



The circular economy in practice

Using an action research approach to determine the role of the Grondstoffenstation in shaping multiple value creation in the Afrikaanderwijk

Master Thesis Report - Tadé Whenu (2025)

Presented to the Afrikaanderwijk Co-op, D3C and Design & Publics

LEIDEN UNIVERSITY & TU DELFT

A THESIS OF THE MSC INDUSTRIAL ECOLOGY

The Circular Economy in practice

*Using an action research approach to determine the role of the
Grondstoffenstation in shaping multiple value creation in the
Afrikaanderwijk*

Presented to:
Design & Publics
Afrikaanderwijk Co-op

Presented by:
Tadé Whenu
s3985105 (Leiden University)
4867211 (TU Delft)

Supervised by:
Dr. ir. U. Pesch (1st)
Prof. dr. ir. J.W. Erisman (2nd)
Dr. ir. E. Leclercq (External)

November 8, 2025



Universiteit
Leiden
The Netherlands

 TU Delft
Delft
University of
Technology

Preface

Throughout my time studying at the universities of Leiden and Delft, I have been able to gain a very rich and diverse set of skills. During my technocentric bachelor program, I realised it did not prepare me to battle sustainability issues at hand. I took a minor program where I had the opportunity to be coached by a lecturer that has shown me the beauty of going beyond sustainability. They inspired me about questions of justice, inclusivity, world-view and going further than sustainability: shouldn't we be able to have a positive impact on our planet and our people, instead of minimising damage to others, mother earth and her ecosystems. This inspired me to enrol in the Industrial Ecology master program, with hope and courage I could learn the tools I needed to achieve these goals, to contribute to transformative change.

I have learned a lot throughout the program, and I am grateful for the people I have met, including students and staff. I arrived in a world where creativity, criticism, constructivism and collaboration could all co-exist. I learned about wicked societal problems, deeply complex systems and how to work on them through the use of many different perspectives. But it wasn't everything I sought. I felt that questions about equity and justice were often missing. The social dimensions of transitions were severely under-represented in my opinion. So I set out, together with some other students, to determine whether this feeling was shared by others (spoiler: yes, it was), and how a program like Industrial Ecology could embed more these social dimensions of sustainability, such as race, class, colonialism, and power. We were able to show from an academic perspective that these social dimensions are critical element to sustainability- and climate education.

Since these elements were under-represented in my master program, I chose to challenge myself in this thesis. Via the lecturer that coached me in the minor program, I came into contact with my external supervisor and the AWC project. This formed an ideal opportunity: I could practice the co-creation of research and its outcomes, experiencing how participatory action research may be in practice. And although there is still a lot for me to learn and experience, I am extremely grateful for the chance I received.

I would like to thank my academic supervisors, U. Pesch and J.W. Erisman, my external supervisor and her colleague, E. Leclerq and E. Rijshouwer, everyone from the Afrikaanderwijk Co-op, including Annet, Ivan, Bailey, Boris and all the others I was able to work with. Lastly, I would like to thank my closest friends, family and partner for the mental support they have given me throughout this period. I would not have been able to do this without all of them.

Abstract

This thesis investigates how the Grondstoffenstation, a Circular Community Initiative in the Afrikaanderwijk in Rotterdam, creates multiple forms of value and how this value creation can be structurally supported by policy and governance frameworks. The study uses a Participatory Action Research approach and participatory observation, interviews, content analysis, and a focus group as its methods.

It was explored which ecological, social, cultural, aesthetic, and financial values are contributed by the GSS to the Afrikaanderwijk. Through the Circular Value Flower (CVF) framework, these values are mapped across stakeholder groups, highlighting diverse perspectives and practices based in co-operation. The research demonstrates that while some values can be meaningfully quantified, others are best conveyed through qualitative narratives. The findings show that structural and bureaucratic barriers hinder long-term collaboration between initiatives and public institutions, despite alignment in objectives. The thesis concludes that initiatives like the GSS should be regarded not merely as temporary projects, but as public service providers and as agents for public value contestation. Recognising their broader societal impact requires more inclusive, long-term, and value-driven policy approaches.

Public Summary

The Grondstoffenstation is an initiative of the Afrikaanderwijk Co-op that demonstrates how circular economy practices can take root in a local community. This thesis explored the values created through its activities and their relevance to the surrounding ecosystem of residents, vendors, businesses, and municipal departments jointly sustaining circular practices. It shows what public values the Grondstoffenstation creates, for whom, and what this implies for the municipality. It also highlights how continued collaboration is essential to strengthen the shared goals of both parties. This Public Summary is intended for the Afrikaanderwijk Co-op and the municipal officials they cooperate with, to inform discussions on decision-making around the Grondstoffenstation.

The Grondstoffenstation achieves several goals central to the municipality of Rotterdam. It keeps the Afrikaandermarkt clean, reduces waste incineration and dumping, provides work experience and jobs for local residents, and strengthens neighbourhood ownership. It also gives visibility to circular practices in a part of the city where this is rarely seen. Thus, it not only manages waste but also creates environmental, social, aesthetic, cultural, and financial value in one system, summarised in Figure 1. Its effects are tangible: a cleaner market, inspiring workshops, and meaningful work, coaching, and learning-by-doing for those otherwise distant from the labour market.

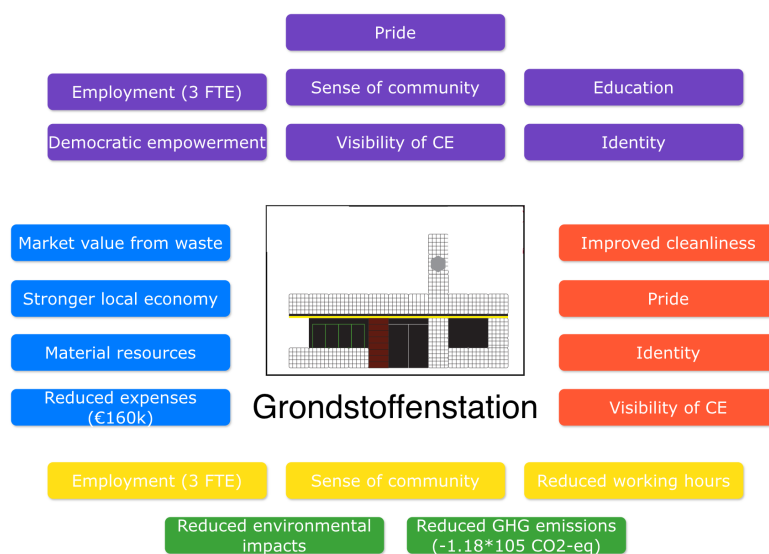


Figure 1: Values created by the GSS with first, indicative quantifications.

From a municipal perspective, the outcomes show significant financial benefits. Estimated savings on waste disposal and cleaning costs range between €126.000 and €183.000 per year, including standard wage subsidies. At the same time, social and cultural values emerge: three full-time positions have provided work experience to more than ten neighbourhood residents. Continued collaboration thus sustains a public service that delivers societal value and financial efficiency. These savings are summarised in Figure 2. However, not all values can be captured in numbers. Social inclusion, pride, and democratic empowerment remain essential, yet quantifying them risks distorting their meaning. It is therefore recommended to assess public value created by the Grondstoffenstation mainly through qualitative narratives. Only when data is available and the meaning of a value is not distorted, use indicative numbers.

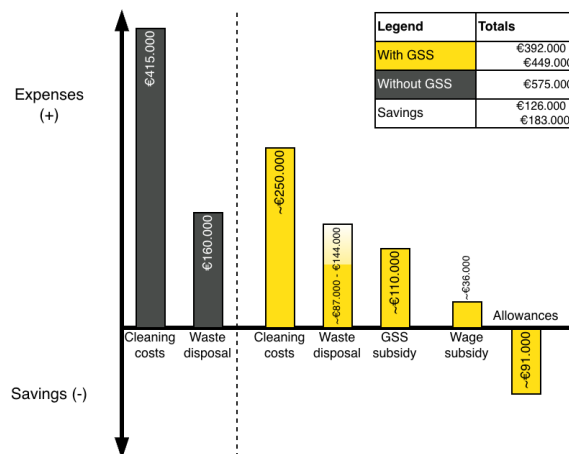


Figure 2: Municipal costs savings with respect to situation without GSS (indicative)

The collaboration between the municipality and the Grondstoffenstation is organised in six work packages that translate shared goals into concrete activities like education and neighbourhood engagement, local employment and improved waste separation and processing. Each contributes directly to the city’s circular and socio-cultural policy objectives. If cooperation were to end, waste separation and recycling quality would decline, local jobs and engagement would diminish, and educational and cultural activities would disappear. Innovation space for the circular economy in Rotterdam would shrink, weakening trust between residents and the municipality and undermining social dimensions of the circular economy. In essence, withdrawing support risks losing the very values the municipality seeks to strengthen as well as facing higher cleaning and disposal costs.

The research also shows that cooperation is not only about funding, but about how the relationship is organised. Delayed subsidy payments and unclear communication between departments have caused uncertainty for the Grondstoffenstation. These issues reflect a broader challenge: community-based initiatives often do not fit within existing administrative structures, even when they serve public goals. The thesis concludes, in line with previous studies, that effective cooperation depends on the municipality embracing initiatives like the Grondstoffenstation.

Many municipal officials already recognise this need. If the Grondstoffenstation and municipal partners jointly articulate the public value being created and support it with relevant data, they can help make municipal executives more aware that the Grondstoffenstation represents an investment in public value rather than a cost. Tools such as the Verschilmakersplein, recommended by the Ministry of Infrastructure and Water Management, can assist this process. The initiative’s long-term impact depends on stable, trust-based cooperation, which benefits both sides by embedding the initiative’s contribution to public value within the municipality itself.

Beyond this municipal perspective, the thesis also highlights broader insights. The Grondstoffenstation shows how a local cooperative can function as a public agent that creates value across financial, social, aesthetical, ecological and cultural dimensions, and that it can achieve those goals through the circular economy as a means. To maintain these public values, long-term recognition and a warm embrace by the municipality of the Grondstoffenstation is strongly recommended. This thesis shows that the subsidy is not a dependency of the Grondstoffenstation, but an instrument through which the municipality actively invests in public value creation. Without it, both financial returns and innovation capacity for a more circular neighbourhood would sharply decline. Ultimately, the Grondstoffenstation embodies a form of the New Public Governance ideal: a way for the municipality to achieve public goals through cooperation, rather than delegation or outsourcing.

Contents

1	Introduction	1
2	Conceptual Framework	4
2.1	Theoretical background	4
2.1.1	Multiple Value Creation and New Public Governance	4
2.1.2	Circular Community Initiatives as Agents of MVC	5
2.2	Research Objectives	6
2.3	Research Approach	6
2.4	Research Questions	7
2.5	Conceptual Framework	8
2.5.1	Identifying and conceptualising values (RQ1)	9
2.5.2	Understanding practices and processes of value creation (RQ2)	9
2.5.3	Exploring the role of quantification (RQ3)	9
2.5.4	Identifying barriers and opportunities (RQ4)	9
2.5.5	Governance and policy support for CCIs (RQ5)	9
2.6	Report structure	10
3	Methodology	12
3.1	Data collection methods	12
3.1.1	Participatory Observation	12
3.1.2	Interviews	13
3.1.3	Content Analysis	14
3.1.4	Focus group	16
3.2	Data analysis: the Circular Value Flower	16
3.2.1	Iterative coding	16
3.3	Ethical procedures	17
3.3.1	Potential pitfalls and mitigation strategies	17
4	Values and beneficiaries	19
4.1	Stakeholders	20
4.2	Value categories and reflection	27
5	Processes & history of value creation	29
5.1	Current practices	29
5.1.1	System parts	29
5.1.2	Resource cycles	32
5.1.3	Enabling capital	33
5.2	The history of value contestation at the Afrikaanderwijk	34
5.2.1	From pilot to practice (2017–2019)	34
5.2.2	From R2C to Right to Cooperate (2019–2023)	35
5.2.3	New Public Governance (2024–2025)	35
6	Quantification and contextualisation	38
6.1	Quantifying values: complement instead of replace	38
6.2	The case of the Grondstoffenstation	39
6.2.1	Avoided CO2 emissions	46
6.2.2	Financial flows through the GSS	47
6.2.3	An estimate on municipal savings	48
6.2.4	Reflection on quantification	50

7 Discussion	51
7.1 Implications for the Grondstoffenstation, the Afrikaanderwijk and the municipality .	51
7.1.1 Barriers	51
7.1.2 Opportunities	55
7.2 Implications for future policy and regulation	57
8 Conclusion	61
8.1 Findings	61
8.2 Limitations	62
8.3 Recommendations	63
9 Personal Reflection	65
9.1 The experience of writing my master’s thesis	65
9.2 A note on the usage of AI	65
References	67
A Observation summaries	71
A.1 Week 1 (23 - 29 juni)	71
A.1.1 Observatiemomenten:	71
A.2 Week 2 (30 juni - 6 juli)	72
A.2.1 Observatiemomenten:	72
A.3 Week 3 (7 - 13 juli)	72
A.4 Week 4 (14-16 juli)	74
A.5 Week 5 (25-29 aug)	74
A.6 Week 6 (8-12 september)	75
B Focus group documents	76
B.1 Materials	76
B.2 Results	77
C Informed Consent Forms	80
D Basis interview guide	83
E Values	84
F Estimates for municipal expenses	86

List of Figures

1	Values created by the GSS with first, indicative quantifications.	III
2	Municipal costs savings with respect to situation without GSS (indicative)	IV
1.1	The Grondstoffenstation surrounded by waste pallets (Photo by E. Rijshouwer (2025))	2
2.1	The layers of the CVF (Leclercq, 2025).	8
2.2	Research flow diagram	11
3.1	Researcher and employees collaborating and discussing (by E. Rijshouwer (2025)) . . .	12
4.1	Values created by the GSS	19
4.2	Pallets of waste handed in by market vendors (by E. Rijshouwer (2025))	24
4.3	Workshop on paper recycling taking place at the GSS (by E. Rijshouwer (2025))	27
4.4	Categorised value concepts per beneficiary	28
5.1	System parts: harvest	29
5.2	System parts: processing	30
5.3	System parts: storage	30
5.4	System parts: access	31
5.5	System parts: distribution	31
5.6	The Afrikaandermarkt waste flows	32
5.7	The evolution of value contestation at the GSS	34
6.1	Ecological values created by the GSS	40
6.2	Aesthetical values created by the GSS	41
6.3	Financial values created by the GSS	42
6.4	Cultural values created by the GSS	43
6.5	Social values created by the GSS	44
6.6	Annual financial flows at the GSS	47
B.1	Focus group worksheet by Leclercq and Rijshouwer (2025)	76
B.2	Results (a) by Design & Publics (2025)	77
B.3	Results (b) by Design & Publics (2025)	78
B.4	Results (c) by Design & Publics (2025)	79
C.1	Interview Informed Consent Form	80
C.2	Workshop Informed Consent Form (a)	81
C.3	Workshop Informed Consent Form (b)	82

