

## City Waste Management(Case Study in Kota Yogyakarta, Daerah Istimewa Yogyakarta, Indonesia)

Putriana Kristanti<sup>1</sup>, Agustini Dyah Respati<sup>2</sup>, Xaveria Indri  
Prasasyaningsih<sup>3</sup>, Purwani Retno Andalas<sup>4</sup>

<sup>1</sup>(Accounting, Universitas Kristen Duta wacana, Indonesia)

<sup>2</sup>(Management, Universitas Kristen Duta wacana, Indonesia)

<sup>3</sup>(Accounting, Universitas Kristen Duta wacana, Indonesia)

<sup>4</sup>(Management, Universitas Kristen Duta wacana, Indonesia)

**ABSTRACT:** This paper aims to discuss how a city can overcome the waste problem. Implementation of community service uses the Asset Based Community Development (ABCD) method. The first stage is discovery stage that carried out through interviews and discussions with the interviewee is the Yogyakarta City Environmental Department (DLH), specifically the Waste Management Sector. This stage discovers the strengths possessed by DLH through identifying the assets or capital it owns. The next stage is the dream stage of building dreams through FGD. DLH's dreams are expressed in his vision and dreams. The design stage produces action planning which is prepared through concrete and measurable planning. The DLH implements the task of carrying out regional government affairs based on the principle of autonomy and assistance in the field of the Environment. Define Stage encourages DLH to analyze and explore their potential. Destiny Stage is the final stage in the ABCD method. DLH Yogyakarta City maximize the implementation of decentralized waste processing. The people of Yogyakarta City are encouraged to be able to manage waste independently and no longer divert it to Final Processing Sites. Apart from that, it also optimizes the TPS 3R and TPST owned by the City of Yogyakarta.

**KEYWORD** –ABCD method, city, inorganic waste, organic waste, waste management

### I. INTRODUCTION

Waste is goods or objects that are thrown away because they are no longer used, or are no longer used. Waste is categorized into two, namely organic waste and inorganic waste. Organic waste comes from organic materials including: food waste, plants, animal waste and others. Inorganic waste comes from waste produced from non-biological materials, non-renewable natural resources, and the results of technological processes for managing mining and industrial materials, including waste made from metal, plastic, paper, ceramics, glass and others.

Organic waste is environmentally friendly waste, can decompose naturally, however the decomposition of this organic waste requires certain treatment to speed up its breakdown. This type of waste in its original form is difficult to sell, very few industrial sectors require it to be processed further to have more value. Meanwhile, many industrial sectors are interested in processing inorganic waste.

On December 12, 2022 the Mayor of Yogyakarta (*Pj. Walikota Yogyakarta*) issued Circular Letter number 660/6123/SE/2022 which contains the Zero Inorganic Waste Movement (*Gerakan Zero Sampah Anorganik*). These zero inorganic waste campaigns require every head of regional apparatus/work unit,

heads of government offices, school/madrasah/higher education leaders, business actors and residents of the city of Yogyakarta to carry out waste management. Waste management through waste reduction and handling. Waste reduction by limiting waste generation, recycling waste, and/or reusing waste. Waste handling is carried out, among other things, by sorting, collecting and distributing waste. The obligation to handle waste begins with sorting organic and inorganic waste. Inorganic waste resulting from sorting is prioritized to be taken to the Waste Bank in each region or taken directly to the waste collector. Waste banks carry inorganic waste to waste collectors. This Circular also stipulates a prohibition on disposing of inorganic waste to Waste DEPOs/Temporary Waste Disposal Sites. (Kota Yogyakarta, 2022).

On July 21 2023, the Regional Secretariat of the Daerah Istimewa Yogyakarta (circulated letter number 658/8312 regarding the Closure of Piyungan Regional Final Processing Site (*Tempat Pemrosesan Akhir*, TPA) services addressed to the Head of the Yogyakarta City Environmental Department, Sleman Regency, Bantul Regency. The letter informs that the existing waste service zone at the Piyungan Regional TPA has exceeded capacity, so services can no longer be provided from July 23 to September 5 2023. Regencies and cities are expected to take steps to handle waste independently. This condition is known as a waste emergency. (PemdaDIY, 2023).

