CHAPTER II

LITERATURE REVIEW

2.1 Previous Research

Previous studies on collaborative governance in waste management demonstrate that the involvement of multiple stakeholders is essential in addressing environmental issues, particularly in community-based programs such as waste banks. Collaborative governance has been widely recognized as an effective approach to integrate the roles of government, private sector, and community in managing waste. However, its implementation often faces various challenges, indicating that the presence of collaboration alone does not guarantee successful outcomes.

(Hertati & Arif, 2022) examined collaborative governance in waste bank management and found that collaboration among government, private sector, and community actors has been established, contributing to waste reduction and economic benefits. Nevertheless, the study revealed that the collaboration remains suboptimal due to limited trust, low community participation, and unclear institutional arrangements. This indicates that effective collaboration requires not only stakeholder involvement but also strong interaction, coordination, and governance structure.

In a different context, (Sidik et al., 2024) analyzed the effectiveness of the waste bank model in Raja Ampat and found that the program has the potential to improve sustainable waste management. However, its effectiveness is constrained by socioeconomic factors such as low public awareness, limited participation, and weak institutional support. This study highlights that waste management challenges are not only technical but also influenced by social and economic conditions, which can affect the success of community-based programs.

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Furthermore, (Ardianto et al., 2025) conducted a comparative study on collaborative governance in community-based waste bank management across two regions. The findings show that although collaborative governance exists in both regions, its effectiveness varies depending on the quality of stakeholder interaction. Regions with strong coordination, active community participation, and effective leadership demonstrate better outcomes, while weak collaboration leads to less effective implementation. This emphasizes that the success of waste management programs depends on the quality of collaboration rather than merely the existence of stakeholders.

Similarly, (Fatmawati et al., 2022) found that the implementation of waste bank policies through a collaborative approach in Makassar and Bantaeng has not been optimal. The study identified weak communication among stakeholders, low community participation, and insufficient program socialization as key challenges. Although collaboration is formally present, it is not effectively implemented in practice, resulting in suboptimal outcomes. This finding reinforces the importance of communication and stakeholder engagement in collaborative governance.

In addition, (Mustiraya et al., 2023) revealed that collaborative governance in waste management in Bandung Regency has not been fully effective due to weak stakeholder cooperation, lack of infrastructure, limited human resources, and community distrust. Likewise, (Ain et al., 2021) critically highlight that although collaborative governance in managing plastic waste in Bali is supported by policy frameworks, its implementation remains largely ineffective. The study shows that low public participation, weak law enforcement, and the absence of shared goals among stakeholders undermine the effectiveness of collaboration. More importantly, the study implies that collaborative governance tends to be formalistic than substantive, where institutional arrangements exist but fail to produce meaningful behavioural change and collective action. This indicated that the presence of governance structure does not necessarily translate into effective

environmental outcomes without strong interaction, trust, and shared commitment among stakeholders.

Based on the review of these studies, it can be concluded that while collaborative governance has been widely applied in waste management, its implementation often faces recurring challenges such as weak coordination, low participation, lack of trust, and inadequate institutional design. Furthermore, most previous studies focused on mainland or urban regions, with limited attention given to archipelagic and tourism-based areas such as Raja Ampat Regency. Therefore, these studies aim to fill the gap by analysing the implementation of collaborative governance in waste bank management in Waisai City, Raja Ampat Regency, using a structured theoretical framework to better understand the dynamics of stakeholder collaboration in a unique geographical context.

2.2 An overview of waste; inorganic waste and organic waste

Rapid population expansion, economic progress, and urbanisation have led to the production of wastes and pose a significant hurdle, particularly in developing nations. In general, waste could be defined as any useless remaining part or released in the environment by human activities, it is also the result of inefficient production processes whose continuous generation is disposed of even when payments are required for their disposal. According to Law Number 18 of 2008 concerning Waste Management, waste is the residual of daily human activities and/or natural processes in solid form. Under the *Environment Protection Act 1993,* waste defined as any discarded, rejected, abandoned, unwanted or surplus matter, whether or not intended for sale or for recycling, reprocessing, recovery or purification by a separate operation from that which produced the matter, or anything declared by regulation or by an environment protection policy to be waste.

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In general, waste can be divided into two types, namely organic waste and inorganic waste, which are then sub-classified into two groups: household and non-household waste. This classification is important because it determines the appropriate methods for waste handling and processing. Organic waste refers to waste that comes from the rest of living things (nature) such as plants, animals that experience decay or weathering. Because these materials break down relatively quickly typically a few months as they are highly suitable for biological processing techniques such as composting or anaerobic digestion, which can return nutrients to the soil or generate renewable energy (Arifin et al., 2023). In Indonesia, organic waste constitutes a significant portion of municipal solid waste, making it a key target for reducing and processing strategies (Ministry Environment & Forestry, 2020). If organic waste not properly managed, it can lead to environmental problems such as unpleasant odours, greenhouse gas emissions (especially methane), and the proliferation of disease vectors. However organic waste also has high potential for reuse through composting and other biological treatment methods. By converting organic waste into compost or organic fertilizers, it can be utilized to support agricultural activities and reduce the burden on final disposal sites. Therefore, effective management of organic waste is essential in achieving sustainable waste management systems.

Meanwhile, inorganic waste is waste that comes from the rest of human activities that are difficult to be decomposed by bacteria, so it takes a long time (up to hundreds of years) to be decomposed. Common examples include plastics, metals, glass and chemicals. Inorganic waste poses a serious environmental threat due to its persistence in the environment and its potential to cause long-term pollution. Plastic waste, in particular, has become a global concern, as it contributes with high contributions to marine plastic waste, highlightin the urgency of improving waste management practices, especially in reducing and recycling inorganic waste (Jambeck et al., 2015).

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Given the different characteristics of organic and inorganic waste, effective waste management requires an integrated approach that emphasizes waste segregation at the source. Organic waste can be processed through composing, while inorganic waste can be reused, reduced, or recycled through mechanisms such as waste bank programs. In this context, community participation plays a crucial role in ensuring proper waste sorting and management. Understanding the distinction between organic and inorganic waste is therefore fundamental in designing sustainable waste management strategies and supporting the implementation of collaborative and community-based approaches to waste management.

2.2.1 Waste Sources and Generation

Waste sources refers to the origins or activities that produce waste, while waste generation refers to the amount of waste produced within a particular area and period. In Indonesia. Law Number 18 of 2008 defines waste as the residue of daily human activities and/or natural proceses in solid form, while waste sources are sunderstood as the origin of waste generation. This definition shows that waste is closely connected to human activities, including household consumption, commercial activities, public services, markets, tourism, and institutional operations. Therefore, understanding waste sources and generation is essential for designing appropriate waste management strategies, because each sources produces different types, volumes, and characteritistics of waste.

Solid waste generation is the common bases for activity data to estimate emission from solid waste disposal, biological treatment, and incineration and open burning of waste. In the Indonesian context, waste generation continues to increase due to population growth, urbanization, economic development, and changes in consumption patterns. The rapid changes in urbanization, industrialization, and economic development have caused the increase of waste generation. According to the World Bank Report published by (Kaza et al., 2018)

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explains that global waste generation is strongly driven by rapid urbanization and population growth, and similar pressures can be observed in Indonesia, where expanding urban centres and changing lifestyles increase the volume of household and commercial waste.