List of Tables

2.1	Layers of the CVF (Smit & Leclercq, 2023).	9
3.1	The documents used in the content analysis.	15
3.2	Ethical procedures according to the TU Delft HREC procedures.	17
5.1	Resource flows at the Grondstoffenstation, for 2024 (Afrikaanderwijk Co-op, 2025) . . .	32
6.1	Summary of quantification potential across value categories	45
6.2	Avoided CO ₂ emissions by recycling	46
6.3	Waste disposal expenses (Municipal data)	49
6.4	Waste disposal expenses (Renes data)	49
6.5	Material and labour expenses	49
6.6	Savings from reduced allowances, 2018–2025	50

List of Abbreviations

Abbreviation	Meaning
AWC	Afrikaanderwijk Co-op
CCI	Circular Community Initiative
CE	Circular Economy
CVF	Circular Value Flower
D3C	Data Commons for Cooperative Consultancy
FTE	Full-Time Equivalent
GSS	Grondstoffenstation
LCA	Life Cycle Assessment
MVC	Multiple Value Creation
NPCE	Nationaal Programma Circulaire Economie
NPG	New Public Governance
ORR	Ombudsman Rotterdam-Rijnmond
PAR	Participatory Action Research
WW	Werkloosheidswet (Dutch Unemployment Law)

1 | Introduction

In the Netherlands, resource management is typically handled through large, centralised systems that often overlook opportunities for local, circular solutions (Smit & Leclercq, 2023). For example, rainwater is frequently mixed with household wastewater, resulting in the loss of valuable nutrients that could otherwise be recovered and reused locally (Smit & Leclercq, 2023). These challenges are part of a broader set of sustainability pressures. The Dutch government recognises that accelerating climate change, rapid biodiversity loss, and increasing stress on human living environments are closely linked to the excessive use of raw materials for products, energy, and food (Ministerie van Infrastructuur en Waterstaat, 2023a). This resource dependency not only exceeds the Earth's ecological boundaries but also leaves the Netherlands vulnerable to global supply disruptions and geopolitical dynamics. To safeguard a liveable planet and create a more resilient economy, the government has identified the transition to a Circular Economy (CE) as essential (Ministerie van Infrastructuur en Waterstaat, 2023a). In this context, the concept of Multiple Value Creation (MVC), the simultaneous generation of social, ecological, and economic benefits, is increasingly seen as crucial for ensuring that circularity not only reduces environmental pressures but also contributes to inclusive and just societal outcomes (Dembek et al., 2015; Smit & Leclercq, 2023).

The CE can be described as a systemic approach to resource management that aims to close material and nutrient loops within the Earth's social and ecological boundaries, often described in line with the "doughnut economy" (Raworth, 2017). It goes beyond the linear model of production and consumption by seeking to recover, reuse, and recirculate resources in ways that reduce environmental pressure while also fostering social and economic benefits. Importantly, the CE is not limited to technical efficiency or recycling but is increasingly understood as a transformative framework that requires collaboration among governments, businesses, and communities to reorganize design and development processes, empower citizens, and enable MVC at different scales (Kirchherr et al., 2023; Rood & Kishna, 2019; Smit & Leclercq, 2023).

The Dutch government acknowledges that achieving a fully circular economy by 2050 requires a fundamental systemic transition that extends beyond technological innovation (Ministerie van Infrastructuur en Waterstaat, 2023a). In its national program, the government emphasises that the transition must also strengthen social well-being through decent jobs, inclusive workplaces, and a fair distribution of costs and benefits across society. Circular business models are therefore expected to generate multiple values, rather than focusing exclusively on material efficiency (Ministerie van Infrastructuur en Waterstaat, 2023a).

Within this vision, Circular Community Initiatives (CCIs)¹ are increasingly recognised as critical enablers of the circular transition (Ministerie van Infrastructuur en Waterstaat, 2023a; Rood & Kishna, 2019; Wittmayer et al., 2020). CCIs demonstrate how resource cycles can be closed at the neighbourhood scale while simultaneously creating social benefits such as employment, education, and stronger community ties (Smit & Leclercq, 2023). By embedding circular practices into everyday life, such initiatives embody the government's ambition to make circular choices logical, easy, and fair for all citizens (Ministerie van Infrastructuur en Waterstaat, 2023a).

Societal challenges and sustainability transitions gain meaning through these CCIs (Wittmayer et al., 2014). They function as experimental grounds for sustainability transitions, making them valued by policymakers seeking systemic change (Wittmayer et al., 2020). Moreover, CCIs contribute to

¹A local initiative, ran by local citizen coöperations, focussed on creating a closed loop of resources.

democratic values and public impact, rely on self-governance in internal decision-making, and collaborate with governmental and political institutions to secure support for their efforts (Igalla et al., 2019).

While CCIs are often celebrated for these characteristics and their potential to generate *multiple* values, Teasdale (2011) shows that these initiatives are often redefined in policy discourses as instruments for delivering *public* value. This creates a contradiction: many of these initiatives originally emerge from dissatisfaction with the state or market, yet are later co-opted into state agendas (Teasdale, 2011) as serving public value creation. This reframing risks shifting their identity and purpose from community-driven and problem-solving to serving government-defined goals. This instrumentalism is also visible in the Dutch CE policy, where the national program presents citizens and communities as crucial actors for making circular choices and behaviour “logical, easy, and fair” (Ministerie van Infrastructuur en Waterstaat, 2023a). However, if embraced by governmental bodies, CCIs could help pioneer in transitions, creating new forms of knowledge and practice, which could spread throughout the broader system. In practice, however, these initiatives often face significant barriers when interacting with municipalities, illustrating the gap between their origins and their instrumental framing (Milieu Centraal, 2022; Smit & Leclercq, 2023).

The heart of the issue lies in the fact that governmental bodies, which are essential for collaborations, can also be a difficult partners to work with for these initiatives (Milieu Centraal, 2022). There is often a lack of support for local initiatives, and even when it exists, navigating through various departments to allocate budgets, knowledge, and expertise for local initiatives can be challenging (Smit & Leclercq, 2023).

One such initiative is the Grondstoffenstation (GSS) in Rotterdam, a grassroots project on the Afrikaanderplein in Rotterdam. Established by the Afrikaanderwijk Co-op (AWC) in 2017, this project emerged as a response to high levels of waste left after the weekly market, which attracts around 30,000 visitors. Rather than merely managing waste, the cooperative sought to reduce waste generation by addressing root causes, eventually transforming the GSS into a hub for material recovery and community engagement (Afrikaanderwijk Coöperatie, 2024; Leclercq & Rijshouwer, 2025).



Figure 1.1: The Grondstoffenstation surrounded by waste pallets (Photo by E. Rijshouwer (2025))

The GSS now processes approximately 700 tonnes of waste annually, recycling over 96% into prod-

ucts like biogas, compost, and 3D printing granulate. But in this project, the initiators aimed to create more value through local employment, various collaborations with neighbourhood citizens and rain-water collection for nearby school gardens (Afrikaanderwijk Coöperatie, 2024). In other words, they are creating multiple types of value, both for their community and for the CE.

As such, the initiative adopts the CE to create multiple values, central to the transition: it combines ecological benefits with social inclusion and economic opportunities. Its pioneering role makes it an ideal case to explore how CCIs contribute to the value governance in practice, and how current policy and governance frameworks may enable or constrain these initiatives.

The Grondstoffenstation and Afrikaanderwijk Co-op

The GSS initiative is part of the Afrikaanderwijk Co-op (AWC), as mentioned above. The AWC, based in the Afrikaanderwijk neighbourhood of Rotterdam, is a community-driven cooperative founded in 2013. Their mission is to explore and test new ways of living, collaborating and collective care, through a bottom-up approach. (Afrikaanderwijk Coöperatie, 2025a). They offer a diverse set of neighbourhood services, such as catering, cleaning, transport, textile production, culture and knowledge. All the work is carried out by neighbourhood members, and the AWC's earnings return to those same residents. The organisation is organised horizontally, where everyone earns the same salary, and responsibility and ownership is shared amongst the more than 80 members. All employees active at the GSS are employed by the AWC, and the AWC is responsible for the operations and execution of the project.

Introduction to the D3C Project

This study is part of the Data Commons for Cooperative Consultancies (D3C) project, part of the Faculty of Industrial Design Engineering at TU Delft, within the Knowledge and Intelligence Design group. The research project investigates how data can be collectively used to address societal challenges.

"Traditional approaches to citizen participation in research and policymaking often fall short of their promise. While citizens are invited to contribute through co-creation, participatory design, or citizen science initiatives, they typically remain on the sidelines – providing input without truly being part of the research team or benefiting from the outcomes. This disconnect can lead to frustration and distrust rather than meaningful collaboration." - Bourgeois (2025)

In the D3C project, a radically different alternative is explored: *"what if citizens themselves became the lead researchers, determining their research questions and controlling the data they collect?"*.

The AWC and the D3C project collaborate in their research; where the GSS functions as a living lab for the project, and the research outcomes are meant to be implemented in practice for the GSS, and the AWC as a whole. This study forms a basis to the continued research project by defining what value flows exist and where they emerge from, how they could be quantified with existing and new data, exploring what the main challenges are for the GSS in their value creation processes, and how future policymaking can support it in the future.

2 | Conceptual Framework

This chapter develops the conceptual foundation of the research. It first outlines the theoretical perspectives relevant to the transition towards a Circular Economy (CE). The discussion shows how values are contested, negotiated, and embedded in governance processes, and why Multiple Value Creation (MVC) offers may be a critical approach to this transition. Building on this, the chapter introduces Circular Community Initiatives (CCIs) as initiatives realising circular practices at the local level, and as sites where plural values are co-created in practice. The section concludes by synthesizing these insights into core concepts, research objectives, and guiding research questions.

2.1 Theoretical background

This section introduces the broader academic context of the role of Circular Community Initiatives (CCIs) in addressing sustainability challenges. It introduces Multiple Value Creation (MVC) and New Public Governance (NPG) as key frameworks for understanding how CCIs like the Grondstoffenstation (GSS) generate diverse public values.

2.1.1 Multiple Value Creation and New Public Governance

The concept of **Multiple Value Creation** (MVC) has become central in addressing complex societal challenges. Rather than producing a single outcome, MVC emphasizes the simultaneous creation of diverse types of value, such as economic, ecological, social, and cultural, and the alignment of these with broader public values (Dembek et al., 2015; Smit & Leclercq, 2023). Traditionally, value creation in the public sector was understood as a linear process managed by individual organizations (Bekkers & Tummars, 2018). More recent perspectives, however, highlight that public value creation requires collaboration across multiple stakeholders, known as **New Public Governance** (NPG), where co-creation and partnerships are key to tackling complexity (Bekkers & Tummars, 2018; Bianchi et al., 2021; Torfing & Triantafillou, 2013).

NPG marks a shift from hierarchical control and market-based management towards governance through collaboration and networks. It emerged as a response to the complexity of “wicked” societal challenges that no single actor can solve alone. Rather than steering or competition, NPG emphasises coordination, participation, and trust among interdependent actors who jointly define and realise public value (Torfing & Triantafillou, 2013). Within these collaborative settings, both formal and informal structures, like shared values and facilitative leadership are required to connect service delivery with long-term societal outcomes (Bianchi et al., 2021). Public value creation in this context becomes an open-ended and co-creative process that spans organisational boundaries (Bekkers & Tummars, 2018). In short, where multiple stakeholders negotiate what “public value” means in practice, NPG is about the way they are linked to values in general. It frames governance not as control, but as a collective, value-driven process through which multiple forms of value can emerge.

However, NPG can also be seen as an idealistic model. In practice, the realisation of its principles is often constrained by frictions with existing hierarchical and market-oriented governance logics. Bekkers and Tummars (2018) describe this as the “implementation gap” in public value governance. This implementation gap is where ambitions of collaboration, trust, and co-creation meet institutional barriers, fragmented responsibilities, and different political priorities. This tension raises important questions about how such collaborative ideals can take root within existing public systems, and how this may be better supported through future governance of public values.

Public values themselves are not fixed or universal. At the individual level, values function as guiding principles that shape motivations and preferences (Schwartz, 2012). At the public level, values are constructed and negotiated through socio-political processes that determine “what matters” in a given context (Bryson et al., 2014). Public values are therefore inherently plural and relational. They often act as boundary objects, enabling collaboration across diverse groups despite differences in interpretation (Schwanen, 2024; Star & Griesemer, 1989). This makes value creation not only about outcomes, but also about the processes through which values are defined, aligned, or contested. At the same time, claims of public value can become symbolic (“value-washing”) if not supported by credible practices and evidence (Geeraert & Van Bottenburg, 2025; Thabit et al., 2024). Effective governance of public value thus requires robust participation, negotiation, and sensitivity to broader institutional and political contexts. Transforming conflicts into constructive dialogue can even serve as an enabler for innovation and co-creation (Kuitert et al., 2023).

2.1.2 Circular Community Initiatives as Agents of MVC

The Circular Economy (CE) represents one domain where MVC is particularly relevant. CE is widely described as a systemic shift from linear production and consumption towards resource cycles that operate within ecological and social boundaries (Kirchherr et al., 2023; Raworth, 2017; Rood & Kishna, 2019). While early definitions emphasized technological efficiency, recycling, and productivity (Kirchherr et al., 2017), more recent scholarship stresses that CE must also address social and cultural dimensions (Ceddia et al., 2024; Friant et al., 2020). Critics warn that CE discourse remains largely technocentric and top-down, often overlooking justice, inclusion, and community empowerment (Friant et al., 2020; Hadfield et al., 2025; Hobson, 2015; Murray et al., 2015). From an MVC perspective, CE’s transformative potential lies not simply in closing material loops, but in aligning ecological values with public values such as social cohesion, well-being, and democratic participation.

This link becomes especially tangible in **Circular Community Initiatives** (CCIs), local grassroots organizations that aim to close resource loops while also generating wider public value. CCIs often combine ecological practices such as recycling or composting, with social outcomes like local employment, social cohesion, and democratic self-organization (Hobson, 2015; Igalla et al., 2019; Sekulova et al., 2023; Smit & Leclercq, 2023). CCIs are part of broader grassroots innovations, that address wicked problems such as sustainability and inclusion, often in contexts where state or market actors have fallen short (Wittmayer et al., 2020). In this sense, CCIs realise MVC in practice by embedding circular practices into everyday community life while simultaneously producing ecological, cultural, and social values.

Yet, the success of these CCIs is far from guaranteed. CCIs face recurring challenges with sustaining participation, securing funding, and navigating bureaucratic and institutional barriers (Feola & Nunes, 2013; Teasdale, 2011). Fragmented governance structures, temporary subsidy schemes, and instrumental framings of CCIs as mere policy tools undermine their long-term stability (Milieu Centraal, 2022). At the same time, examples of participatory instruments, collaborative value frameworks, and long-term partnerships show that supportive governance arrangements are possible (Duijn & Van Popering-Verkerk, 2018; Vos et al., 2025). This tension shows the need for governance frameworks that recognize CCIs as equal partners in New Public Governance, rather than as temporary extensions of governmental agendas.

The concept of MVC provides a bridge between CCIs and CE. While CE offers the systemic ambition of closing material loops within ecological and social boundaries (Kirchherr et al., 2023; Raworth, 2017), MVC concerns the process through which the initiatives balance and deliver different types of value at the same time. This can provide a bridge to realize their ambition in ways that may be more socially just and inclusive. Public value governance approaches can facilitate this integration by aligning diverse actors around plural understandings of value and embedding circular practices within broader societal transitions (Bryson et al., 2014; Geeraert & Van Bottenburg, 2025).