DLH Kota Yogyakarta responded and followed up on the DIY Regional Government's letter by coordinating with the Waste Bank Forum (*Forum Bank sampah*, FBS) which had been formed and fostered in the Yogyakarta City area. FBS is an organization that creates synergy in Waste Banks in the Yogyakarta City area, as well as being a network for various information on the management and use of environmentally friendly organic and inorganic waste. FBS is expected to play an active role in building the waste ecosystem, to create a clean and comfortable Yogyakarta City. FBS is a means of coordination, communication and guidance for all existing Waste Banks. FBS consists of trustees from every *kemantren* in the Yogyakarta City area. On July 27 2023, FBS issued Circular Letter number 062/SE/VII/2023 which contained the *Gerakan Mbah Dirjo*. Movement to process waste and rubbish with bio pores in the Jogja style. The movement will be carried out simultaneously by all Waste Banks in the Yogyakarta City area starting on July 29 2023. This movement is expected to be able to process organic waste better and reduce the amount of waste generated. (FBS, 2023)

## II. METHOD

### **Research Respondent**

The interviewee in this survey is the Yogyakarta City Environmental Department (*Dinas Lingkungan Hidup, DLH*), specifically the Waste Management Sector which consists of the Waste Management Operational Work Team and the Cleaning Retribution Management Substance Group Sector.

### **Materials and Instrument**

Interviews were conducted using an open questionnaire instrument. The interviewee gives the answer in his own words. Apart from interviews, a survey was also conducted on existing policy documents related to the survey theme.

### **Design and Procedure**

Analysis and surveys use the Asset Based Community Development (ABCD) approach. ABCD is a client empowerment model that prioritizes the utilization of clients' assets and potential to improve their performance. The ABCD approach begins by identifying the assets owned by the client, which consist of: human capital, natural capital, physical capital and social capital (Afandi, 2019).

Stages in the ABCD method (approach):

- a. Discovery (Discovering Strength)  
Encourage clients to discover their potential and strengths, through interviews and discussions.
- b. Dream (Building a Dream)  
Clients are encouraged to dare to build, imagine dreams and hopes. Encourage clients to be motivated to move closer to their dreams.

c. Design (Planning Actions)

Stages that connect dreams that have been built with reality. This stage becomes a bridge that takes clients from discourse to action. The dreams that have been formulated are used as the basis for concrete and measurable program planning. Clients are encouraged to detail the elements that must be present for dreams to come true. Making designs is a means to collectively gather ideas, visions and expertise so that they will produce sustainable and effective strategies to make dreams come true.

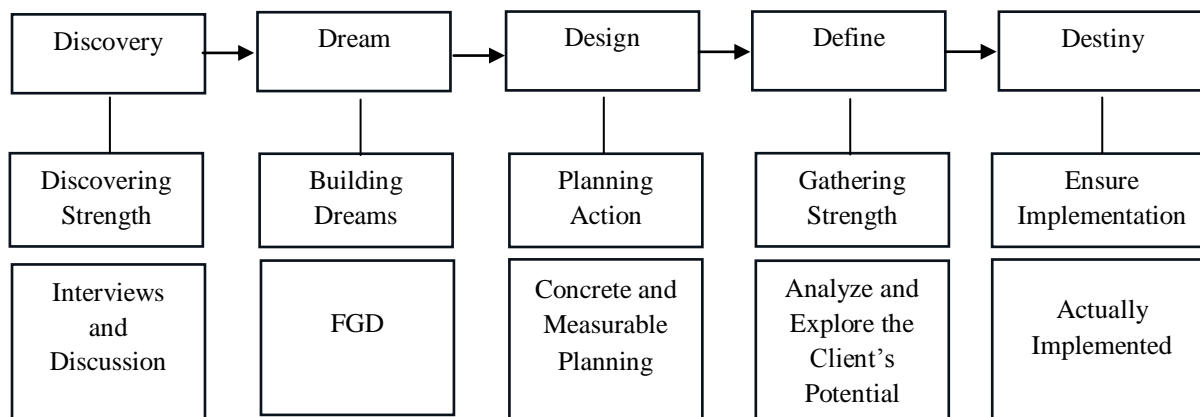
d. Define (Gathering Strength)