Regarding waste generation data in Indonesia for the year 2022, it is evident that the highest waste generation is concentrated on the island of Java. The first place is occupied by Central Java Province, followed by East Java Province in second place, West Java Province in third place, DKI Jakarta Province in fourth place, and Banten Province in the fifth place (Muljaningsih et al., 2023). Major cities in Indonesia may have different, most dominant waste source comes from households at 48%, then 24% of waste comes classifications for waste types, which are generally similar in some cases, for example, from traditional markets and 9% comes from commercial areas (Ruslinda et al., 2020). The rest comes from public facilities, schools, officers, roads, and others (Jaspi et al., 2015). The National Waste Management Information System, or SIPSN published a report in 2025 via (Ministry Environment & Forestry, 2025) that by 274 Indonesian agencies/cities recorded 29,069,030.30 tons/year of waste generation. Of this amount only 32,98% waste categorized as managed waste, while 67.02% remained unmanaged, indicating that waste generation is still far greater than the capacity of many local governments to reduce and handle waste effectively.

Every activity carried out by humans generates solid waste, both organic and inorganic waste. The main sources of waste in Indonesia is generally come from households, markets, commercial areas, offices, public facilities, and other socio-economic activities. Among these sources, household waste is particularly significant because it is produces continuously through daily consumption activities such as food preparation, packaging use, and domesyic cleaning. Waste from markets and commercial activities also contributes substantially, especially in urban and semi-urban areas where trade, restaurants, shops, and services are

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concentrated. These sources generate both organic waste, such as food residues and vegetable waste, and inorganic waste, such as plastic packaging, bottles, cans, and other recyclable materials. This condition makes waste sorting at the source very important, because mixed waste reduces the effectiveness of recycling, composting, and waste bank programs. The SIPSN platform itself separates data on waste generation, waste composition, waste sources, and waste-management facilities, showing that source-based waste information is a key component of national waste-management planning.

In Raja Ampat Regency, waste sources and generation must be understood within its specific geographical and socio-economic context. Administratively, Waisai is a capital city, part of the Waigeo Island in Raja Ampat Regency, often becoming a gateway to various tourist destinations. The (BPS, 2022) publication *Distrik Kota Waisai Dalam Angka 2024*, describes Waisai through development sectors, including population tourism, transportation, communication, cooperatives, and trade, indicating that the district is not only a residential area but also an important centre of local economic and service activities. These functions create diverse sources of waste, including household waste from residents, commercial waste from shops and restaurants, institutional waste from offices and public facilities, and tourism-related waste from visitors, hotels, resorts, boats, and harbor activities.

The problem of waste generation in Raja Ampat is further complicated by its status as an internationally known marine tourism destination and by its archipelagic geography. Recent reports note that Raja Ampat's Environmental Agency has emphasized that waste reduction must start from households, businesses, and tourism activities, showing that waste generation is distributed across both local and tourism-related sources. Previous case studies in academic literature have made considerable efforts to evaluate waste sources, waste generation, and its management in tourist destination, for instance in Sri Lanka

(Nayanarangani et al., 2022), the impact of waste management based on stakeholder's perspective in Greece (Koliotasi et al., 2023), also the local one in Pengaradan Beach, Banten Province (Atmanti & Purwanti, 2021) and Bali (Muliarta, 2023).

The regency has also introduced measures such as source-based sorting, restrictions on single-use plastic and styrofoam, centralized collection points such as Waisai Harbor, and village-level facilities including waste banks, composting houses, and TPS3R to reduce the amount of waste reaching final disposal sites. The problem of waste generation in Raja Ampat is further complicated by its status as an internationally known marine tourism destination and by its archipelagic geography. Recent reports note that Raja Ampat's Environmental Agency has emphasized that waste reduction must start from households, businesses, and tourism activities, showing that waste generation is distributed across both local and tourism-related sources. The regency has also introduced measures such as source-based sorting, restrictions on single-use plastic and Styrofoam, centralized collection points such as Waisai Harbor, and village-level facilities including waste banks, composting houses, and TPS3R to reduce the amount of waste reaching final disposal sites. Therefore, waste sources and generation in Raja Ampat are not only domestic issues but also governance challenges that require collaboration among local government, communities, tourism actors, and waste-management institutions.

Furthermore, the specific characteristics of waste generation and composition among the residents living in the tourist area in Raja Ampat Regency have been published by (Sidik et al., 2024). This research described empirical waste general measurement within the Waisai City, Raja Ampat Regency. It derives an understanding of waste management for tourism contribution which is significant to local area development. Tourism drives growth, but the resulting solid waste and other pollutants threaten natural beauty, resident's quality of life, tourist

attraction, and economic success. This could provide a significant gap because tourism is a growing sector in Waisai City and contributes substantially to waste generation towards the region. (Table 1) depicts the waste generation of Raja Ampat Regency from the 2018-2024.

Table 1. Waste Generation in Raja Ampat Regency

Year	Regency/ City	Waste Generation Day (Ton)	Annual waste generation (Ton)
2018	-	-	-
2019	Raja Ampat	33,13	12,090.99
2020	Raja Ampat	33,13	12,090.199
2021	-	-	-
2022	-	-	-
2023	Raja Ampat	27.11	9.893.40
2024	Raja Ampat	27.40	10,001.00

Source: (SIPSN, (Ministry Environment & Forestry, 2025)

Way before Southwest Papua Province was established in 2022, Raja Ampat Regency was still part of West Papua Province. According to the data released by the BPS West Papua in 2011-2021 through DLHP Waste Management Report 2021 cited in (Raharjo et al., 2022) stated that the average waste generation in West Papua Province is 0.518 kg/person/day or equivalent to 185.64 kg/person/year. This value is still remaining below the global average of 0.74 kg/person/day of waste generation per capita. This is because West Papua Province's (Indonesia) status as a lower-middle-income country, as higher per capita income typically correlates with increased waste generation. Despite this, only a few provinces in Indonesia are able to manage 60-80% of their waste.

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2.2.2 Waste Composition

Waste composition is one of the main factors influencing emission from solid waste treatment, and is influenced by factors such as cultural norms, level of

economic development, climate and energy consumption etc. In the municipal solid waste stream, waste can be classified into organic and inorganic components. Food waste, garden (yard), and park waste and wood are classified as organic waste while paper/cardboard, textiles, nappies and leather/rubber contain some fossil carbon. Out of the total waste generated amounting to 33,175,220,06 tons per year, a significant portion, specifically 16,307.031.38 tons per year (equivalent to 49.15%), has been effectively managed. According to the composition of waste based on type of waste in Indonesia in 2022 are provided as follows (Figure 1).