More specifically, according to Warnke et al. (2023), CCIs could be regarded as “collaborative infrastructures”: practical environments through which NPG can take shape. They function as the connective tissue of co-creation, providing arenas where diverse actors can jointly explore, deliberate, and experiment with public solutions through living labs, where citizens, researchers, and officials collaborate in real-life settings to test and refine innovations, and community hubs, which act as local platforms for shared learning, resource exchange, and dialogue (Warnke et al., 2023). In this sense, CCIs are not simply local experiments, but critical agents that may translate the principles of NPG into practice, enabling governance to emerge not from hierarchy or competition, but from collaboration: continuous interaction within shared spaces of experimentation and reflection. If values are inherently plural and negotiated in public processes, then CCIs may serve as the arenas where these negotiations take place. Their role in enabling MVC makes them crucial to embedding CE principles at the community level, and therefore they could be regarded as **agents of MVC**.

2.2 Research Objectives

On the basis of this theoretical background, the study sets out to examine how MVC is practiced within the GSS, a CCI in Rotterdam Zuid. The research is guided by the following four objectives:

1. Identify and conceptualise the multiple forms of value created by the Grondstoffenstation and for whom these values matter,
2. Analyse how the Grondstoffenstation realises MVC in practice, including the internal dynamics and governance processes that shape it,
3. Explore the barriers and opportunities that influence the ability of CCIs like the Grondstoffenstation to sustain and scale their value creation, and
4. Assess how policy and governments can better support CCIs as agents of MVC in public value creation.

2.3 Research Approach

It is increasingly acknowledged that research can be both a generative and performative practice, actively shaping the present and future of the world we live in (Cameron & Hicks, 2013). For this thesis, the approach is primarily *inductive*: theoretical insights are developed from empirical engagement with the GSS rather than imposed beforehand. Instead of testing predefined hypotheses, the research builds concepts from observed practices, participants’ perspectives, and collaborative reflection.

The study combines elements of Phenomenology and Participatory Action Research (PAR). A phenomenological approach is used to understand how participants themselves interpret and experience their practices (Gray, 2021). The task of the researcher is not to impose external theories, but to listen closely and reconstruct the logics that guide participants’ interpretations. At the same time, the PAR approach ensures that participants are not only subjects of study but also co-creators of the research process (Kindon et al., 2007; Wittmayer et al., 2014). Through cycles of observation, dialogue, and feedback, the research is designed to yield outcomes with both academic relevance and relevance to the GSS.

This combined approach aligns with the aim of the research: to investigate how MVC is realised in practice, and to generate insights that are directly meaningful for the GSS and its stakeholders. Participatory approaches, co-production of research outcomes can foster collaboration and facilitate dialogue amongst stakeholders (Warnke et al., 2023). This makes this approach especially relevant in the context of NPG, since it yields outcomes that support this dialogue, collaboration, and experimentation among the diverse actors involved in this research.

The approach is exploratory and descriptive: it seeks to map the different values being created, the processes that shape them, and the opportunities and barriers that affect them. At the same time, it has a generative dimension, since the articulation and tentative quantification of values is expected to support discussions among stakeholders and open space for future dialogue with governance actors.

2.4 Research Questions

Building on the theoretical background and research objectives, the following research question are set up for the study:

How does the Circular Community Initiative “the Grondstoffenstation” create multiple values for the broader socio-economic system, and how may this be facilitated by municipal organisation and policy in the future?

This overarching question is specified into four sub-questions:

1. What values are created by the Grondstoffenstation, and for whom do these values matter?
2. Through which practices does the Grondstoffenstation realise this multiple value creation?
3. What barriers and opportunities are present in the ability of the Grondstoffenstation to sustain and scale its value creation?
4. How can local governments and national policy better support Circular Community Initiatives as agents of MVC in New Public Governance?

Since this research followed a PAR approach, the formulation of the research questions was iteratively shaped through dialogue with the GSS and their stakeholders. During these interactions, representatives repeatedly emphasised the importance of quantifying certain values. They explained that being able to present concrete numbers would help them articulate the value of their work more effectively in discussions with the municipality. At the same time, it became clear that while municipality representatives often acknowledged the importance of a broad set of values, some either struggled to specify these beyond general statements and others continued to rely on assessing initiatives primarily through financial flows. In response, the GSS expressed a wish to also quantify ecological impacts, particularly in terms of emissions, since this would strengthen their position in conversations about their contribution to broader policy goals. To generate results that are both academically robust and meaningful in practice for the GSS, the research questions were therefore adjusted to reflect these needs. This led to the following extended set of research questions:

How does the Circular Community Initiative “the Grondstoffenstation” create multiple values for the broader socio-economic system, and how may this be facilitated by municipal organisation and policy in the future?

1. What values are created by the Grondstoffenstation, and for whom do these values matter?
2. Through which practices does the Grondstoffenstation realise this multiple value creation?
3. How can the indicative quantification of certain values support and facilitate dialogue with stakeholders?
4. What barriers and opportunities are present in the ability of the Grondstoffenstation to sustain and scale its value creation?
5. How can local governments and national policy better support Circular Community Initiatives as agents of MVC in New Public Governance?

This formulation results from the participatory and action-oriented nature of the study. Whereas the first two questions focus on identifying and conceptualising value creation, the third explicitly incorporates the need for quantification as raised in practice by the GSS and the AWC. The final two questions broaden the scope towards more systemic conditions, examining both the challenges and opportunities for CCIs in a wider governance context.

2.5 Conceptual Framework

The conceptual framework for this research is built on the *Circular Value Flower (CVF)* method (Leclercq, 2025; Smit & Leclercq, 2023). The CVF provides a structured framework to analyse how local initiatives generate multiple forms of value while closing resource cycles at the community level. Rather than prescribing which values are most important, the CVF allows researchers and practitioners to identify, compare, and negotiate values across ecological, social, cultural, aesthetic, and economic domains. The CVF consists of five interrelated layers, moving from the operational core of an initiative to its broader societal impact. The CVF is presented in Figure 2.1. Table 2.1 gives a more detailed explanation of what each layer encompasses.

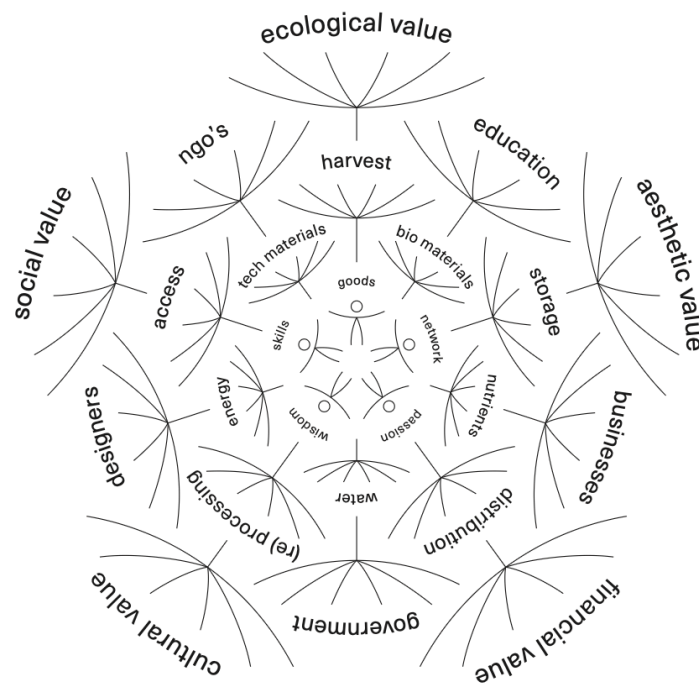


Figure 2.1: The layers of the CVF (Leclercq, 2025).

The CVF does not only reveal outcomes, but also supports the governance of MVC, since the framework functions as a negotiation tool. It makes visible where values align, where they conflict, and how diverse stakeholders can engage in dialogue about “what matters” in a given system. This aligns directly to the role of CCIs as arenas for the contestation and co-creation of public values.

By connecting these layers, the CVF offers a way to trace how enabling conditions and resource flows are transformed into broader societal values. It also allows the identification of synergies, tensions, and barriers across different layers, making it particularly suitable for analysing MVC in CCIs. In this thesis, the CVF serves as the primary analytical tool to explore how the GSS realises multiple value creation in practice.

Table 2.1: Layers of the CVF (Smit & Leclercq, 2023).

Name	Components
Enabling capital	This includes the goods, networks, passion, wisdom, and skills that are needed or already exist within the GSS.
Resource cycles	These encompass water, energy, nutrients, and bio-/tech-materials.
System parts	These refer to the elements of the supply chain, such as storage, distribution, access, and harvest.
Stakeholders	This layer includes potential stakeholders, such as governments, designers, NGOs, educational institutions, and businesses that can be connected with.
Overarching values	This layer represents ecological, aesthetic, economic, cultural, and social values.

2.5.1 Identifying and conceptualising values (RQ1)

To answer the first research question, the CVF is used as the main analytical tool. The CVF provides categories for ecological, social, cultural, aesthetic and economic values, and connects these to the stakeholders for whom they matter. By combining data from participatory observation, interviews, focus group and content analysis, the data collection methods explained more in detail in chapter 3, values are identified and positioned in the framework. This makes it possible to conceptualise not only which values are created, but also who benefits from them, and how these perceptions differ across actors.

2.5.2 Understanding practices and processes of value creation (RQ2)

The second research question is addressed by examining the internal practices of the GSS. Here, the CVF is again central, particularly the layers on enabling capital, resource cycles, and system parts. Through observation of day-to-day work, combined with the other data collection methods, the analysis reconstructs how values emerge from concrete activities performed by the GSS. This approach clarifies which practices generate value and how stakeholder relations shape these processes.

2.5.3 Exploring the role of quantification (RQ3)

To answer the third research question, selected values are translated into tentative numbers. The values that are quantified are chosen in collaboration with representatives of the GSS and the AWC. This quantification is explicitly exploratory: it demonstrates what can be made visible and how such figures can support dialogue with stakeholders, particularly the municipality. For example, CO₂ savings or avoided costs of social employment are calculated using existing studies as reference points. At the same time, the analysis presents the limitations of quantification, recognising that not all values can be meaningfully expressed in numbers.

2.5.4 Identifying barriers and opportunities (RQ4)

The fourth research question concerns the systemic conditions that enable or constrain MVC. Here, insights from the interviews and content analysis are linked to the CVF to identify barriers such as bureaucratic complexity, temporary funding schemes, and dependency on key individuals. At the same time, opportunities are sought in examples of supportive policies, partnerships, and collaborative frameworks.

2.5.5 Governance and policy support for CCIs (RQ5)

The final research question extends the analysis from the local to the institutional level. Using the notion of New Public Governance, the study examines how CCIs like the GSS can be supported as agents of MVC. This involves interpreting the findings on values, practices, quantification, and bar-

riers in relation to current policy frameworks. The conceptual approach considers CCIs as arenas where public values are articulated and contested, and asks what shifts in governance are required to move towards long-term, facilitation of and collaboration with these initiatives.

How all the sub research questions combine into the main research question, alongside the respective analytical steps are presented in Figure 2.2. Additionally, the figure shows the specific outputs delivered to the D3C project, the AWC and to general academic knowledge. Note that the D3C project is also an academic project, but since this research produces specific outcomes for this particular project, it has been presented separately from the general academics.

2.6 Report structure

Based on the conceptual framework established in this chapter, the remainder of this thesis is structured as follows. Chapter 3 describes the methodological approach, the data collection and analysis methods. Furthermore, it discusses the ethical procedures that guided the research process and how potential pitfalls were mitigated. Chapter 4 presents the empirical findings regarding the values created by the GSS and for which corresponding beneficiaries. This chapter categorises the identified values across the ecological, social, cultural, aesthetic, and financial dimensions of the CVF and explores how these values are perceived by different stakeholder groups. Chapter 5 examines the internal processes from which the MVC emerges. It shows how the initiative's system parts, resource cycles, and enabling capital interact to realise MVC, and how these processes evolved over time to the current practice. Chapter 6 focuses on the quantification of values and the nuances surrounding quantification. It explores which values can or should be quantified, discusses the methodological challenges involved, and presents an exploratory attempt to express certain values in measurable terms to facilitate stakeholder dialogue. Due to the PAR approach of this research, this report does not only present results in an academic format, but also in a manner relevant to the GSS. These results are presented in chapter . Chapter 8 shows the interpretation of the empirical findings in relation to the conceptual framework and theoretical background. It analyses the barriers and opportunities for sustaining the MVC at the GSS and evaluates how policy and regulatory frameworks could better support CCIs in the future. Chapter 9 concludes the thesis by summarising the main findings, reflecting on the research limitations, and providing recommendations for practice, policy, and future research. Finally, chapter 9 presents a personal reflection on the research process and the role of the researcher.

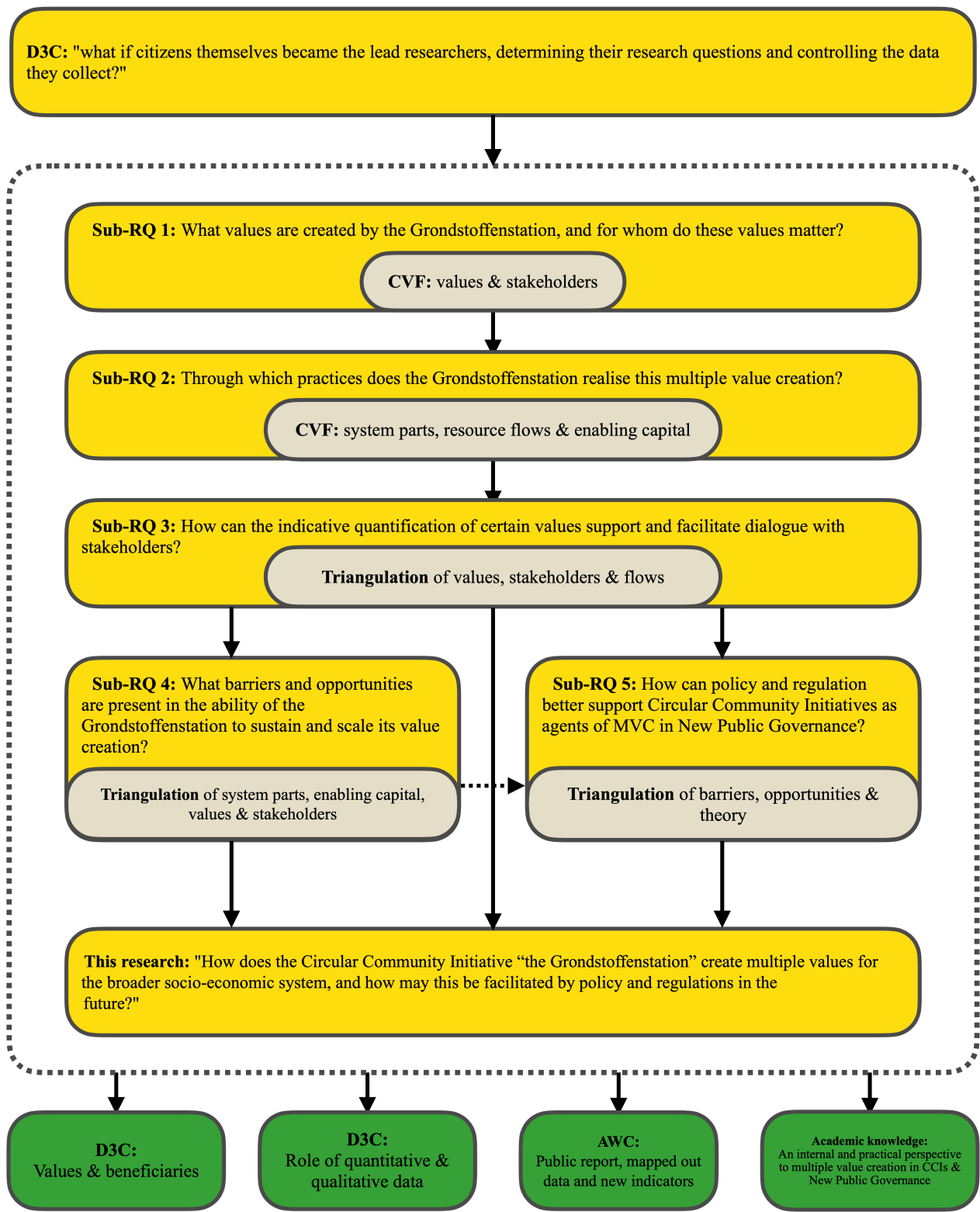


Figure 2.2: Research flow diagram

3 | Methodology

This chapter describes the methodological approach of the research. It demonstrates the use of participatory action research in its methods and explains how data were collected through a mix of participatory observation, expert- and stakeholder interviews, content analysis, and a focus group.

