mentors are often previous participants, bringing personal experience and passion for environmental issues.

Feedback from Participants.

- **Favourite Aspects:** Group discussions, connecting with peers from other universities, and practical materials provided during the program.
- **Challenges:** Limited knowledge of university-specific rules, overly simplistic preparation for fieldwork, and less interactive instructions.
- **Takeaways:** Students plan to implement zero-waste practices in future projects and share concepts with friends and communities.

Suggestions for Improvement.

- Increase outreach to involve more campuses and attract a wider audience.
- Tailor mentor assignments to match specific university contexts for better alignment with local conditions.
- Make preparation materials more practical, accounting for field realities.

Closing Remarks:
Participants appreciated that YPBB and WWF practice what they preach, implementing zero-waste practices within their operations. This authenticity inspired students to believe in the feasibility of such changes.
References:
For further details about YPBB and its programs, visit their website at https://ypbb.web.id.

YPBB Online Meeting Notes (02/12).

What was the timeline up to the creation of the YA program?
The YA program is a collaboration with YPBB, starting in 2022. Over the three years of collaboration, each year has had a different goal. In 2024, the aim is to empower youth activists (YA) in JaBoDeTaBek to affect waste management in their campuses. The YA create programs to reduce single-use plastic, and YPBB assists them in implementing their campaigns with campus management.

What is the government involvement/support for YA?
The government was not heavily involved. At the start, they encouraged campuses to join the program, but otherwise, their involvement was minimal. If policy changes are needed, there are many steps to advocate for change, but the YA program avoids bureaucracy. This

year, YPBB aims to connect campuses to the government environmental agency. In the process of making campus waste management plans, the government is invited when campuses present their plans.

Why did YPBB create this program?
WWF invited YPBB to collaborate on this program. YPBB already had a program to promote zero-waste lifestyles among youth communities. The main goal of this program is to make youth aware of the plastic crisis and encourage them to tackle it through behaviour change, such as reducing single-use plastic. After joining, YA participants are expected to implement a zero-waste lifestyle in their daily lives.

In the first two years, the focus was on individual action regarding plastic waste. By the third year, the aim expanded to include community-level impact through campus programs. The next goal is to address policy-level changes.

Can you tell us more about the policy level? Is this planned for next year's YA program?
Not yet. The current focus is on empowering youth activists to influence the people around them. After recruitment, only six campuses joined the program. The next step is to inspire the government to make policies based on the good practices demonstrated by these campuses, such as implementing waste management plans.

How does YPBB approach collaboration with the government?
YPBB positions itself as a friend to the government, even though it often aligns with critics. There are two main strategies for engaging with the government:

1. *Through formal meetings and requests for audiences.*
2. *Through "orang dalam" (friends in high places). Initially, YPBB had no connections, but they started by engaging consultants and staff within the government.*

In the beginning, environmental concerns like the 3R initiative were rejected by the government. However, the new governor has been more receptive, at least accepting 3R initiatives. For the YA program, YPBB requested an audience with the government, and they accepted since the request was simple—just to listen.

Another strategy is to connect with all government staff, regardless of rank, while identifying which staff align with YPBB's values. These connections help in future programs, as aligned staff can advocate internally.

Why is there a gender imbalance in zero-waste initiatives? Do you think it is a problem, and how can we get boys involved?
YPBB believes this imbalance exists because waste management is culturally associated with domestic work, which targets women in Indonesia. Men, especially younger generations, often focus on leisure activities like sleeping and playing on their phones. Those involved in waste management activities are often individuals with fewer obligations and are unpaid volunteers.

YPBB currently has no specific strategy to address this but suggests showcasing that waste management is not solely a household responsibility. Advocacy through social media could also help engage more men.

What recommendations does YPBB have for the government?
YPBB hopes the government will implement all recommendations produced by YPBB, including waste management plans and initiatives outlined in their policy brief.

Reference: https://ypbb.web.id/resource/ypbb-policy-brief-on-organics-ban-to-landfill/