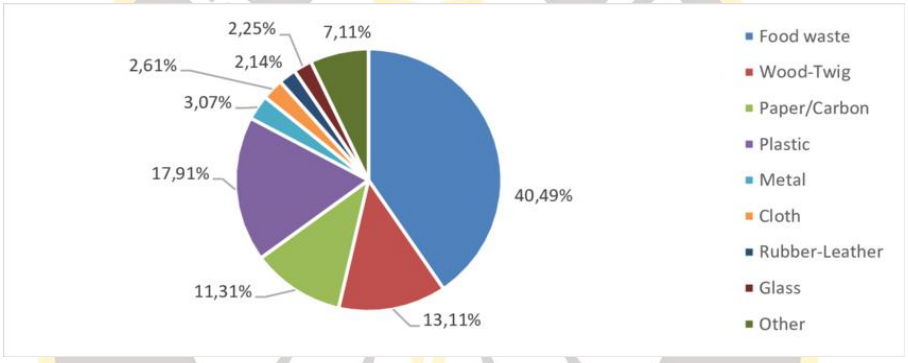


Figure 2. Composition of waste based on type of waste in Indonesia in 2022 cited in (Muljaningsih et al., 2023)

The different waste types contain different amounts of dissolved organic carbon (DOC) and fossil carbon. Waste composition as well as the classifications used to collect data on waste composition in Municipal Solid Waste (MSW) vary widely in different regions and countries. Generally, developing countries offer significantly from developed countries, with a higher proportion of organic materials like food scraps and agricultural residues. This indicates lower levels of industrialization but larger in agricultural sectors. Overall, this type of waste cannot be entirely eliminated, we require to determine ways to minimize its impact on the environment and community. However, some developing nations have taken effective steps to manage it. For instance, countries like Japan, South Korea, Singapore, and Japan. Compared with developed countries, they tend to

have a higher percentage of packaging waste, including plastic, paper due to higher levels of industrialization, and more prevalence of packaged goods.

Furthermore, the generation and composition of waste are influenced by population, socio-economic level, weather, season, way of life, population mobility, and the population's number of activities (Damanhuri & Padmi, 2019). Based on the waste composition data in West Papua, 70% of solid waste mainly originated from food scraps or leftovers, while the remaining 20% and 10% originated from woods and paper, respectively (Prabawardani et al., 2021). However most waste composition in this province was predefined only in the broadest sense by Environmental Services and Statistical Bureau. At that time, a set of regency including Raja Ampat somewhat was not reporting for a particular waste, the total amount to determine the waste generation rate per capita or per household. Population growth has a positive correlation with the increase in waste generation.

Besides that, Raja Ampat is an archipelagic and tourism-nased region, inorganic waste, especially plastic packaging and single-use items, becomes a critical concern. If these materials are not sorted and collected properly, they may accumulate in settlements, public spaces, coastal areas, and marine environments. The composition of waste has direct implications for the waste bank management program in Waisai City. Waste banks are generally more focused on recyclable inorganic waste, such as plastic bottles, cardboard, paper, metal, and other materials that have economic value.

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Therefore, the effectiveness of a waste bank depends heavily on the ability of households, communities, and businesses to separate recyclable inorganic waste from organic and residual waste at the source. Without proper waste segregation, recyclable materials may become contaminated and lose their economic value. For this reason, understanding waste composition is important not only for technical

waste management but also for strengthening community participation and collaborative governance in the waste bank program.

2.3 Waste Management

When considering the most appropriate waste management in any given city or regency, an integrated approach shall be taken to consider both sides (waste generators) as well as end-of-pipe users across society. Waste management defined as systematic activities carried out to reduce, handle, process, and dispose of waste in order to protect public health and environmental quality. In Indonesia, waste management is legally framed through Law Number 18 of 2008 concerning Waste Management, which emphasizes that waste should no longer be viewed merely as discarded material, but as a resource that can be managed and utilized. This law also shifts the approach from the traditional "collect–transport–dispose" model toward a more integrated system that prioritizes waste reduction and environmentally sound handling.

In general, waste management consists of two main dimensions: waste reduction and waste handling. Waste reduction includes activities that aim to limit waste generation, reuse materials, and recycle waste before it reaches final disposal sites. Waste handling includes sorting, collection, transportation, processing, and final disposal. This distinction is important because effective waste management should not only focus on transporting waste to disposal sites, but also on reducing waste from its source through community participation, recycling, and resource recovery. Government Regulation Number 81 of 2012 further regulates the management of household waste and household-like waste as part of the implementation of Law Number 18 of 2008.

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Currently, waste management in Indonesia is still based on the conventional method, so it needs to be improved, due to management programs that are less integrated and lack of support and community participation. The

conventional approach to waste management, which relies heavily on collection and disposal, has been widely criticized because it does not address the root cause of increasing waste generation. When waste is not sorted at the source, recyclable and compostable materials are mixed with residual waste, making further processing more difficult and costly. This condition also increases the burden on final disposal sites and may lead to environmental problems such as leachate pollution, unpleasant odours, greenhouse gas emissions, and land-use pressure.

Thus, waste management requires not only technical services but also preventive strategies that reduce waste generation from the beginning. In addition, sustainable waste management requires a shift from a linear model toward a circular economy approach. In the linear model, products are consumed and then disposed of as waste, whereas the circular economy emphasizes reducing waste, extending product life, reusing materials, and recycling resources back into the production and consumption cycle. From this perspective, waste is not only considered an environmental burden, but also a potential resource with economic value. This approach is particularly relevant to waste bank programs, as they encourage communities to separate recyclable waste and convert it into economic benefits while reducing the volume of waste sent to final disposal sites.

In the Indonesian context, waste management requires the involvement of various stakeholders, including central and local governments, communities, private sector actors, and waste-management institutions. It was started on the implementation of the new national regulation for management law No.18/ 2008 issued by the Government of Indonesia and becoming a legal tool in defining waste management affairs and becoming a foundation to all related stakeholders in supporting national waste management policy. Local governments play an important role in providing services, infrastructure, regulations, and public education, while communities are expected to participate in waste sorting, reduction, and recycling activities. This is particularly relevant for community-

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based programs such as waste banks, where the success of the program depends on the willingness of residents to separate recyclable waste and engage in organized waste-management activities.

The regulation sets out the central and local government's roles and responsibilities with regard to waste management and states the responsibility held by producers in managing their own waste. More specifically, Article 20 states that in an effort to reduce waste as referred in Article 19 includes following activities on waste generation, waste recycling and/or reuse of waste. The following table shows the existing law/policy/regulations associated with waste management in Indonesia.

Table 2. Sumamary of Regulatory Framework of Waste Management in Indonesia

National Law	- Law No/18/2008 on Solid Waste Management - Law No. 32/2009 on Environmental protection and management
Government Regulation	- PP No. 81/2012 Government Regulation on Management of Household and Household-Like Waste - PP No. 103/2014 Government Regulation on Hazardous Waste Management - Draft Government Regulation on Exercise on Plastic - PP No. 27/2020 Government Regulation on Specific Waste Management
Presidential Regulation	Keppres No.61/1993 and No. 47/2005 Presidential Decree on Ratification of the Basel Convention on the Control of the Transboundary Movement of Hazardous Waste and Their Disposal
Ministerial Regulation	- Ministry of Trade Regulation No.48/2016 on Non- Hazardous Waste Import - Ministry of Public Works Regulation No.3/2013 on Implementation of Solid Waste Infrastructure and Facilities - Ministry of Environment and Forestry Regulation No.P75/2019 on Roadmap to Waste Reduction by Producers - Draft Ministerial Regulation (MoEF) on Plastic Shopping Bag Reduction
Regional/Local Regulation	PERDA No.13/2014 on Waste Management in Raja Ampat Regency

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Furthermore, effective waste management must be supported by public awareness, behavioural change, and consistent participation from the community. Even when infrastructure and regulations are available, waste management programs may fail if residents do not sort waste properly or participate actively in reduction and recycling efforts. Therefore, education, socialization, and continuous facilitation are essential components of waste management. In the context of Waisai City, strengthening community participation through the waste bank program can help reduce dependence on conventional disposal practices and support more sustainable waste management through collaboration among government, community, and other stakeholders.