3.1 Data collection methods

This section will describe the three main methods used to collect data: participatory observation, interviews and content analysis. The following section will describe how the collected data will be analysed.

3.1.1 Participatory Observation

The researcher has collected most of the data at the GSS through participatory observation. Participatory observation is a method that enables the researcher to integrate into the initiative (Clark et al., 2008). This fosters collaboration and trust with GSS employees, since the researcher becomes part of the studied field (Clark et al., 2008; Corbin & Morse, 2003). This method is chosen because it is suggested to allow participants to express themselves in their own preferred way, with minimal influence on the responses given by the participants (Corbin & Morse, 2003; Jamshed, 2014). This aligns directly with the research approach.



Figure 3.1: Researcher and employees collaborating and discussing (by E. Rijshouwer (2025))

The researcher has operationalised the method during six weeks of observation (Figure 3.1). At first the researcher has listened to most conversation without interfering, since the first goal is to build trust and to get to know the employees. As soon as the conversations allowed for this, the researcher asked the employees questions on:

- why they work at the Grondstoffenstation,
- what their role is within the initiative,
- what the role is of the initiative in their eyes,
- how they collaborate with market vendors and other partners
- what they hope the initiative achieves, and

- what the biggest opportunities and risks are for their work and the initiative.

During the participation process, the researcher got the opportunity to meet many of the market vendors. The researcher decided to ask them several questions as well, to understand how they view the GSS. The researcher mainly focused on the following questions:

- why do you bring your waste to the Grondstoffenstation?
- what do you do with your waste on other markets?
- what did you do with your waste before the Grondstoffenstation was initiated?
- what are advantages and disadvantages of the Grondstoffenstation in your eyes?

The researcher asked for additional examples and follow up on statements to form a more thorough understanding of the answers given. These informal conversations with the employees and market vendors, alongside actions taking place at the GSS, were recorded through a personal notebook of the researcher. At the end of each day, the researcher wrote a small reflection of that day. This allowed on the one hand for minimal loss of data throughout the workday, whilst simultaneously disrupting the regular work with note-taking as little as possible. At the end of each observation week, the researcher wrote a weekly summary, containing the relevant conversations, actions and main insights of that week, that could then be used in the analysis of the data. From these notes, the researcher distilled notions of value, how it is created, perceived risks and opportunities. How this analysis was done exactly, is explained in section 3.2.

3.1.2 Interviews

Alongside the participatory observation, interviews were used to get a better understanding of other key agents in the network, and to get a deeper understanding of the perspectives of the employees of the GSS. Interviews are a qualitative research method where practices and concepts recorded through (structured) questions to a certain involved stakeholder (Jamshed, 2014). Interviews were done semi-structured. The questions are based on a total of ten factors, based on the conceptual framework. These are described below.

The sampling method is as follows. The sampling population are the partners of the AWC and the AWC themselves. Specifically, the sampling frame are the partners and employees directly related to the GSS initiative. The respondents were selected through convenience sampling: most contact of respondents was received through the AWC, and to some respondents the contact was gained through sending open email invites (the municipality, ministries and experts). This process was continued until all partners had been represented, or for any reason, could not be represented and were replaced with a different data collection method. Initially, it was only planned to interview the Co-operation, municipality and employees, but through the observation different key agents were identified. This resulted in the following interviewees, alongside the participants of the observation: an AWC coordinator, the recycling company Renes, three municipal officials, one experts on local initiatives in the reuse sector, and two experts on national policies for sustainability-related local initiatives.

Values

The first construct explores the notions of value that are important to the stakeholder, the values that are realised by the initiative in the respective stakeholder's perspective and how it is created. This was measured through the following factors:

- Perceived notions of values realised by the initiative
- Perceived notions of values of the stakeholder
- Processes and activities underlying the value creation of the initiative

Collaborations & ecosystem

The second construct explores the existing collaborations surrounding the initiative, how they came to be, and understand how collaboration is, or is not, built on the notions of value (as boundary objects). Furthermore, it develops a thorough understanding of the network surrounding the initiative, and what the role of the initiative is within this network. The following factors were used:

- Collaborations with the initiative and/or other agents
- Risks and opportunities in these collaborations
- Important grounds of collaboration in the eyes of the interviewee
- Possible improvements in collaborations with the initiative and/or other agents

Policy & regulation

The last constructed explores how current regulations and policy do or do not support the actions of the initiative, and what this support should look like in the future. This was measured through the following factors:

- Current policy and regulations affecting the initiative
- Current opportunities and barriers faced in relation to policy and regulation
- Possible improvements of support through policy and regulation

The questions are based on the above factors. Two initial sets of interview guides were created, which could be adjusted slightly to fit the stakeholder, and insights from the participation and previous interviews. This means that this method did not strictly follow a waterfall sequence, but its questions were updated after the first few weeks of the field work. Most changes only affected follow-up questions, but in the cases of the experts, some additional questions were added to understand their role. Since all of the respondents could best express themselves in their native, or at least fluently speaking, language, the interview guides have been set up in Dutch. The basis interview guide, which was adjusted to fit the representative, can be found in Appendix D.

It should be noted that a few key network agents could not be interviewed. First, no residents could be interviewed, mainly due to time constraints and complexity in the ethical procedure. It was chosen to replace this with representatives where possible, such as more municipality departments and the people from the AWC that have worked with the district council. Secondly, the district council itself could not be interviewed. Lastly, it was aimed to also interview the Ministry of Infrastructure and Water Management, the Ministry of Social Affairs and Employment and the Ministry of Climate Policy and Green Growth. This has been replaced with an interview with two experts on national policy and local initiatives, and a content analysis on government reports. The effects of these changes will be discussed in chapter 7.

3.1.3 Content Analysis

Content analysis is a flexible research method that may be used for very different research purposes, both qualitative and quantitative (White & Marsh, 2006). It uses various analytical techniques to produce findings and provide context for the research. This method is characterized by its systematic and thorough approach to examining documents that are collected or created during research (White & Marsh, 2006). In this research, it was specifically used to analyse national government perspectives, the history of the GSS initiative, and to investigate previous collaborations between governmental parties and the AWC surrounding the GSS initiative. Complemented by the interviews and participatory observation, this method allows for the identification of opportunities and barriers within policies and regulations to facilitate the MVC at the GSS in order to foster the New Public Governance. Furthermore, notions of value from governmental perspectives are distilled from these documents. Lastly,

numerical data, such as financial outcomes and impact results from previous stages of the GSS initiative were distilled from the documents. The used documents can be found in Table 3.1.

Table 3.1: The documents used in the content analysis.

Document title	Description	Source
Circulaire economie in 2050	Government information page outlining the Dutch ambition to achieve a fully circular economy by 2050. It explains why circularity is needed, highlights benefits such as lower emissions, less waste, and reduced resource dependence, and describes key measures and milestones (e.g., halving raw material use by 2030). It also emphasizes international cooperation within the EU and UN.	Ministerie van Infrastructuur en Waterstaat (2023a)
Nationaal Programma Circulaire Economie 2023–2030 (NPCE)	The Dutch national policy program for advancing the circular economy between 2023 and 2030, outlining strategies, measures, and goals to achieve a fully circular economy by 2050.	Ministerie van Infrastructuur en Waterstaat (2023b)
Onderzoeksrapport Omarm me	A report by the Ombudsman Rotterdam-Rijnmond analysing how municipalities support citizen initiatives, highlighting challenges faced by proactive residents and offering recommendations for improvement.	Ombudsman Rotterdam-Rijnmond (ORR) (2025)
Omarm me: Bestuurlijke reacties	A collection of official responses from municipalities (only Rotterdam was used) to the findings of the “Omarm me” research report.	Ombudsman Rotterdam-Rijnmond (2025)
Business case Circulaire Afrikaandermarkt	A business case report from 2017 on the Circular Market initiative (now the GSS) with a Theory of Change and data on municipal savings	Afrikaanderwijk Coöperatie (2017)
Resultatenverslag 2018: Pilot wijkbeheer Afrikaandermarkt	A report containing the measured results of the Circular Market pilot (now the GSS) for the two year period 2017-2018, and baseline measurements for 2016.	Afrikaanderwijk Coöperatie (2018)
Projectplan Circulaire Afrikaandermarkt: Gemeente Rotterdam	A detailed project description of the Circular Market (GSS initiative) for the allocation of a municipal subsidy, containing shared goals of the initiative and the municipality and detailed descriptions of work packages: actionable plans to achieve the goals.	Afrikaanderwijk Coöperatie (2023)
Projectplan Circulaire Afrikaandermarkt: Kansen voor West	A detailed project description of the Circular Market (GSS initiative) for the allocation of a European subsidy, containing goals of the initiative, descriptions of alignment with regulations and subsidy criteria, budget plans and a business model canvas.	Afrikaanderwijk Coöperatie (2025b)

It should be noted that the two Projectplan reports, the Resultatenverslag and the Business case have all been presented to the municipality. Therefore it is assumed that the presented data was cross-verified, or at least accepted as true, by the municipality as well. These reports will not be used to show the municipal perspective directly, but this notion is important for the validity of the data.

3.1.4 Focus group

The final method of data collection was a focus group. Focus groups are a qualitative technique that brings together a small number of participants to collectively discuss specific themes, guided by a facilitator, in this case the researcher and their external advisors (Saldaña, 2011). They are particularly suitable for validating and enriching insights derived from earlier phases of research, since the interaction among participants can generate new perspectives, surface agreements or disagreements, and reveal shared meanings that individual interviews may not capture (Saldaña, 2011). Therefore, the focus group is used in the last stage of the research to validate the preliminary findings.

In this study, the focus group was organized with representatives of some of the key stakeholders surrounding the GSS, including members of the AWC, a municipal official, a representative of Renes, some experts and scholars. During the session, preliminary findings from the participatory observations, interviews, and content analysis were presented. Participants were then invited to reflect, critique, discuss and add-on to the results, thereby co-constructing the interpretation of the data. This was done by direct interference, where participants were invited to directly respond to the presented results, and through worksheets on which post-its, notes and drawings could be made. The worksheets, alongside anonymised results, can be found in Appendix B

The role of the researcher during the focus group was to act as moderator and facilitator. They presented findings in an accessible way, steering discussion with open questions, and ensuring that all voices were heard. Notes were taken throughout the session in order to record the discussions. This method aligns with the study's participatory action research approach, as it not only served to validate results but also created a space for participants to reflect on their own practices and relationships.

3.2 Data analysis: the Circular Value Flower

The analysis of the collected material followed an inductive, iterative process, based on the Circular Value Flower (CVF) method (Leclercq, 2025; Smit & Leclercq, 2023) and extended with iterative coding, based on Saldaña (2011).

3.2.1 Iterative coding

The coding process began with first-cycle coding, in which interview transcripts, observation notes, and focus group discussions were read multiple times. Initial codes were applied to highlight actions, practices, opportunities and barriers surrounding the initiative's processes, and values expressed by participants. Moreover, this coding was also used to capture examples, beliefs and actions underlying the notions of value. During the second-cycle coding, similar codes were grouped into one or more of the five value categories of the CVF, and relationships between them were examined. Moreover, opportunities and barriers identified were categorised to policy and regulations, or to value creation, the general category for opportunities and barriers. This stage focused on detecting patterns, interconnections between values, synergies and tensions between stakeholder perspectives. The analytic process was supported by memo writing and graph building, in which the researcher noted down and drew preliminary interpretations and linkages that were found throughout the coding process.

In the end, the coding process informed the construction of the CVF framework for analysis. By systematically categorizing data into the value categories, the CVF enabled a structured interpretation of how multiple values are created at the GSS, and what dynamics hinder or foster the processes underlying the MVC.

3.3 Ethical procedures

This research has been conducted in accordance with the ethical standards of Delft University of Technology. The study followed the TU Delft Human Research Ethics Policy, that ensures alignment with the General Data Protection Regulation (GDPR), TU Delft data management requirements, and informed consent procedures. Approval was obtained from the Human Research Ethics Committee (HREC) for the execution of the fieldwork. Preliminary approval was obtained before the start of the fieldwork period, and the final approval was received in the first week of the fieldwork. In this first week, only the preliminary approved research methods were adopted, and no data was used in writing processes. Only when the final approval was obtained, did the researcher further conduct their data collection and analysis.

The study involved human participants through participatory observation, semi-structured interviews, and a focus group. Because of the community-based and participatory nature of the research, the ethical procedures from Table 3.2 were implemented.

Table 3.2: Ethical procedures according to the TU Delft HREC procedures.

Procedure	Description
Informed consent	Separate Informed Consent Forms (ICFs) were prepared for interviews and the workshop. All participants were informed of the research purpose, their rights to anonymity, voluntary participation, and withdrawal at any time without consequence. Workshop participants additionally provided consent for the use of data and photographs through a checkbox system. The consent forms can be found in Appendix C.
Transparency and visibility	During participatory observation, the researcher made their role and presence explicit by mainly by actively communicating their role and intentions through the coordinators.
Data management	Personally identifiable information such as names, affiliations, and contact details were stored on TU Delft's secure Microsoft OneDrive and deleted at the end of the project. Raw data were accessible only to the TU Delft supervisor and the student researcher.
Privacy and anonymization	All qualitative data (field notes, interview transcripts, photographs) were anonymized prior to the release of the report. Additionally, a transcript review was offered to participants prior to the publication.
Photographic materials	Visuals were only included if consent was explicitly obtained, or did not contain any participants.
Data publication and storage	The thesis report is deposited in the TU Delft Repository. No raw or identifiable data are shared externally.