This stage encourages clients to identify and explore their potential. Potential that comes from human assets, natural resources, infrastructure, culture and social. These assets and strengths are then organized and directed towards achieving common goals. An awareness of their potential will enable clients to find new opportunities to collaborate, develop new skills, and form closer relationships. When the assets that have been identified and defined come together in harmony, clients can see unlimited opportunities, thereby opening the door to new steps that will guide them towards achieving the dreams they initiated from the beginning.

e. Destiny (Ensure Implementation)

The final stage in the ABCD method is to ensure that what we have planned and prepared from the start is actually implemented. This stage is the most crucial because the success of this program really depends on this stage. If clients really carry out their plans, then the dreams that have been built from the start will be able to come true. However, success in this destiny stage is a representation of the previous stages. If the client has succeeded in finding strength and talk about it in a cooperative pattern, then they are actually overcoming existing challenges and are on the right track in realizing their dreams and hopes.

The ABCD method attempts to organize every asset and strength in society to be used to improve community performance. The success of this method really depends on the ability to empower clients who become facilitators, express their dreams, plan actions, and encourage people to move. The key to the ABCD method is organizing all these assets and strengths to improve client performance. (Olahkarsa, 2021) (Nurdiyana *et al.*, 2016) (Mathie and Cunningham, 2002) (Agdal, 2019).



**Figure 1:** Stages and How the ABCD Method Works

### III. RESULT AND DISCUSSION

#### Discovery Stage

The discovery stage was carried out through interviews and discussions resulting in findings of the strengths possessed by the client, the Yogyakarta City Environmental Department (*Dinas Lingkungan Hidup Kota Yogyakarta, DLH*). The DLH has assets in the form of human capital, namely professionals who work according to their expertise. Natural capital in the form of land for waste processing and agricultural land. Physical capital in the form of TPS 3R and TPST. Formal social capital lies in the existence of DLH as a regional apparatus in the City of Yogyakarta.

The human capital owned by DLH includes professionals who work according to their expertise, namely head of department, secretary, functional position group, head of general & personnel sub-division, head of finance sub-division, head of planning, evaluation & reporting sub-division, head of environmental planning and control, environmental planning substance group, environmental pollution control substance group, head of environmental capacity development, environmental resources development substance group, environmental monitoring substance group, head of public green open space, public green open space management substance group, landscaping and road shading substance group, head of solid waste management, substance group for cleaning levy management, operational work team for handling waste, head of the environmental laboratory technical service unit, sub-section of administration of the environmental laboratory technical service unit, head of the technical service unit for maintenance of infrastructure and workshops, sub-section of administration of the technical service unit for maintenance of infrastructure and workshops.

The DLH has natural resources, including public green open spaces which function to provide fresh air for city residents and also serve as children's play areas.

The physical capital owned by DLH includes TPS 3R and TPST. TPS 3R (*Tempat Pengolahan Sampah*, Waste Processing Site) with 3R (reduce, reuse and recycle) principles. TPS 3R is a place where regional scale collection, sorting, reuse and recycling activities are carried out. The processing capacity, which was originally 10 tons/day, is expected to increase to 30 tons/day. TPST (*Tempat Pengolahan Sampah Terpadu*, Integrated Waste Processing Site) is a place where collection, sorting, reuse, recycling, processing and final processing activities are carried out. Yogyakarta City TPST also provides agricultural land and fish ponds. The provision of agricultural land and fish ponds is to serve as a model in the use of organic waste as fertilizer and fish feed.

Formal social capital lies in the existence of the DLH as a regional apparatus in the City of Yogyakarta. The DLH's duties and functions are based on Regional Regulations Yogyakarta City Number 5 of 2016 concerning the Formation, Composition, Position and Composition of Yogyakarta City Regional Apparatus, the DLH is the implementing element of regional government which carries out government affairs in the environmental sector.