Therefore, waste management should be understood not only as a technical process, but also as a governance process. The effectiveness of waste management depends on how well institutions, communities, and other stakeholders coordinate their roles and responsibilities. In the context of Waisai City, Raja Ampat Regency, this perspective is especially important because waste management challenges are shaped by tourism activities, archipelagic geography, limited infrastructure, and the need to protect marine ecosystems. As a result, collaborative governance becomes highly relevant for analysing how waste bank management can be strengthened through stakeholder participation, shared responsibility, and coordinated action.

2.3.1 Waste Management System

A waste management system refers to the structured arrangement of activities, institutions, infrastructure, regulations, and stakeholder responsibilities used to manage waste from its source to final processing. Unlike the broader concept of waste management, which refers to the overall effort to reduce and handle waste, the waste management system emphasizes how these efforts are organized and implemented in practice. In Indonesia, a waste management system is officially

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defined under Law No. 18 of 2008 as s systematic, comprehensive, and sustainable activity that focuses on two core mechanisms which are waste reduction and waste handling.This framework moves aways from the old “collect-transport-dispose” method to an integrated lifecycle approach. According to Government Regulation Number 81 of 2012, household waste and household-like waste management requires an organized process involving sorting, collection, transportation, processing, and final processing. This shows that a waste management system is not only about physical waste movement, but also about how different components work together within a structured mechanism.

The system generally begins at the source of waste generation, such as households, markets, offices, schools, public facilities, tourism businesses, restaurants, and other commercial activities. At this stage, source separation is essential because it determines whether waste can be processed, recycled, or must be disposed of as residue. Waste that has been sorted properly can enter different management channels, such as composting for organic waste, recycling for inorganic waste, or waste bank collection for recyclable materials. In contrast, mixed waste usually reduces the economic value of recyclable materials and increases the burden on transportation and final disposal facilities.

The next part of the system involves collection and transportation, which connect waste sources with processing or disposal facilities. Collection systems may be carried out by local government services, community groups, private operators, or informal waste collectors, depending on local capacity and institutional arrangements. Transportation is also a crucial element because inefficient collection routes, limited vehicles, and irregular schedules can disrupt the entire waste management chain. In regions with geographical challenges, such as coastal and archipelagic areas, transportation becomes even more complex because distance, accessibility, and operational costs affect service coverage.

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Another important element is the availability of waste processing facilities, such as temporary disposal sites, recycling centres, composting facilities, TPS3R, waste banks, and final disposal sites. Each facility has a specific function within the system. Waste banks, for example, function as collection and sorting points for recyclable inorganic waste with economic value. Through this mechanism, recyclable waste can be separated from residual waste and redirected into recycling networks. This supports the principle of waste reduction before waste reaches the final disposal site.

The waste management system in Raja Ampat Regency must respond to local conditions as an archipelagic and tourism-based area. Waste is generated not only by residents, but also by hotels, resorts, restaurants, harbor activities, shops, and tourism-related services. Therefore, the system requires coordination between the Department of Environment (DLH), waste bank managers, local communities, tourism actors, private businesses, and other stakeholders. Without coordination among these actors, the system may become fragmented, where waste collection, sorting, recycling, and disposal operate separately rather than as an integrated chain.

Thus, the waste management system in Waisai City should be understood as an interconnected arrangement of actors, facilities, and processes. Its effectiveness depends not only on the existence of infrastructure, but also on the consistency of coordination, community participation, source separation, and stakeholder commitment. This is why the waste management system is closely related to collaborative governance, because managing waste in Waisai requires shared responsibility among government, community, private sector actors, and supporting institutions.

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2.3.2 Waste Bank Program

The waste bank program is a community-based waste management model that seeks to integrate environmental protection, community participation, and economic incentives. Unlike conventional waste management, which often focuses on collecting and transporting waste to final disposal sites, waste banks encourage communities to sort recyclable waste at the source and deposit it into an organized institution. Open dumping and burning waste have become common practice in Indonesian society. As more than 90% districts/cities across Indonesia have implemented these behaviours and are far from harmonious with nature. Thus, the waste management has been developed with the creation of a final disposal place which later can be used by some people to sort the waste for resale to manufacture, for instance plastic packaging. Even though, existing law and/or regulation mandated by the government listed on (Table 2) to provide a baseline and guideline for managing domestic waste in Indonesia as well as strengthening of public awareness through the local community in regard to resolving waste issues with the waste bank management model, these behaviour still implemented within the society.

A waste bank is defined as a campaign for handling waste by buying back waste in terms of a deposit-like banking system (Pariatamby & Tanaka, 2014). The scheme can be village-owned enterprise (BUMDes), government, or non-governmental organisation scheme. (Asteria & Heruman, 2016) explain that waste banks operate through the collection and sorting of dry waste using a banking-like system, where the material saved is not money but recyclable waste with economic value. This mechanism makes the waste bank both an environmental intervention and a form of community empowerment. This activity is important, besides teaching people to sort their waste in social gatherings and increase economic growth, it also raises awareness for the environment.

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Operationally, a waste bank functions by encouraging residents to separate recyclable inorganic waste, such as plastic bottles, paper, cardboard, cans, and metals, from other types of household waste. The sorted waste is then weighed, recorded, and valued according to type and quantity. In this process, community members become “customers” of the waste bank, while waste bank managers act as administrators who organize collection, recording, storage, and distribution to collectors or recycling industries. This system connects household-level waste sorting with the broader recycling market, thereby reducing the volume of waste entering disposal sites while generating economic benefits for participants. Studies on waste banks in Indonesia show that waste banks can increase environmental awareness and encourage communities to change their perception of waste from something useless into something valuable.

From an environmental perspective, waste banks are particularly important for managing recyclable inorganic waste. Inorganic materials, especially plastic packaging and bottles, often persist in the environment and may enter waterways or marine ecosystems if not properly managed. Waste banks help reduce this risk by creating a structured channel for recyclable materials to be collected, sorted, and returned to recycling networks. In this sense, waste banks support the circular economy by extending the value of materials and reducing dependence on final disposal. Recent studies (Ismiraj et al., 2023; Rachman et al., 2021) also describe waste banks as a viable community-based strategy for improving waste management in Indonesia, particularly when supported by active participation from operators and customers.