3.3.1 Potential pitfalls and mitigation strategies

The main contact points for the researcher were two researchers from an agency which supports future-oriented public initiatives, and a coordinator of the AWC. The agency had an established collaboration with the Co-op prior to this study. This helped the researcher to obtain valuable contextual knowledge and facilitated access to participants. However, this existing relationship also introduced potential risks of biases, such as observer bias and researcher bias.

Observer bias could arise from the fact that much of the qualitative data depended on the experiences, interpretations, and narratives of participants who were themselves part of the studied initiative. Their prior involvement could influence how events were described or framed, emphasizing more positive or familiar aspects of their previous work. Similarly, researcher bias could emerge through the framing of questions, as open and exploratory interviewing techniques might unintentionally

tionally centralize the perspectives of certain actors or of the researcher themselves, thereby unconsciously framing the direction of the findings.

To address these risks, measures were taken to improve the transparency and reflexivity throughout the research process, and the scrutinizability of the report after the research was conducted. This was done through the aforementioned documentation of data collection procedures and explicit descriptions of analytical steps within the thesis. Furthermore, synergising between interviews, participatory observations, and workshop data helped counteract individual viewpoints and strengthen the validity of overall interpretations. The researcher also kept reflective notes during their fieldwork to remain aware of personal assumptions and positionality, in which they also acknowledged that the act of participation shapes the data and its analysis.

The participatory nature of this research demanded continuous reflexivity. The researcher maintained awareness of their dual role as both facilitator and observer, and had to balance community interests with research goals. However, it is important to recognize that in qualitative research, the researcher is rarely completely unbiased. Through transparency in every part of the process, the researcher aims to mitigate risks for biases.

4 | Values and beneficiaries

Based on the interviews, participatory observations, focus group, and content analysis, the value flows of the GSS were identified. They are represented in Figure 4.1. Note that this figure shows value concepts, which are also shown in bold in section 4.1. Value concepts are distilled from notions of value, actions and practices encountered by the researcher. Appendix E contains all identified value concepts alongside respective notions of value and stakeholders, categorized per value category.

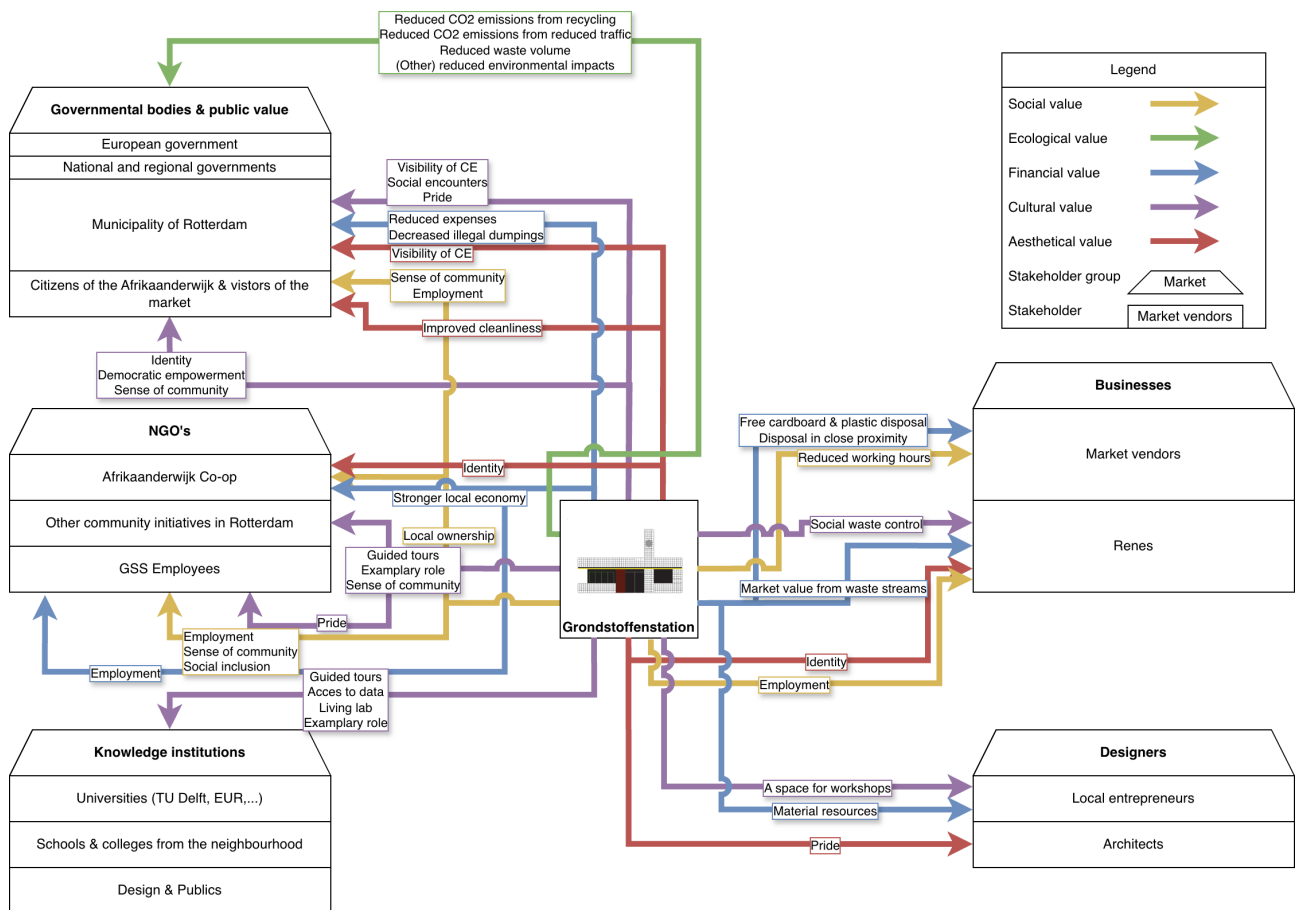


Figure 4.1: Values created by the GSS

These flows illustrate that the MVC of the initiative is multifaceted and diverse. Each stakeholder group perceives specific benefits, and the types of values recognized differ significantly across stakeholders. For example, the residents of Rotterdam emphasize value notions that diverge from those valued by the Municipality, despite the municipality often being regarded as a proxy for residents' interests. Moreover, although ecological values are not a primary concern for most stakeholders, the GSS still generates these outcomes, indicating that the CE functions here more as a means for creating locally relevant values than as an end in itself.

The mapping of values revealed a limitation of the CVF: two beneficiaries, namely residents and "Mother Earth," could not be fully captured within the CVF's existing stakeholder categories. Section 4.1 therefore presents the five CVF stakeholder groups alongside these additional beneficiaries discussed as parts of public value.

4.1 Stakeholders

This section categorizes the various stakeholders involved with the GSS, according to the CVF framework. It explains how different actors perceive different types of value and how these are connected to the broader ecosystem of the Afrikaanderwijk.

Value flows for governmental bodies

In this section, the value flows related to governmental bodies are discussed. A distinction is made between the municipality and larger governmental institutions, since the GSS and the municipality of Rotterdam are direct partners, whereas other governmental bodies, such as ministries, operate at a greater distance. Nevertheless, there are important points of interaction between these levels of governance. Moreover, some of the values created by the GSS cannot be directly attributed to a single stakeholder, especially in the case of environmental values. These will therefore be discussed under the broader notion of *public values*, assuming that governments, in their role as public representatives, embody and promote such values. While these notions of value may not always be explicitly recognized or expressed by all stakeholders, they can be framed as public values when governmental reports or representatives identify them as important.

Municipality

For the municipality, the GSS can be regarded as both a practical execution of policy goals and an example for the wider city of Rotterdam. A municipal representative described the project as a **tangible demonstration** of how bottom-up initiatives can reinforce policy ambitions by connecting the city's circular objectives with the lived, daily realities of residents (**visibility of CE**). This not only addresses waste practices but also counters what they referred to as the often abstract or elite framing of sustainability. By making waste flows, material reuse, and local employment visible in a public space, the GSS helps to concretize circular ambitions.¹ Additionally, the representative emphasized that the GSS fosters **democratic empowerment**² through participation, local ownership, and **employment**. These elements, they noted, align closely with Rotterdam's broader circular and social agendas.

The municipality also expressed a strong sense of **pride** in supporting the first circular market initiative in the Netherlands.³⁴ Moreover, they valued **experimenting with the new governance model** Right2Cooperate. The department of Circularity expressed the need for new governance models, and regarded the collaboration with the GSS as a valuable example of how that may be realised.

The pride is not only internal to the municipality; it is also perceived among residents of the Afrikaanderwijk.⁵ In addition to the social, cultural and policy-oriented values, the GSS contributes to financial value creation for the municipality. This is evident through the **employment**⁶ of residents who were previously (partly) unemployed,⁷ as well as through **reduced cleaning costs** on market days⁸.

The municipality also regards the market itself as a cultural asset that reflects and sustains the

¹"het is best wel confronterend... maar het maakt het wel zichtbaar"

²"je krijgt daarmee echt lokale zeggenschap over de wijk en bewoners zijn zelf in charge"

³"we zijn er trots op dat we het eerste grondstoffenstation op de markt in Nederland hebben"

⁴"[GSS] Dat zijn vaak ook mensen die zo'n project zijn gestart vanuit een bepaald idee en betrokkenheid, van: 'we kunnen het samen beter organiseren, schoner, effectiever, etcetera.'"

⁵"Maar die trots zie ik ook wel terug bij de bewoners en bij de mensen die daar werken bij het grondstoffenstation"

⁶"Wij zijn eigenlijk altijd [...] vanuit onze doelgroep, mensen met een loonkostsubsidiebaan, op zoek naar werkgevers, coöperaties of stichtingen, die begaan zijn met de doelgroep."

⁷"Maar dat betekent natuurlijk toch dat we dan ook wel banen creëren voor mensen die anders misschien een uitkering nodig zouden moeten hebben. Dus dat zijn natuurlijk ook kosten die bespaard worden voor de gemeente."

⁸"Want ze waren dus voordat wij er betrokken er 180.000 euro per jaar aan kwijt." *Note: although €180.000 was expressed by the interviewee, this turned out to be significantly higher in reality, as will be presented in chapter 6.*

identity of the Afrikaanderwijk. The market provides affordable, neighbourhood-reflective products and plays an important role in the community's daily life.⁹ It mirrors the social and cultural fabric of the Afrikaanderwijk,¹⁰ and is therefore supported not as an economic activity, but as part of the neighbourhood's social and cultural vitality.¹¹ Furthermore, a **clean and pleasant environment** is recognized as a value in itself, as litter from the market is perceived, according to the municipality, as a source of irritation for residents.¹² The municipality also stressed that **financial transparency and accountability** are important criteria for them to support the initiative¹³ Finally, they acknowledged the **symbolic importance** of continuity of the initiative, stating that if the GSS would cease to exist, it would send the wrong political and societal signal.¹⁴

Public values and values for residents

The GSS also contributes to a range of public values that extend beyond the direct municipal partnership. Waste management, which was a major issue and cost factor for the municipality, was reframed by the initiative as a source of work for the Afrikaanderwijk residents, materials for designers, and meaning for employees.¹⁵ Moreover, the initiative helped shift the **public image** of the Afrikaanderwijk, which is often portrayed negatively, towards a more positive narrative.¹⁶ This positive visibility has fostered a **sense of community** around the project, further reinforced by events and social gatherings organized at the GSS.¹⁷ Through these activities, the GSS contributes to local **social cohesion, civic pride, and neighbourhood engagement**.

Next to the environmental functions, the GSS has developed a strong cultural role. **Knowledge sharing** emerged as a daily practice: employees explained recycling procedures to visitors from other initiatives, knowledge institutions, and international guests. Workshops by local entrepreneurs demonstrated creative forms of material reuse. The GSS also engaged in **acts of solidarity**, such as offering food to homeless visitors without compensation or an external request to do so. Many employees entered through municipal social services, finding not only employment but also **belonging** in what several stakeholders described as a "market family." The physical site itself facilitates **social interaction**, as residents gather around the building, and even adolescents use the location for social media activities such as recording TikToks. These encounters highlight the cultural and aesthetic role of the GSS within the community.

Motivations for residents to join or support initiatives like the GSS vary widely.¹⁸ While CE-related goals are part of the priority, social and cultural values often serve as the primary drivers.¹⁹ Hence,

⁹"En de markt hoort echt in de Afrikaanderwijk. Het is gewoon de cultuur hier. [...] op deze markt heb je echt de cultuur dat iedereen gewoon woensdag en zaterdag de dagelijkse boodschappen doet. Het is een gezonde markt."

¹⁰"Ja, de markt reflecteert ook een beetje de wijk natuurlijk."

¹¹"Het is de sociaal-maatschappelijke insteek van de markt. [...] Dus het wordt van buitenaf als een commercieel iets gezien, maar wij zijn de gemeente Rotterdam die dit natuurlijk faciliteren."

¹²"De afvalstromen die je van de markt hebt... Als er wind is dan zie je daar een plastic tasje waaien of een stukje karton, wat irritatie opwekt."

¹³"Ik vind wel, vooral als gemeente zijnde, dat je eigenlijk wel, follow the money, zeg maar, die hele lijn moet volgen om te kijken, is het echt wel zo circulair? Want op een gegeven moment, alles gaat om geld."

¹⁴"Want circulair zijn is natuurlijk belangrijk, politiek gezien, bestuurlijk gezien. Je kan niet zomaar zeggen, oh, die tent is dicht, want ze maken geen genoeg geld, zeg maar. Wat voor signaal ga je dan af?"

¹⁵"... het afval, dat was voor de gemeente echt een heel groot probleem, ook een grote kostenpost. [...] Het is ook een het is een berg afval, maar het is ook een berg werk en een berg grondstoffen."

¹⁶"Waar natuurlijk de Afrikaanderwijk over het algemeen negatief in het nieuws is, is het met het grondstofstation eigenlijk altijd positief in het nieuws."

¹⁷"En tegelijkertijd organiseren we natuurlijk ook heel veel events bij het grondstoffenstation. [...] De mensen die daaraf komen, die vinden dat ook dan wel heel leuk en heel gezellig. En dan ontstaat er ook gewoon altijd wel echt een soort gemeenschap omheen. En we hebben heel veel mensen uit de buurt die graag willen komen werken"

¹⁸"Voor de ene is wat geld besparen. En de andere doet het vooral mee omdat hij het leuk vindt om met andere mensen iets te doen. Dus dat kan heel goed samengaan. Dat mensen in hetzelfde initiatief met verschillende motieven zitten."

¹⁹"Maar wat een hele grote gemeene deler is die we zien om überhaupt je aan te sluiten bij een maatschappelijk initiatief, is toch wel het sociale aspect. [...] daarvan is een rode draad wel dat men het fijn vindt om met elkaar bezig te zijn. In die

initiatives like the GSS not only support environmental goals but can also meet deeper social and cultural needs of local communities.