### ***Dream Stage***

The dream stage builds dreams through Forum Group Discussion (FDG). The FDG involved the DLH, heads of government within the City of Yogyakarta, community leaders and academics. FDG provides encouragement to the DLH to achieve its vision and mission. The DLH has a vision of becoming a reliable institution in environmental management to create a cultured and environmentally conscious society in the city of Yogyakarta. Its mission is: (1) to realize improvements in environmental quality in the context of preserving environmental functions by involving the business world, communities and schools in environmental management; (2) creating green open spaces in urban areas that fulfill ecological functions, aesthetic functions, social functions and comfort; (3) realizing quality cleanliness and waste management. (<https://lingkunganhidup.jogjakota.go.id>)

### ***Design Stage***

The design stage produces planning action. Planning action are prepared through concrete and measurable planning. Making designs is a means to collectively gather ideas, visions and expertise so that they will produce sustainable and effective strategies to realize planned actions. The DLH is the implementing element of the Regional Government in the field of Environment and has the task of carrying out regional government affairs based on the principle of autonomy and assistance duties in the field of the Environment. To carry out this task, the DLH has the following functions: (a) formulation of technical policies in the field of Environment; (b) implementation of government affairs and public services in the environmental sector life; (c) implementation of coordination in the implementation of affairs in the field of Environment; (d) guidance and implementation of tasks in the field of Environment; (e) secretarial management includes planning, general, personnel, finance, evaluation and reporting; and (f) implementation of supervision, evaluation control and reporting in the environmental sector. (Renstra DLH, 2017) (Renja, 2023)

### **Define Stage**

This stage encourages DLH to analyze and explore their potential. Potential that comes from human assets, natural resources, infrastructure, culture and social owned by DLH. These assets and strengths are then organized and directed towards achieving common goals. An awareness of their potential will enable DLH to find new opportunities to collaborate, develop new skills, and form closer relationships. When the assets that have been identified and defined come together in harmony, clients can see unlimited opportunities, thereby opening the door to new steps that will guide them towards achieving DLH's vision and mission.

### **Destiny Stage**

The final stage in the ABCD method is to ensure that what we have planned and prepared from the start is actually implemented. The success in this destiny stage is a representation of the previous stages. The DLH has succeeded in finding strength and talking about it in a cooperative pattern, then they are actually overcoming existing challenges and are on the right track in realizing their vision and mission. DLH's vision of becoming a reliable institution in environmental management to create a cultured and environmentally conscious Yogyakarta City community is partly realized through one of its missions, namely realizing quality cleanliness and waste management.

DLH Yogyakarta City is maximizing the implementation of decentralized waste processing. The people of Yogyakarta City are encouraged to be able to manage waste independently and no longer divert it to Final Processing Sites (*Tempat Pemrosesan Akhir*, TPA). DLH supports the Zero Inorganic Waste Movement program (*Gerakan Zero Sampah Anorganik*, GZSA) and the Jogja-style movement for processing rubbish and waste with bio pores (namely *Gerakan Mbah Dirjo*) which can help reduce waste taken to TPA. Apart from that, it also optimizes the TPS 3R and TPST owned by the City of Yogyakarta. (SE Walikota, 2022)(SE FBS, 2023).

In 2024 decentralization of waste management in Yogyakarta City will be carried out in several schemes. The city government is preparing a downstream waste management chain by strengthening TPS 3R and TPST. Then TPS 3R is being prepared, the final product of which is material for the recycling industry. TPST with Refuse Derive Fuel (RDF) output. TPST is being prepared to be managed by the Regional Owned Enterprise (*Badan Usaha Milik Daerah*, BUMD) of the Yogyakarta City Government. Waste will be managed through a destruction process using environmentally friendly technology. The target is to be able to run it systematically in May 2024.

Strengthening the GZSA and the Mbah Dirjo Movement apart from emphasizing social changes in community behavior, so that they are willing and able to manage waste from the source, also optimizes the role of the Main Waste Bank (*Bank Sampah Induk*). The potential for landfill in Yogyakarta City is around 300 tons per day, the scheme is that 150 tons of waste will be completed upstream through GZSA and the *Gerakan Mbah Dirjo* movement as well as the Main Waste Bank. Then another 150 tons will be processed downstream with the circulation and optimization chain process of TPS 3R which will manage 50 tons and the remaining 100 tons by TPST. Waste taken to landfill is estimated to decrease to 95 ton.

## **IV. CONCLUSION AND RECOMMENDATION**

Yogyakarta City Environmental Department (DLH) has good and important assets or capital that are able to build strength to realize its vision and mission. In the future, DLH will have better governance in managing waste in the Yogyakarta City area.

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