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The first waste bank was established by an entrepreneur in Bantul, Yogyakarta in 2008 then began to develop in various cities in Indonesia including Surabaya (2010), Malang (2011), Gresik (2012), Cilacap (2012) and many more (Astuti et al., 2020). The waste bank has been rapidly growing, according to data from the Waste Bank Management Information System of the Ministry of Environment and

Forestry, per 2024, approximately 34,148 waste banks have been established across neighbourhoods in Indonesia. While in Waisai City, Raja Ampat Regency also implemented a Waste Bank Program supported by the local government, specifically the Environment Office Agency (Dinas Lingkungan Hidup) since 2013, which aims to reduce the amount of waste stored at disposal sites. Before that, households typically did not sort their waste and dispose of it mixed with regular garbage or buried in their backyard or burning or discarded it in random places. Beyond their technical function, waste banks also have a significant social and educational role. (Asteria & Heruman, 2016) emphasize that waste banks are closely connected with community participation, social capital, environmental education, and empowerment. Through counselling, training, dialogue, and community interaction, waste banks can strengthen environmental awareness and collective responsibility. This means that the success of a waste bank does not depend only on the availability of facilities, but also on continuous public engagement, trust between actors, and the willingness of residents to participate in waste sorting and recycling practices. Without disregarding inorganic waste, particularly plastic, the waste bank program is not only a recycling mechanism but also a potential collaborative platform. Thus, waste management remains a challenge in Waisai City, Raja Ampat Regency.

2.3.3 Inhibiting and Supporting Factors in Waste Bank Program

As waste management has a complex and long process, not only considered technical but also as a management paradigm. Understanding the extent of inhibiting and supporting factors regarding how stakeholders, knowledge, technical, infrastructure may contribute towards the successful of waste bank program. An inhibiting factor is an obstacle or barrier that hinder or slows down the successful implementation, operation in a program or activity. While, supporting factors related with the significant factor that had a significant impact towards the activities. In the context of waste bank programs, inhibiting factors

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are the challenges or conditions include lack of extensive socialization and public awareness that lead to low community participation, inadequate support from government agencies and infrastructure, and unstable waste prices. Supporting factors, namely environmental and socio-economic benefits, social innovation and education, innovative business models.

One of the main supporting factors is high community participation and the active roles of local leaders. (Rachman et al., 2021) explained that community participation in the waste bank program is required in waste management in Indonesia. As the community's lifestyle generally involves buying fast food and packaged household needs, mixed all types of solid waste. Then, directly disposing of the temporary waste processing site. But, people's knowledge, attitudes, and skills in household waste management slightly changes due to the workshop and training given by the waste bank facilitators. In essence, the concept of a waste bank is implemented within the community to increase the emergence of waste processing innovations at the grassroots level that will be able to create a modern economy. Community is the main actor and their participation will be the midpoint in waste management (Adiatmika & Nain, 2022), because they sort, collect, and deposit recyclable waste. The involvement of neighbourhood leaders, such as RT/RW officials, village officials, and community figures, can strengthen participation by encouraging residents to join the program and maintain consistency. In this sense, local leadership functions as a bridge between the waste bank institution and the community. Waste bank studies in Indonesia show that community acceptance and participation are key indicators of successful village- or neighbourhood-level waste management, especially when residents are directly involved in sorting and depositing waste.

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Another supporting factor is the presence of economic incentives. Waste banks motivate residents by converting sorted recyclable waste into savings, cash, or other economic benefits (Sariningsih et al., 2021). This mechanism changes the

perception of waste from useless material into a resource with exchange value. However, economic incentives should not be understood as the only source of motivation. Recent research on public participation in Indonesian waste banks shows that economic and non-economic motives may coexist, including environmental, social, and educational values (Anggraini et al., 2026).

However, over time the increasing level of participation in urban areas has yet to show expected results. Although people are involved, implementation is minimal. Community is the main actor and their participation will be the midpoint in waste management (Adiatmika & Nain, 2022). Without people's initiatives to manage waste properly, the high waste production from the large and high-density population will have a negative impact on people's health, the environment, and social economy (Annashr et al., 2024).

The second inhibiting factor is the low value of waste particularly for low to middle class communities (Sriyanto & Intan, 2019). The perception of waste as having little to no value and is generally seen as an economic incentive issue. For instance, some waste banks report monthly earnings between Rp 500.000 to Rp 1.000.000, with fluctuation depending on the quantity and type of waste collected. This irregular income makes it challenging to maintain community interest and improve their sustainability. Furthermore, this perception leads to difficulty in motivating community members to collect, sort, and deposit waste regularly into waste banks.

The third inhibiting factor is inadequate support from government agencies and infrastructure. Typically, the involvement of local government is essential for promoting sustainable policies, allocating resources, opportunities and investing in infrastructure (Febrian et al., 2024). Unfortunately, the street-level bureaucracy such as district heads does not often participate, combined with inadequate funds and poor infrastructure planning and delivery systems. Moreover, if government

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socialization is only conducted at the beginning of the program and not followed by regular mentoring, surely it will lead to low community participation over time. The government's role will be at a setback in hindering the development of the waste bank program. Government support should not only be assessed based on whether Environment Agency (DLH) has established or promoted the waste bank program. It is also necessary to examine whether DLH provides continunous facilitation, adequate facilities, budget support, coordination mechanisms, and monitoring, If these roles are week, the government may unintentionally become an inhibiting factor.

2.3.4 Waste Bank Managent Program in Waisai City, Raja Ampat Regency

A waste bank is a community-based waste management initiative established for villagers to deposit their waste into wealth. The basic idea of having a waste bank is having a savings account in an actual bank. Meanwhile in conventional banks, people become customers by opening a savings account, customers then deposit. Similarly in a waste bank implementing a concept of “3Rs” of Reduce, Recycle and Reuse. It is clearly stated that the requirement to establish a waste bank should be based on the building and management systems such as banking. To create such a system within the community, the initiation is typically undertaken by the community itself, which often involves a collaboration effort between different stakeholders for instance, private sectors, local government, and non-governmental organizations.

In Raja Ampat, the local government continuously manages the waste through conventional ways such as collecting and transporting them to the landfill. In 2013, the Raja Ampat government, specifically the Environment Agency collaborated with the Misool Foundation and Bank Sampah Sorong Raya mandated the Waisai Bank Bersatu Waste bank as a community-driven waste management initiative. Customers of this bank are mostly from the Waisai City

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District, typically households or groups or immediate neighbours collecting and segregating waste based on the guidelines given by the regulatory framework of waste bank guidelines. Meanwhile Waste Bank Unit (BSU) Kampung Sapokren, and Waste Bank Unit (BSU) Mama Lema Kampung Warsambin managed by Yayasan Eco Lestari Raja Ampat (CORERI). These waste bank programs provide a concept to disseminate the 3R concept and train its communities at the level of application.

At first socialization was established to gather the communities around as well as introducing a waste bank program. A core group of 10-20 women in their 40s and 60s were the most enthusiastic customers. Procedures include sorting (*pilah*) is conducted at the household level, where broad material categories (e.g., plastic, paper) are separated detailed sorting is carried out at the waste bank, where then materials are subdivided into specific types (e.g. different grades of plastic). Then it will be weighted and documented. Usually, the Sorong Raya Waste Bank requested a certain amount (largest volume), just so the communities obtained funds from it which later accumulated into waste savings.