National government

Ministerie van Infrastructuur en Waterstaat (2023b) emphasizes that the transition toward a CE is inherently linked to public values such as sustainability, innovation, and social well-being. Although most of the report focuses on the national government's steering role through regulation, collaboration with companies, and behavioural change campaigns, the values it articulates in some sense also resonate with those created by the GSS. The ministry prioritizes system change over incremental improvements, aiming to reduce material use and waste at scale while strengthening the resilience of supply chains. In its long-term strategy toward 2050, the ministry identifies multiple ecological objectives, including **reduced material consumption, waste reduction, lower greenhouse gas emissions, and reduced land and energy use** (Ministerie van Infrastructuur en Waterstaat, 2023a). Alongside these environmental aims, the ministry stresses inclusivity, job creation, and regional prosperity as integral to the CE transition. Furthermore, the NPCE highlights education, knowledge-sharing, and participatory governance as key enablers, recognizing that citizens, local governments, and businesses each play essential roles in shaping circular practices (Ministerie van Infrastructuur en Waterstaat, 2023b).

The GSS directly contributes to many of these national public values, particularly in the domains of **inclusivity, local collaboration, knowledge-sharing, and education**, whilst simultaneously addressing the ministry's **ecological priorities**. Although its scale is limited to the neighbourhood level, the GSS can be understood as a local entity of the broader circular transition envisioned by the national government. It demonstrates how the principles of the national CE policy can take concrete form in local, community-based practice.

Together, these perspectives show how the GSS operates at the intersection of multiple layers of governance. Locally, it translates abstract policy ambitions into tangible community practices; socially, it fosters inclusion, pride, and participation; and nationally, it embodies the broader public values that underpin the CE transition. The GSS thus illustrates how value creation for governments, residents, and the public can converge in a single, local initiative.

Businesses

Two main businesses have been represented in this study. The first one is Renes, the waste recycling company. They collect all the waste processed by the GSS, and distribute it to corresponding recycling companies or producers of new products. The second business, is rather a group of businesses: the market vendors. Each market stand is an individual business, but here they will be regarded as one in this research, due to limited resources of the researcher.

Renes

The first business, Renes, indicated that one important reason for them to partner with the GSS is that all the waste processed by the GSS is **no longer incinerated**²⁰. However, the value for them is not simply recycling the waste itself: incinerating waste also brings value, since it is incinerated with energy recovery. But they indicated not everything should simply be incinerated, especially when materials are ideal for recycling and they can be collected in large quantities²¹. Moreover, Renes appreciated the **social control on waste** that arose through the GSS initiative: simply placing containers

zin vervult dat ook een belangrijke behoefte. De klimaat bijdragen. Of dat je wat geld bespaart. Of dat je zonnepanelen op je dak liggen. Dat kan soms ondergeschikt daaraan zijn."

²⁰"...heb je al vijftien tot zeventien ton afval wat gerecycled kan worden. Nou, als je dat maal tweeënvijftig doet, heb je aardige volumes over een jaar die uiteindelijk normaal verbrandingsovens in gingen en nu gerecycled worden"

²¹"Nou ja, de hoeveelheden karton die uiteindelijk op een markt vrijkomt, die zijn best wel groot. Dat moet je niet naar de verbranding willen brengen. Omdat het een recyclebaar materiaal is."

would not result in high quality recyclable streams. The control and structure is a necessary part to safeguard the quality of the waste streams²². Besides, they indicated that in the case of the GSS, with such large quantities of recyclable materials, it results in significant **financial gains** when the streams are recycled rather than incinerated²³.

On the other hand, Renes indicated they are not doing this project purely in order to create financial value, especially since the partnership with the GSS brings them limited financial value²⁴. However, in addition to the marginal financial value, they do indicate another set of reasons why they value the partnership with the GSS. Renes emphasises that the project creates, next to recycling, **local employment opportunities**²⁵. Furthermore, they also valued the uniqueness of this project in combination with their name on the compressor containers **visible to the market** and her visitors²⁶. Hence, it may be concluded that Renes experiences the following sets of values being created for them: local employment, financial gains from material recovery and the unique visibility of their brand name.

Market vendors

The Afrikaander markt has over 200 market vendors. Their values often became apparent in negotiations between vendors and employees of the GSS. For example, a few months ago, conflicts arose around the quality of pallets (*PO - Week 1*). Initially, the GSS received many polluted pallets. They tried to have discussions with the market vendors, asking them to separate the waste and explaining why it was important (*PO - Week 1*). However, only when prices were increased, the market vendors made significant efforts in handing in their waste more separated (*PO - Week 1*). This illustrates that the market vendors adjusted their behaviour primarily when there was a financial consequence. Once the prices for polluted pallets were increased, vendors began separating their waste more carefully. In week 6 of the observations, when the researcher actively engaged with the market vendors themselves, this became even more apparent. The vendors stated that their main motivations for bringing waste to the GSS were related to **time** and **money**. This was confirmed by the municipality, who stressed the very long working days of the vendors²⁷, but also noted the improved working hours when vendors make use of the station²⁸. The vendors themselves indicated that handing in cardboard was attractive because it could be done **for free**, similar to what they were used to at other locations, but now with the additional convenience of the GSS being in **close proximity** (*PO - Week 6*). The GSS was located nearby, allowing them to dispose of the majority of their waste during or immediately after the market day, without having to travel to a more distant waste centre.

Furthermore, some vendors mentioned having informal arrangements for waste disposal. This suggests that their formal waste contracts, that they are obliged to have, are not always the main channel through which they handle their waste. Discussions with other stakeholders, such as representatives from the municipality, the AWC, and Renes also indicated that market vendors often made use of informal waste disposal methods and that this waste was largely incinerated because of that reason²⁹. However, since this could not be directly confirmed with the market vendors themselves,

²²Je kan niet zomaar een container op een markt zetten. [...] want dan gaat er echt alles in. Je moet echt controle hebben over het systeem.

²³En de stromen die vrijkomen op een markt, die zijn uiteindelijk goed te recyclen. Waardoor je veel meer afval van het milieu station kan recyclen dan voorheen. En dat levert wel een enorme winst op."

²⁴"Want wij rijden voor tien boxes met een vrachtwagen. Dan hebben we een omzet van nog geen 200 euro. Dan is de vrachtwagen twee uur weg. Nog even storten, het AGF verwerken, de boxes weer wassen. Dus er komt wel wat voor kijken."

²⁵"We hebben natuurlijk daardoor ook mensen in dienst uit de wijk die daarvoor werken. Dus het was en-en. Én recyclen én mensen aan het werk."

²⁶"Het is een beetje het eerste project in Rotterdam op zo'n markt. Er staan momenteel drie mooie persen met je naam erop"

²⁷"Want een koopman moet voor groente en fruit al twee uur 's nachts bij de hal staan om inkopen te doen. En dan sta je hier tot zes uur in de avond op de markt."

²⁸"Als ze gedurende de dag gaan, scheelt het ook met opruimen en op tijd."

²⁹"Er waren wel een aantal kooplieden [die hun karton hier weg brachten], maar voor de rest verdween alles uiteindelijk



Figure 4.2: Pallets of waste handed in by market vendors (by E. Rijshouwer (2025))

this conclusion cannot be drawn within this research with certainty. It should be noted however that a municipality representative did indicate that the informal waste disposals, at least the **dumpings** that they were aware of, have dropped significantly since the introduction of the GSS, for which previously the municipality had to pay the bill³⁰

In short, the interactions with market vendors highlighted that financial incentives and convenience in terms of time are the dominant values guiding their decisions. This was later confirmed by the focus group discussions, where a municipal official indicated that the representative of the market vendors in district council meetings expressed significant gratitude for the existence of the GSS. The case of the polluted pallets demonstrates that financial nudging can effectively influence their behaviour, while the preference for the GSS as the preferred nearby option underlines the importance of time efficiency in their waste disposal practices.

NGO's

Two (groups of) NGO's were identified in the system around the GSS. The first one is the AWC. This cooperative is the initiator of the GSS. Moreover, they are the official employer of the GSS employees. Therefore, they are discussed together. It should be noted that the employees inherently are also residents of the Afrikaanderwijk, but due to the relatively small number of employees in comparison to the total population of the Afrikaanderwijk, the employees perspectives are not deemed representative of the complete population. The second group are the other CCIs in Rotterdam. It should be noted that these initiatives may diverge a lot from the Co-op, for example in maturity of the initiative, specific goals or working ethics. Nonetheless, there are still notable similarities according to the municipality and therefore they are still considered here in the NGO section.

Afrikaanderwijk Co-op and GSS employees

One of the main motives for the existence of the AWC, is "*inbesteden*" (which could be translated to **in-sourcing**). They describe this as the idea of seeing if work can be done by members of the community, instead of outsourcing the work. They mention this has a two-fold value generation. First, this can foster a **stronger local economy**, but also create **employment for the local community**³¹. The GSS does exactly this: the employees are residents of the community, the Afrikaanderwijk, so both

in een vuilnisauto van de gemeente Rotterdam, en ging direct naar de verbranding toe."

³⁰"Kijk dumping heb je wel. Sporadisch. [...] het is niet nul. Maar als je de cijfers van toen hoorde in vergelijking met nu, is het in principe opgelost."

³¹"Kun je [aanbestedingen] ook, [...] in plaats van dat je dat aan partijen buiten de wijk gunt, [...] niet aan lokale partijen gunnen?"

the work and the generated values emerges within the community.

The AWC stressed that their motive for local employment had more advantages. First, they indicated that the employees partly came to the GSS through social services (Werk en Inkomen, a department of the municipality that assists in finding employment for those who have difficulty finding work). This offers **work experience** and **social inclusion** for specifically those people³². This results in work places being created for residents, especially those having difficulty finding work, social inclusion for the GSS employees and reduced costs for the municipality since they have to pay less allowances.

The employees of the GSS seemed to experience strong social bonds. Employees described their work at the GSS as more than waste management.³³ They expressed that there is a **sense of community** amongst themselves, with market vendors, but also with visitors, as became clear from the interview with the AWC³⁴. Employees also indicated that visitors often expressed their recognition of the need of the GSS by acknowledging their role in helping to keep the Afrikaanderplein **clean**. The employees take **pride** in their work, which became directly evident through these expressions, and the fact that they call it the Grondstoffenstation: it is a source of nutrients, rather than waste.

Moreover, the employees viewed the GSS as an embedded component of the Afrikaanderplein, and that it is deeply interconnected with the market, but also the surrounding park, school and its visitors, young and old.³⁵ Together, this reflects how the GSS employees view the GSS as a **space for the Afrikaanderwijk community** as a whole. Informal practices reinforced this notion: the employees frequently were lending out brooms to vendors, offering water to cool some stalls during the summer observation weeks, and sharing the physical building with other market facilitators, such as the local coffee man, who could continue semi-officially after his business had closed some years ago (PO - Week 2). These actions show how the GSS aims to foster **trust** and **belonging** through a collection of smaller and bigger exchanges with the community.

The social and cultural values were also visible in the ways employees took ownership of their environment. Even without formal hierarchy, they assumed responsibility for cleanliness and spatial order³⁶. This shared working ethic reflects the form of **collective self-governance** described in the literature on CCIs. This was mostly demonstrated at the end of the day when the employees wouldn't consider their shifts as done until the surroundings were clean. The researcher participated many days, but almost every day it was visible how yet another employee took action in keeping the surroundings of the GSS clean, instructing each other on what still had to be done or even holding vendors accountable for the way they dealt with their waste.

Other community initiatives

The GSS and the AWC also serve as an example and **knowledge hub** for other initiatives in Rotterdam. Through meetings and guided tours with the GSS employees, the other initiatives are asking for advice and gaining inspiration for adopting similar practices³⁷. Through these exchanges, the GSS and

³²“Maar dat betekent natuurlijk toch dat we dan ook wel banen creëren voor mensen die anders misschien een uitkering nodig zouden moeten hebben.”

³³“De markt voelt als een familie. Zij hebben ons nodig, en wij hebben hen nodig. We kunnen niet zonder elkaar ” (PO - Week 1)

³⁴... gisteren viel het me weer even op dat [de medewerkers] wel gewoon 10 mensen per minuut gedag zeggen. Dus die [...] sociale functie is natuurlijk echt heel erg belangrijk daarin. [...] ik kom daar best wel vaak dat er dan kinderen zijn die zeggen “welkom”, weet je, dus die hebben zich die plek toegeëigend, die hangen daar gewoon, dat vind ik ook goed.”

³⁵“Het is eigenlijk een soort Central Park: netjes, open en gastvrij, waar kinderen moeten kunnen spelen” (PO - Week 3)

³⁶“Ze doen het niet omdat een baas het zegt, er is geen baas, maar omdat het team zich gezamenlijk verantwoordelijk voelt” (PO - Week 3)

³⁷“Sommige van hen [andere initiatieven], zijn nu ook bezig met een doorontwikkeling, die zijn ooit begonnen als een klein initiatief, hebben wat geld gekregen, zijn gegroeid, krijgen steeds meer aandacht. Zij zijn nu ook bij AWC [...] langs-

the AWC together provide guidance to emerging local projects in other neighbourhoods in Rotterdam, that aspire to develop similar cooperative models. Moreover, the municipality emphasised that the GSS positions itself professionally as a knowledge hub³⁸. This shows that the initiative generates knowledge-based and value-sharing experience, even beyond the borders of their own neighbourhood.

Education

Two educational stakeholders are identified: knowledge institutions and the neighbouring school. The knowledge institute also contains the researcher of this study, and hence their perspective is also part of the following result.

Knowledge institutes

The GSS generates value for knowledge institutions through their role as a **living laboratory** where research, education, and practices can intersect. This was directly experienced by the researcher, as they are part of a knowledge institute as well. This not only supports empirical learning and case-based teaching, but also enriches theoretical understanding of CCIs and community-driven governance. The interaction between the AWC and external researchers can create mutual learning value. On the one hand, academics gain **access to real-world data and insights**. On the other hand, the initiative benefits from **reflections, documentation, validation** and other needs they express through these collaborations. The knowledge sharing, mainly through guided tours, was not limited to universities and schools in proximity. Academics from multiple nationalities received these tours by the GSS employees³⁹.

Neighbouring school

Another stakeholder benefiting from the GSS is the primary school located directly opposite the site. The municipality express that, especially outside of the regular working hours, they often collaborate with this school⁴⁰. This notion shows that this collaboration holds value in the sense that children are introduced to hands-on sustainability and reuse practices in an accessible manner. The cooperation with the school thus creates cultural value, embedding circular thinking in the **educational activities of young residents**, whilst simultaneously strengthening the social bonds between the GSS and the neighbourhood community through that same collaboration.

Designers

The last group connected to the GSS consists of local entrepreneurs, who collaborate on artistic and circularity-oriented activities⁴¹. The AWC also viewed this as a unique chance to generate more value from the recycled waste. They indicate that they can facilitate even more creative or innovative opportunities, such as product design, by and for local residents (Figure 4.3), through the **availability and accessibility of materials**⁴². This ranged from local jam production and smoothie making from food waste, to paper recycling workshops⁴³. Lastly, the physical building itself was designed together with architects, the school, and residents. Through this collaboration, they were able to realise wishes

gegaan van, 'Hé, wij willen Misschien ook een wijkbedrijf worden. Hoe werkt dat? Kun je ons daarin adviseren?'"

³⁸[... dat] kennis en vaardigheden niet zomaar vanzelfsprekend of gratis zouden moeten zijn"

³⁹"Ik had laatst een rondleiding met een groep Amerikaanse studenten en professoren."

⁴⁰"...met name die basisschool daar tegenover. Daar werken ze heel veel mee samen, dus die kinderen krijgen de duurzame principes ook heel erg goed mee."

⁴¹"ze hebben gewoon altijd van die fijne samenwerkingen met kunstenaars en met creatieve geesten die allerlei dingen doen. En er zijn ook ideeën om meer met Repair-achtige events te werken"

⁴²En je kunt daar natuurlijk nog weer heel veel aan koppelen vanuit productontwikkeling [...] wij deden ook die dingen veel met de Willem de Koning academie. Die hadden een soort New Earth ding. Dus waren ook veel studenten en het was ook gewoon veel beetje experimenteren van wat kan je nou voor producten maken.

⁴³"En dat die dan ook jam maakte met het fruit van de markt."

of the neighbourhood, but also won an **architectural design price**⁴⁴.



Figure 4.3: Workshop on paper recycling taking place at the GSS (by E. Rijshouwer (2025))

4.2 Value categories and reflection

In the previous sections, many notions of value were discussed. This section will lend itself to value conceptualisation and categorisation.

The values created by the GSS are diverse and layered, shaped by the perspectives of its many stakeholders. Categorising these values shows multiple value outcomes in the ecological, social, cultural, aesthetic, and financial domains. Yet, these categories are not all encompassing. The same value concept may hold different meanings depending on who experiences it. For instance, employment for residents is seen as a financial gain by the municipality, but a social value by the employees. For Renes, it even has ecological value: they highlight its role in improving the quality waste separation.

This pluralism shows the importance of examining not only what values are created, but also how they are *perceived*, and by whom. The categorisation therefore is not meant to set fixed definitions of values, but to reflect the diversity of their meaning. Residents describe the GSS as a site of community and pride, market vendors experience time savings, and municipal stakeholders point out cost reductions and visibility of policy goals. These variations demonstrate that value is not only a product of activities but also of interpretation and roles.

Mapping these value perceptions also shows that some values are co-created across groups, whereas others are more relevant to a specific stakeholder. Figure 4.4 demonstrates this divergence and overlapping notions. This may serve as a representation of how the GSS simultaneously fulfils

⁴⁴"het feit dat we die architectuurprijs hebben gewonnen"

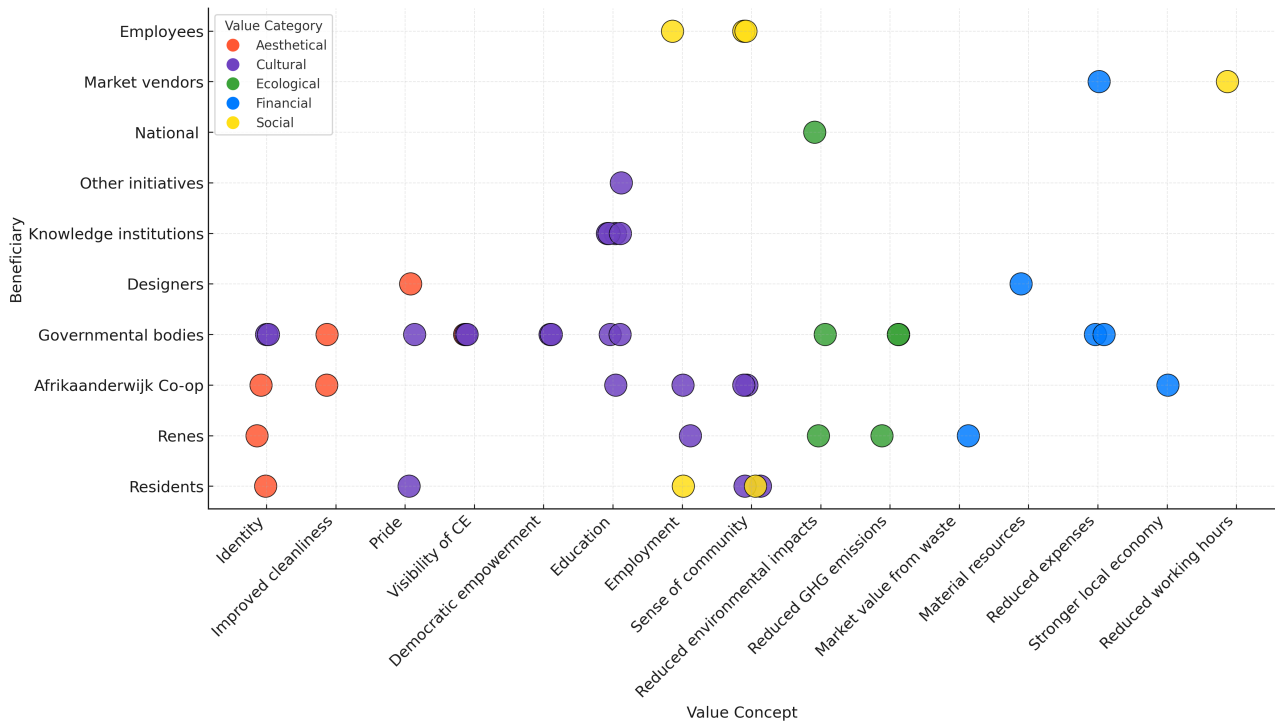


Figure 4.4: Categorized value concepts per beneficiary

multiple roles within the Afrikaanderwijk ecosystem. The value creation of the GSS is not a singular process for a single beneficiary, but rather seems to be the result of a network of relationships that together shape what is meaningful to the Afrikaanderwijk community and its stakeholders as a whole. This complexity should be acknowledged and embraced in any further discussion of its role. Appendix E shows in detail the categorisation of the identified values.

5 | Processes & history of value creation

This chapter discusses the current value creation processes of the GSS, and how this arose through years of experimentation. The practices and processes allowing for the emergence of value are first mapped out for the current situation. Afterwards, the history of value contestation, which has resulted in the current practices is presented.

5.1 Current practices

This section presents the details processes and practices through which the value creation of the GSS emerges.

5.1.1 System parts

The system parts of the GSS illustrate how value is created through the organization and transformation of the market waste streams.

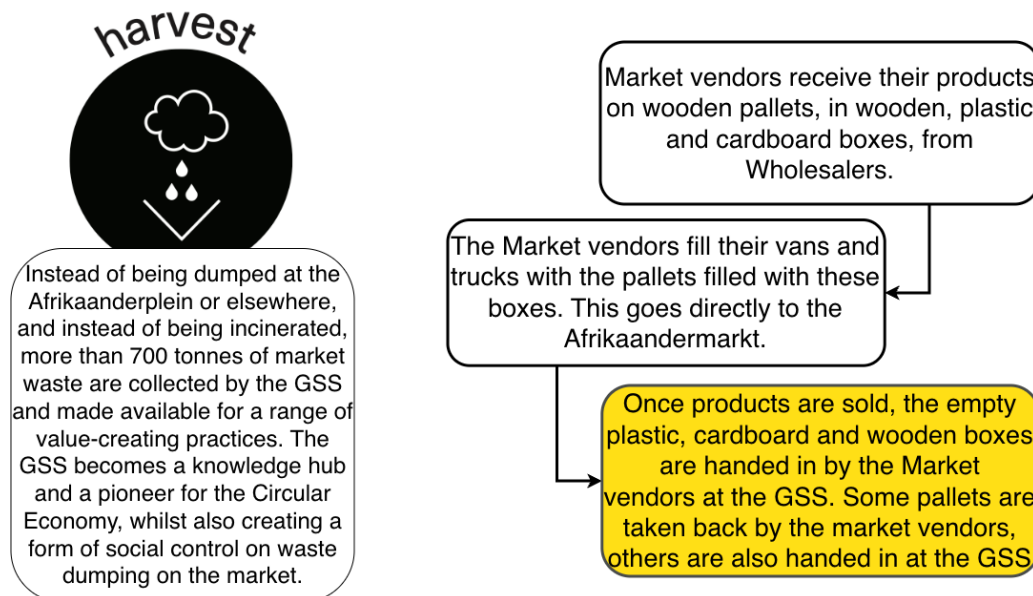


Figure 5.1: System parts: harvest

Value creation begins with **the harvest**: market vendors deliver empty boxes, pallets, and plastics to the GSS. Employees assess and negotiate the quality of waste pallets to ensure that the recyclable materials remain as uncontaminated as possible, and that market vendors pay a proper amount for the relative streams. This stage is crucial to the generation of *ecological value*, since this separates the waste from incineration, which allows for the recycling of materials. Secondly, *cultural value*, the sense of community, emerges through everyday collaborations, from greetings to discussions, between vendors and the GSS employees. Lastly, this phase also allows for the improved cleanliness of the market, since the continuous handing in of waste throughout the day reduces the market square pollution. The harvest part is summarised in Figure 5.1

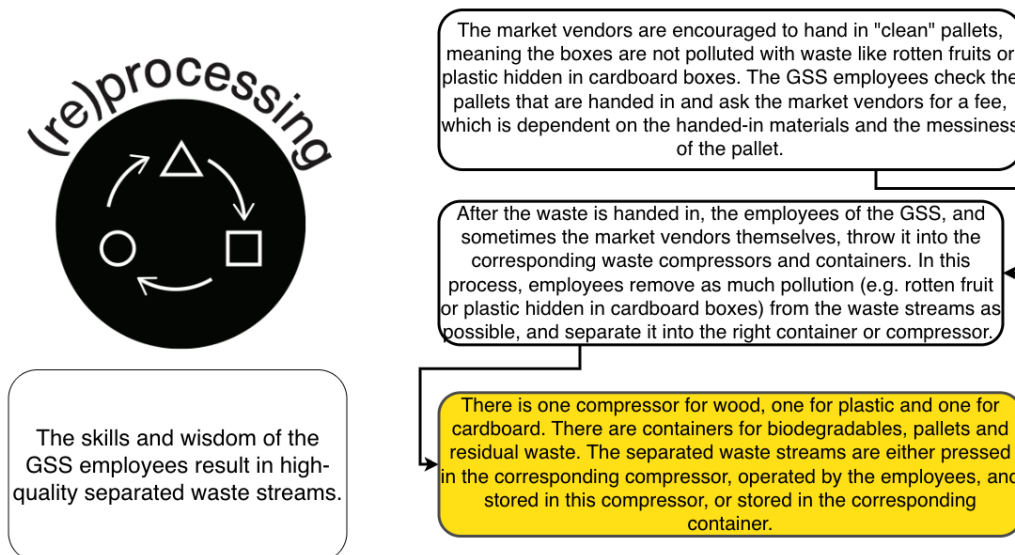


Figure 5.2: System parts: processing

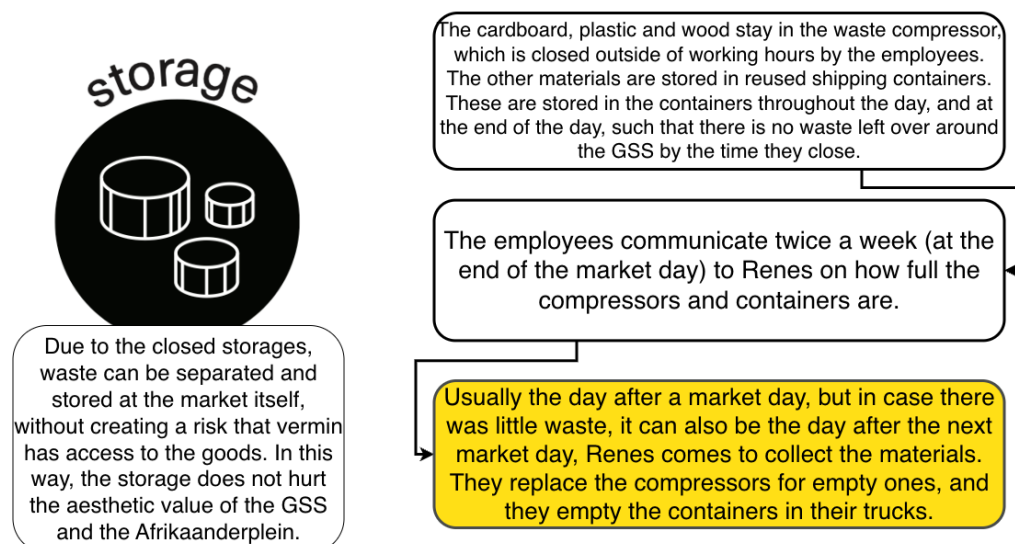


Figure 5.3: System parts: storage

The second system part (Figure 5.2) is waste **processing**. Processing is the most labour-intensive phase, involving the separation, cleaning, and compression of the waste materials. Beyond generating *ecological* and *financial value* by maintaining high-quality recycling streams, this is also where the local employment emerges. When the waste is separated into the corresponding containers, it is compressed by these containers and stored there until pick-up. **Storage** (Figure 5.3) contributes primarily to *aesthetic value*: the visibility of the GSS building itself and organization its compressor containers make for a unique visibility of brand name, allows for a clean market perception, even though the waste is still at the market and presents an example of the circular economy in practice.