Waste bank can serve as a unit to assist people deposit their marketable wastes by establishing cooperation with informal sectors such as recycles dealers or recycles industries. The working mechanism of Waisai Bersatu Waste Bank Unit, Mama Lema Kampung Warsambin Waste Bank Unit, and Kampung Sapokren Waste Bank Unit regulates through waste separation, waste deposit, waste weighing, bookkeeping, bankbook recording of waste deposit sale and revenue sharing between depositors and 15% for all the waste bank units.

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2.3.5 The Role of Local Government in Waste Management

Waste management remains a challenge in many regions, including Raja Ampat Regency, where the landfill is only located in bigger islands, for instance, Waisai as the capital city. This pre-existing condition occurs due to the availability of

land for the final disposal site (TPA). Waste processing, or what is commonly called Final Disposal Site (TPA), is a place for temporary storage and processing of waste so that there is no negative impact on human and the environment (Joantan & Zain, 2019). Raja Ampat Regency has a final disposal Site (TPA), namely TPA Warsambin, with an existing area of approximately 5 Ha, located in the Warsambin Village, Mayalibit Bay District, Raja Ampat Regency. The location of the final disposal site is approximately 2 km from the Waisai, capital City of Raja Ampat.

One of the main duties of local government is to provide infrastructure and operational support for waste collection and disposal. This includes placing trash bins in strategic locations, organizing regular waste transport, and ensuring that waste is delivered to appropriate disposal sites. In addition to infrastructure, the local government also has an important role in public education and community involvement. However, saste management in Waisai cannot depend on government action alone, so residents, business owners, and tourists must be encouraged to sort waste, reduce plastic use, and keep the environment clean. Through campaign, socialization programs, and community cooperation, the local government can build environmental awareness and strengthen collective responsibility for maintaining a clean and healthy city.

Meanwhile, geographically, Raja Ampat Regency consists of small islands with rapid increase of human population as well as the growing tourists that also generate waste. The research published by (Deni et al., 2026) highlights tourism-related waste as a growing pressure, given that Raja Ampat known as an international tourism and geopark destination. The relevance of this research to local government lies in the fact that such waste projections require long-term policy planning, infrastructure development and institutional coordination. The government has the responsibility to prepare waste-management strategies that

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respond to population growth, tourism expansion, and the geographical characteritics of Raja Ampat.

Furthermore, these have also brought processing sociological, ecological, and economic implications to the sensitive locality of small islands. Small island communities are unable to practice waste reduction as they depend on imported goods brought into the island, and waste brought into the island is not under their control. Due to the limitation in land availability and financial resources, the amount of waste produced exceeds the island's capacity. As a result, waste produced from the hotels, local business, manufacturing business, and society are transported directly to the Waste Bank of Sorong Raya.

This requires fundamental change in the implementation of state and local (or municipal) governments (Lane et al., 2024). State-level waste policies are beginning to mandate consistent and more sophisticated waste management regimes that local governments, already responsible for collecting household waste, must comply with. Local governments are significant actors in municipal waste management and are strongly exposed to public expectations for the management of household waste that are also evolving in the context of broader environmental concerns. (Samosir, 2018) provided an example of the responsibility of the local government against sea pollution in Sea Waters of Sorong City, considering the marine waters of Sorong City are currently very strategic to support the activities of Raja Ampat archipelago tourism. Additionally, local governments is contributed in policies, drawing on principles of the waste hierarchy that prioritises strategies of waste avoidance (or prevention), followed by reuse and material recycling ahead of end-of-pipe solutions. The most recent of Raja Ampat Regency's local regulation of Peraturan Daerah (PERDA) No. 13 in 2014 concerning waste management. The key contribution of this framework is to build conceptual understanding of the transformative capacity of local government in sustainability transition by cultivating the households in waste management.

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Hence, the role of a local government is to be a provider of infrastructures and basic services to support the communities' wellbeing.

2.4 Collaborative Governance

In recent years, in the practice of modern state administration, collaboration has become a new concept in implementing governance, especially decision-making and policy implementation by always integrating the government, society and non-governmental institutions to solve various public issues. For instance, comprehensive challenges within social, cultural, political, economic, and environmental challenges that may impact local democratic participation and government atmosphere.

Waste management challenges are significant in the pursuit of sustainable development. Achieving sustainability necessitates an accountable environmental stewardship to preserve natural resources for future generations. Effective waste management encompasses the oversight of public health, protection of natural resources and to convert waste into a resource rather than a problem. The importance of these measures is evident in efforts to reduce the human ecological footprint, including the adverse effects of human activities on the environment (Hariyani et al., 2025). Key strategies involve the optimal use of natural resources, adoption of eco-friendly technologies, and implementation of safe and efficient waste management practices (Hajam et al., 2023). To achieve sustainable development goals, active involvement from various stakeholders including government, corporate sector, civil society, and academia- is essential.

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Collaborative governance is a framework in public administration that emphasized the involvement of multiple actors in addressing public concerns that cannot be solved by government alone. Modern public issues are often complex, cross-sectoral, and interdependent, requiring cooperation between government institutions, private actors, civil society organizations, communities, and other

stakeholders. In this context, collaborative governance emerges as an alternative to hierarchical and government-centred approaches by promoting joint participation, dialogue, and shared responsibility in decision-making and program implementation.

(Ansell & Gash, 2008) defined collaborative governance as: *"A governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets".*

This framework emphasizes several important characteritics of collaborative governance including the involvement of public agencies, the direct participation of non-state actors, the existence of a formal forum, the use of deliberative processes, and the orientation toward consensus and collective decision-making. Collaborative governance is not merely consultation or coordination, but a deeper process of joint engagement among stakeholders. Collaborative governance differs from traditional governance because it does not place government as the only dominant decision-maker. In traditional bureaucratic systems, government agencies usually design and implement policies through hierarchical authority. By contrast, collaborative governance recognizes that public problems often require knowledge, resources, legitimacy, and participation from actors outside government. Stakeholders are not only treated as beneficiaries or policy targets, but also as active participants in identifying problems, formulating solutions, and implementing collective actions. This makes collaborative governance more participatory and interactive than conventional administrative approaches.

The concept of collaborative governance is also closely related to deliberation and consensus-building. Deliberation refers to a process in which stakeholders exchange information, express interests, discuss alternatives, and seek mutual

understanding. Consensus does not necessarily mean that all actors fully agree on every issue, but rather that decisions are reached through dialogue and are acceptable to the stakeholders involved. (Ansell & Gash, 2008) emphasize that collaborative governance is consensus-oriented because it aims to reduce conflict and create shared ownership of decisions. This process is important because policies or programs are more likely to be supported when stakeholders feel involved in their formulation and implementation.

Another important feature of collaborative governance is interdependence among actors. Collaboration becomes necessary when no single actor has sufficient authority, resources, information, or capacity to solve a problem independently. Government may have legal authority, but communities may possess local knowledge, private actors may provide resources or innovation, and civil society organizations may contribute advocacy and mobilization. Collaborative governance therefore functions as a mechanism for integrating different capacities and perspectives. Through collaboration, stakeholders can combine their resources and responsibilities to achieve outcomes that would be difficult to achieve individually.

Collaborative governance also requires trust, communication, and accountability. Since stakeholders often come from different institutional backgrounds and may have different interests, collaboration requires continuous interaction to build mutual confidence. Trust is important because it reduces suspicion and encourages actors to share information and commit to collective goals. Communication is needed to clarify expectations, responsibilities, and decisions. Accountability is also necessary to ensure that stakeholders fulfill their roles and that the collaborative process remains transparent and credible. Without these elements, collaboration may become symbolic rather than substantive.

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In summary, collaborative governance can be understood as a participatory and deliberative governance approach that brings together public and non-public actors to address shared problems through collective decision-making and joint action. It is especially relevant for complex public issues because such issues require coordination across sectors, shared resources, and sustained stakeholder commitment. The concept provides a useful theoretical basis for analysing how collaboration is formed, how stakeholders interact, and whether collective governance arrangements are able to produce effective and sustainable outcome

This explains why in waste management it is necessary to apply the principles of collaborative governance because waste management is a problem that is in the interest and responsibility of all stakeholders together; public and non-public actors to address shared problems through collective decision-making and joint action. It is especially relevant for complex public issues because such issues require coordination across sectors, shared resources, and sustained stakeholder commitment. The concept provides a useful theoretical basis for integrating how collaboration is formed, how stakeholders interact, and whether collective governance arrangements are able to produce effective and sustainable outcomes.

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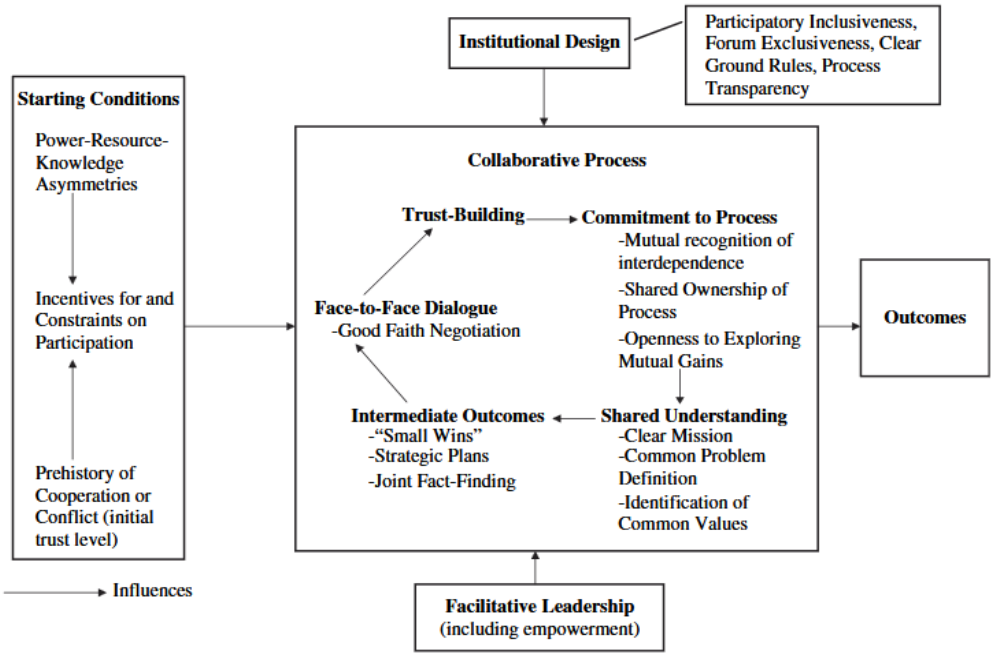


Figure 3. Model Collaborative Governance by (Ansell & Gash, 2008)

The picture depicts the Collaborative Governance Model developed by (Ansell & Gash, 2008). The model describes that collaborative governance is not a simple one-way process, but a dynamic interaction among several components which influence the success and or failure of collaboration. The main components shown in the model are starting conditions, institutional design, facilitative leadership, and collaborative process.

2.4.1 Starting Conditions

In the collaborative governance model proposed by (Ansell & Gash, 2008), starting conditions are important, as they influence whether stakeholders are willing, motivated, and able to participate in collaboration. These conditions include three main aspects: power-resource-knowledge asymmetries, incentives for and constraints on participation, and the prehistory of cooperation or conflict among stakeholders. Starting conditions becoming the initial circumstances that shape the possibility and quality of collaboration before the collaborative process

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formally begins. As collaboration does not begin in a neutral situation: rather, it is shaped by existing relationships, capacities, interests, and institutional contexts.

Power-resource-knowledge asymmetry between stakeholders more likely focus in unequal distribution of authority, financial resources, technical capacity, information or expertise. In many government administration, certain stakeholders may have stringer institutional authority or better access to information, while others may have limited capacity to influence decision-making. Ansel argue that such imbalances can affect the fairness and effectiveness of collaboration because weaker stakeholders may become passive participants rather than active decision-makers. If these asymmetries are not addressed, collaboration may become dominated by powerful actors and fail to reflect the interests of all stakeholders involved. Moreover, the challenge of power imbalances is associated with distrust or weak commitment, as the important stakeholders do not have the organizational infrastructure to be featured in collaborative governance frameworks.

The second component is incentives for and constraints on participation. Stakeholders are more likely to participate in collaborative governance when they perceive clear benefits from involvement, such as access to resources, problem-solving opportunities, recognition, or shared outcomes. When stakeholders view themselves as having strong participant, it could be also be limited by several constraints, including lack of time, insufficient resources, low trust, limited knowledge, unclear benefits, or previous negative experiences.

The third aspect is the prehistory of cooperation or conflict among stakeholders. Previous relationship affects how actors enter the collaborative process. A history of cooperation may create trust, familiarity, and willingness to work together, while a history of conflict may create suspicion, resistance, or reluctance to collaborate. (Ansell & Gash, 2008) emphasize that trust is often influenced by

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prior interaction among stakeholders, making prehistory an important foundation for future collaboration.

Starting conditions are significant because they shape the early dynamics of stakeholder's interaction. If stakeholders begin with unequal resources, weak incentives, or low trust, the collaborative process may face difficulties from the beginning. Conversely, if stakeholders have shared concerns, clear benefits, and previous cooperative experiences, collaboration is more likely to develop positively. Thus, starting conditions serve as the foundation for understanding why collaborative governance succeeds or fails in a particular context.

2.4.2 Facilitative Leadership

Facilitative leadership is a central component in collaborative governance due to the significance guiding of stakeholder through a process that is formal, deliberative, and consensus-oriented. Their model explains collaborative governance as a governing arrangement in which public agencies directly engage non-stakeholders in collective decision-making to make or implement public policy or manage public programs. In this context, leadership is not mainly about giving commands or making unilateral decisions. Instead, facilitative leadership provides "essential mediation and facilitation" for the collaborative process, especially because collaboration often emerging and sustaining high-performing teams. As a result, the collaboration sometimes involves with different interests, levels of power, and histories of conflict (Bens, 2007).

A further argument made by (Ansell & Gash, 2008) is that facilitative leadership becomes especially important when there is power, resource, or knowledge imbalances among stakeholders. If stronger actors dominate the process, collaboration may lose legitimacy and weaker stakeholders which may be unable to participate meaningfully (Ansell et al., 2020). Furthermore, facilitative leadership must also involve empowerment. Leaders need to ensure that less

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powerful or disadvantage stakeholders have a meaningful voice in the collaborative forum. In this sense, facilitative leadership is not neutral in a passive way; rather, it actively supports fair participation so that the process does not become manipulated by powerful interests. By enhancing the potential of participatory arenas, successful collaborative governance depends not only on the presence of stakeholders but also on the quality and equality of their participation.

Surprisingly, (Ansell & Gash, 2008) also note that facilitative leadership may involve certain tensions. For example, when trust is low and conflict is high, stakeholders may need an honest broker who is accepted as neutral by all parties. Yet when power is unequal or incentives to participate are weak, the leader may need to intervene more actively to empower weaker actors or keep stakeholders involved. This creates a possible tension between neutrality and intervention. If the leader intervenes too strongly, some stakeholders may question the leader's neutrality; but if the leader remains too passive, weaker stakeholders may be excluded or dominated. The main argument in (Ansell & Gash, 2008) concept of facilitative leadership is that collaborative governance requires leaders who can balance neutrality, mediation, empowerment, and direction in order to sustain trust, participation, and commitment to the collaborative process.

2.4.3 Institutional Design

Institutional Design acts as the "rules of the game" shaping the collaborative space by establishing formal and informal rules, structures, and procedures on the daily basis. In the model proposed by (Ansell & Gash, 2008), institutional design determines how stakeholders are included, how the collaborative forum is structured, how decisions are made, and how transparency is maintained. It provides the framework that enables collaboration to operate in an organized, legitimate, and accountable manner. Without a clear institutional design, collaboration may become informal, inconsistent, or dominated by certain actors.

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According to (Ansell & Gash, 2008), institutional design consists of four key elements: participatory inclusiveness, forum exclusiveness, clear ground rules, and process transparency. Participatory inclusiveness relates to the involvement of relevant stakeholders; who are being affected by or have an interest in the issue being addressed. Collaborative governance requires that key actors that are not excluded from the process, because broad participation strengthens legitimacy, representation, and commitment. When participation is limited, the collaborative process may fail to reflect the needs and interest of stakeholders,

Forum exclusiveness emphasizes to the existence of a recognized collaborative forum where stakeholders interact, deliberate, and coordinate. In collaborative governance, the forum should function as the main space for discussion and decision-making among participants. This means that stakeholders should perceive the forum as meaningful and relevant to the governance process. If important decisions are made outside the collaborative forum, stakeholders trust and commitment may decline because the forum becomes symbolic rather that substantive.

Clear ground rules are also essential in institutional design. These rules define as how stakeholders participate, how information is shared, how decisions are made and how responsibilities are distributed. Clear rules help reduce uncertainty and prevent domination by more powerful actors. They also allow stakeholders to understand their roles, rights, and obligations within the collaborative process. Without clear ground rules, collaboration may be weakened by confusion, overlapping responsibilities, and inconsistent participation.

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Process transparency associated with the openness in the collaborative process. Transparency ensures that stakeholders have access to relevant information, understand how decisions are made, and can monitor whether agreed procedures are followed. In collaborative governance, transparency, stakeholders are more

likely to believe that the collaboration is fair and credible. Conversely, lack of transparency may create suspicion and weaken stakeholder commitment.

Overall, institutional design plays an important role in shaping the quality of collaborative governance. A strong institutional design ensures inclusive participation, provides a recognized forum, establishes clear rules, and maintains transparency throughout the process. These elements help create a fair and structed environment for collaboration. Institutional is not merely an administrative arrangement, but a crucial condition that supports meaningful stakeholder engagement and collective decision-making.

2.4.4 Collaborative Process

The collaborative process is the central component of the collaborative governance model proposed by (Ansell & Gash, 2008). This process focuses on the way stakeholders interact, communicate, build relationships, and work collectively toward shared goals. While starting conditions, institutional design, and facilitative leadership provide the context and structure for collaboration, the collaborative process explains how collaboration actually develops among stakeholders. This process is dynamic and cyclical, meaning that collaboration grown through repeated interaction rather than through a single meeting or formal agreement.

The collaborative process consists of five key elements: face-to-face dialogue, trust building, commitment to the process, shared understanding, and intermediate outcomes. These elements are interconnected. Face-to-face dialogue provides the foundation for communication among stakeholders. Through repeated dialogue, stakeholders can begin to build trust. Trust then supports commitment to the collaborative process, while encourages stakeholders to develop shred understanding and work towards collective outcomes.

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1) Face-to-face dialogue is the first element of the collaborative process. It refers to direct communication among stakeholders, where they can exchange information, express concerns, negotiate interests, and discuss possible solutions. (Ansell & Gash, 2008) emphasize that face-to-face dialogue is necessary for good-faith negotiation. It allows stakeholders to reduce misunderstanding and build mutual recognition. Without direct dialogue, collaboration may become limited to formal coordination and may not produce meaningful interaction among actors.
2) The second element is trust building. Trust is essential in collaborative governance because stakeholders often come from different backgrounds, have different interests, and may not initially believe in one another's commitment. Trust is not created instantly; it develops gradually through consistent communication, transparency, and fulfilment of responsibilities. When trust is strong, stakeholders are more willing to share information, accept collective decisions, and continue participating in the collaboration. Conversely, weak trust may lead to suspicion, low participation, and ineffective cooperation.
3) The third element is commitment to the process. Commitment refers to the willingness of stakeholders to remain involved in collaboration and support the agreed process. Ansell and Gash (2008) explain that commitment is influenced by mutual recognition of interdependence, shared ownership of the process, and openness to mutual gains. Stakeholders become committed when they understand that the problem cannot be solved by one actor alone and that cooperation provides benefits for all parties. Therefore, commitment is not only shown through attendance in meetings, but also through active participation, responsibility, and consistency.
4) The fourth element is shared understanding. Shared understanding means that stakeholders develop a common perception of the problem, objectives,

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values, and possible solutions. In collaborative governance, actors may initially define the problem differently based on their institutional roles or interests. Through dialogue and trust building, they can gradually develop a shared mission and common goals. This element is important because collaboration becomes difficult when stakeholders do not agree on what problem they are trying to solve or what outcomes they want to achieve.

5) The fifth element is intermediate outcomes. Intermediate outcomes refer to short-term achievements or "small wins" that occur during the collaborative process. These outcomes may include agreements, improved communication, increased participation, joint plans, or early program achievements. (Ansell & Gash, 2008) argue that intermediate outcomes are important because they help maintain motivation and strengthen trust among stakeholders. Small successes can demonstrate that collaboration is useful and encourage participants to remain committed to the process.

Thus, collaborative process shows that collaborative governance is built through continuous interaction, trust, commitment, shared understanding, and visible progress. It is not enough for stakeholders to be formally involved; they must also communicate regularly, trust one another, understand shared goals, and produce outcomes that sustain the collaboration. Therefore, the collaborative process determines whether collaborative governance becomes substantive and effective or remains merely procedural.

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