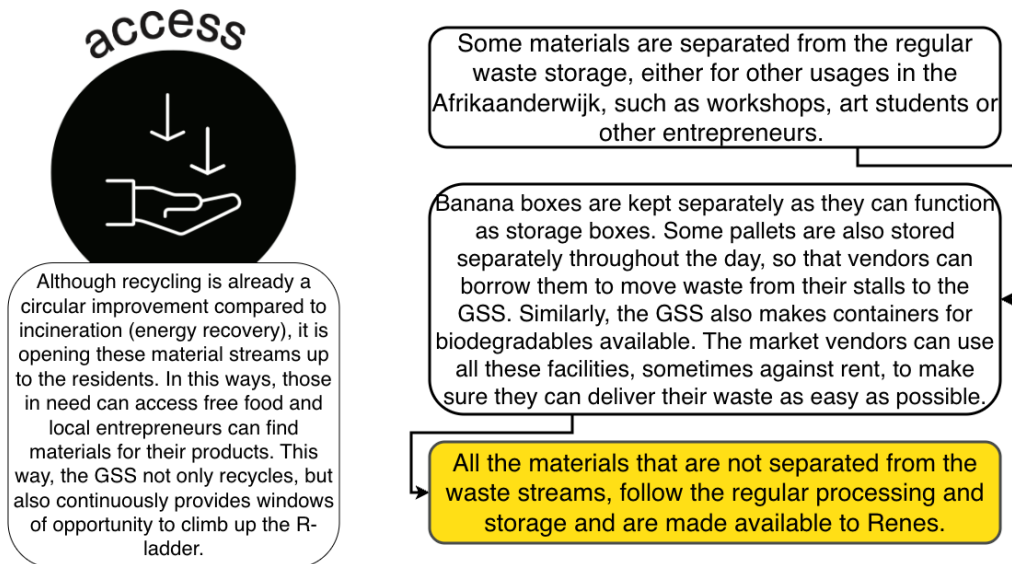


Figure 5.4: System parts: access

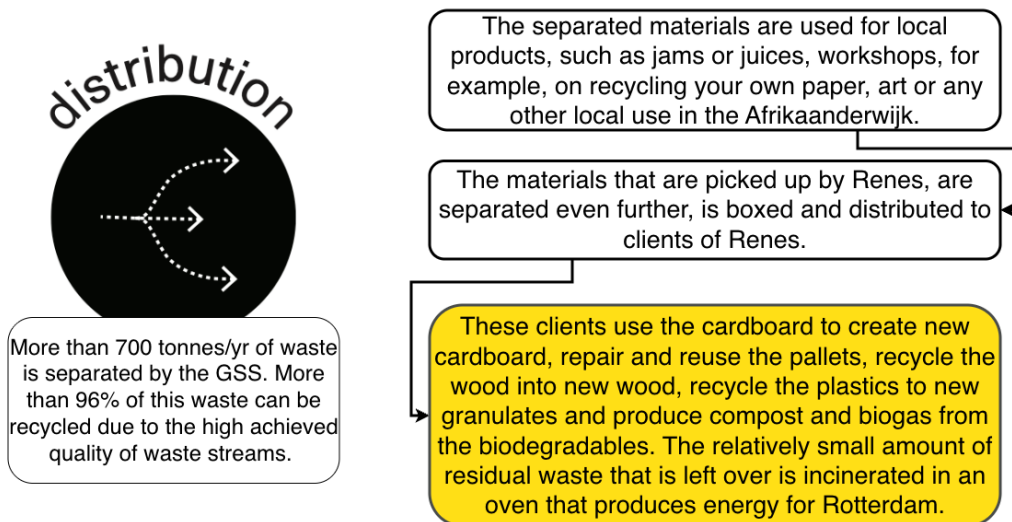


Figure 5.5: System parts: distribution

Access happens in two elements. First, it connects the GSS to the surrounding community. Materials are made available for workshops, schools, and local entrepreneurs, while leftover food occasionally supports those in need. This process thus fosters *social* and *cultural value*, embedding the initiative within the broader neighbourhood ecosystem. But secondly, recycling partner Renes enables the outward flow of the processed materials, making them accessible to producers and recyclers. Renes collects and redistributes the recyclable streams, generating *financial value* for the GSS and themselves through material recovery and enabling *ecological value* via their recycling partners. In this sense, the GSS and Renes enable local and broader **distribution** and **access**, respectively. The system parts are presented respectively in Figure 5.4 and Figure 5.5.

Overall, value at the GSS emerges through the interactions of stakeholders on each of these system parts. Each phase contributes in distinct forms of value, but collectively they allow for the transformation of waste into local employment, a neighbourhood network and reduced environmental impacts.

5.1.2 Resource cycles

The system parts themselves allows for value emergence, both from the described activities, but also from the physical resource cycles. Table 5.1 below summarises the six main flows of resources at the GSS. More flows are present, such as water and energy, partly collected through rainwater and partly from the regular water network and energy usage of the building. However, due to limited data availability these could not be taken into account here. Note that the numbers for 2024 are used. The numbers from 2025 shows a larger total number of processed waste. Since the year is not over, the 2024 numbers are used for completeness.

Figure 5.6 shows the waste flows that come free from the market, that form the base of the work of the GSS. It directly shows that, without the GSS, the amount of cleaning to do for the municipality would increase a lot. Assuming, based on a focus group discussion, 40% of market vendors dumped their waste, either on the market or in neighbourhood household waste containers, the amount of waste processed by the municipality would double approximately. What the figure does not show, is the fact that there is probably more waste coming from the market. This waste is taken away by market vendors themselves, either to be brought to another formal waste processing location, or in an informal way, buy illegally dumping it elsewhere, or letting their waste be processed in informal ways, as indicated by market vendors.

Table 5.1: Resource flows at the Grondstoffenstation, for 2024 (Afrikaanderwijk Co-op, 2025)

Flow name	Quantity [kg/yr]
Cardboard (Pap)	334808
Plastic (PP)	51792
Wood	72240
Biodegradables (AGF)	126900
Pallets	102078 (5671 pallets, average of 18kg per pallet)
Residual waste	23660
<i>Total</i>	711478

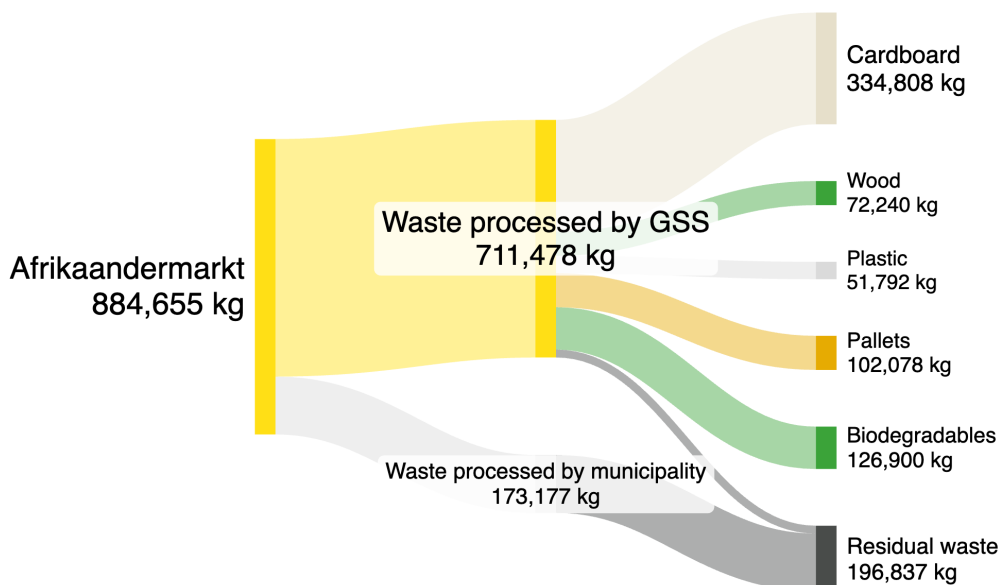


Figure 5.6: The Afrikaandermarkt waste flows

5.1.3 Enabling capital

The value created at the GSS is supported by diverse forms of enabling capital in each stage of the system. During the harvest, when market vendors hand in materials, **goods** such as rollable waste bins, compressor containers, and the physical site itself make collection possible. The **skills** of employees are central here: they assess waste pallet quality, negotiate with vendors for proper payment, and ensure the separation of “clean” and polluted streams. Their operational **wisdom**, gained through experience and guidance from Renes, enables their expert judgement to maintain the waste quality. The **network** between vendors, employees, and Renes provides the trust and coordination needed for timely collection of waste, both during the market day and for recycling pick-up on other days. **Passion**, which is visible in the commitment of employees, but also the vendors, Renes and other partners, motivates continued collaboration and care for the market environment.

In the processing phase, **skills** and **wisdom** of employees are again essential. They operate the compressors and remove pollution from the pallets. Here they apply the technical know-how learned from Renes, their colleagues, and from daily practice. These competences ensure high-quality waste streams, forming the basis of both the ecological and financial value creation. **Goods** such as compressors and containers provide the material infrastructure for storage and processing, while the close **network** with Renes ensures logistical efficiency for waste pick up and allows for feedback on the waste quality.

During storage, **goods** again play a key role through the closed containers and compressors that prevent vermin and maintain cleanliness on the market square, crucial to the aesthetic value of the Afrikaanderplein. In the *access* phase, where materials become available to designers, schools, and residents, the **network** of the AWC expands the reach of the GSS towards the Afrikaanderwijk community. This network opens opportunities for creative reuse, educational workshops, guided tours, and other initiatives, supported by the collective **passion** of designers and residents for local circularity and reuse of materials. Here, **wisdom** is continuously exchanged between all these parties, strengthening community ownership over the circular practices of the GSS.

Finally, in distribution, the **network** and **goods** available to the GSS are again essential for an efficient process: Renes collects and redistributes the processed materials amongst their network, creating valuable resource streams beyond the Afrikaanderwijk from the waste streams. The collaboration relies on the “quick dial” between Renes and the employees, but also on the network Renes has with material recycling and producers.

Next to the phase specific enabling capital, there are also resources that enable the GSS in their practices that are phase-overarching. First, the GSS receives a subsidy: the Kansen voor West subsidy and a wage subsidy. The EU Kansen voor West subsidy provides them with monetary resources to execute, develop and improve their regular circular practices. The wage subsidy is a compensation that is given by law to employers who create jobs for people distanced to the labour market, as explained by the municipal department of Work and Income, who provide this subsidy.

The municipality provides a financial compensation, a project subsidy, for the work that the GSS does. Similarly to Kansen voor West, it is also provided as room for innovation at the GSS. This project subsidy is provided by five departments, including the department of Circularity, the department of Work and Income, and the department Clean City. Because of these subsidies¹, the GSS is not only able to execute their practices as they are now, but also to pay a fair salary to employees and to explore how they can improve waste recycling, connection with the neighbourhood and developing new forms of collaboration with the municipality and other local parties, such as local entrepreneurs. Moreover, the municipality provides more than subsidy. They provide municipal officials as case

¹It is debatable whether subsidy is the right word. This will be elaborated on in chapter 7.

managers within the municipality, for support of the GSS, although this is contested, as will be discussed in chapter 7. They also provide their network: because of the municipal support, AWC and Renes were able to initiate their collaboration. In short, different forms of governmental support enable the GSS to run their practices as they are.

Across all phases, these enabling capitals allow for the emergence of the processes that are currently in existence, and innovation of those processes in the future. This shows that the circular practices, but also the other value creation practices, are highly depended on the ecosystem surrounding the GSS. They enable not only the processing of over 700 tonnes of waste annually but also the embedding of many other value-creating practices in the everyday routines of the GSS. Because of surrounding ecosystem, they are able to realise values they could not have achieved by themselves. This shows that the impact of the GSS is based in collaboration.

5.2 The history of value contestation at the Afrikaanderwijk

The present configuration of the GSS is the outcome of a long trajectory of negotiations, experimentation, and shifting notions of value, starting from a shared ambition for a circular market. From the first pilot in 2017 up to the project plans of 2025, the initiative has been shaped by ongoing contestations over what counts as valuable, for whom, and under which forms of organisation. The history of value contestation is summarised in Figure 5.7.

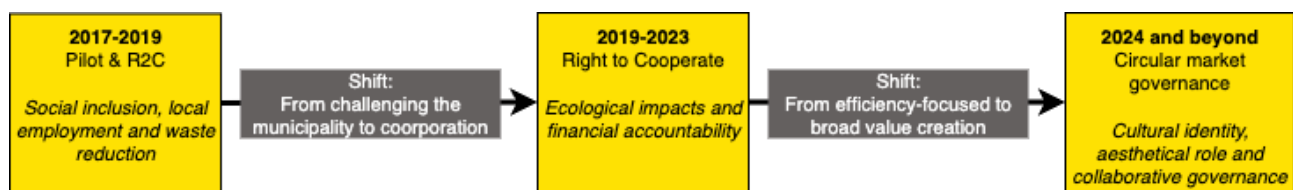


Figure 5.7: The evolution of value contestation at the GSS

5.2.1 From pilot to practice (2017–2019)

When the AWC initiated the project, the GSS initiative was far from realised. Initially, the municipality wanted to set up the *Right2Challenge* (R2C). AWC and municipality came into contact, and the AWC was interested in further developing the R2C project with the municipality. Their initial idea was to let all financial flows in the Afrikaanderwijk flow through the AWC, in light of ownership in the neighbourhood. This would have given them insight in what work would be outsourced, and following they could generate ideas of which of these jobs could be insourced to on the one hand strengthen the Afrikaanderwijk’s local economy, and on the other hand generate employment for the neighbourhood residents. The AWC saw this more as a thought experiment than as the actual outcome. The municipality reacted by saying that would be a way too large project, but that they would be open to collaborate on a more specific challenge: this is where the pollution- and waste issue from the Afrikaanderwijk originated. The AWC started to experiment on the market on creating more circular waste streams, still achieving two of their goals: insourcing work and thereby strengthening local ownership.

The *Resultatenverslag 2018* shows that this earlier version of the GSS project already framed the market as a test case for re-imagining the relationship between economy, community, and environment. Initially, the value of the pilot was measured mainly in terms of waste reduction and employment for residents of the Afrikaanderwijk, and translated into municipal savings. This reflects the strategy of insourcing: the waste collection could bring jobs to the neighbourhood, while simultaneously realising circular practices. The 2018 data showed a 400 m³ reduction in residual waste and 1.6 FTE of new local jobs. This early coupling of material and social benefits reflected an implicit contestation

of values, alongside indicators of these values serving as boundary objects. Furthermore, already the first collaborations with students from a nearby art academy arose, with the purpose of exploring local product creation from waste.

At the same time, tensions emerged regarding ownership and responsibility. The municipality financed the pilot through the newly introduced R2C concept, allowing residents to take over public tasks, in this case the cleaning of the Afrikaanderplein. The municipality was able to test the new R2C concept with the AWC. This introduced a new understanding of value: not financial efficiency through competition, but broader value creation through cooperation. These early frictions between challenging the status quo of the municipality and cooperating with that same municipality for broader value creation foreshadow later, still ongoing, debates about whether the initiative should be treated as a subsidised project or as a legitimate public service.

5.2.2 From R2C to Right to Cooperate (2019–2023)

During the transition from the pilot phase to a permanent setup, the cooperative and the municipality negotiated a new governance model. In the *Resultatenverslag 2018*, the AWC already called for a “Right to Cooperate,” instead of the R2C, acknowledging that long-term impact required shared, rather than transferred, responsibility. This again reflected unique contestations on whether circularity should be governed through market logics, governmental control, community action or a combination of these factors. Following this advice, the R2C concept was indeed renamed to Right to Cooperate.

Between 2019 and 2023, the initiative moved from temporary working stations (sea containers and rollable bins) to a permanent circular building designed by Superuse Studios, building towards a more long-term existence and becoming an integral part of the market square. In this period, funding from foundations such as DOEN and the Rabo Foundation, together with public co-financing, indicated a diversification of what counted as legitimate value production. Ecological indicators like tonnes of separated waste, CO₂ reductions, compost and biogas yields, were increasingly used to secure external legitimacy. Yet, these same metrics also risked narrowing the narrative of the GSS: municipal officials began to assess the initiative primarily through quantifiable outputs, while the cooperative emphasised values of inclusion, dignity, and self-governance, which may be very difficult to quantify, and qualitative representation could be more fitted for these goals. The resulting friction reflects recurring dilemmas on MVC in this research. Quantification may make invisible the social and cultural transformations that sustain those other forms of values.

5.2.3 New Public Governance (2024–2025)

The *Projectplan Circulaire Afrikaandermarkt 2024–2027* and the *Circulaire Markt 2025* document formalised the project into six work packages (WPs), each embodying a different constellation of values. These WPs can be regarded as shared goals from the municipality and the AWC:

The **WP1 – Developing the Circular Neighbourhood Hub** aims to transform the GSS into a local centre for circular education and engagement. In order to overcome limited awareness among residents about sustainability, circularity, and climate issues, the project organises workshops, lessons, and public events in collaboration with schools and local partners. The GSS functions as a knowledge and education centre, hosting at least twelve circular events per year. The goal is to increase neighbourhood knowledge and participation in sustainable practices. To achieve this, partnerships with community organisations, schools, and municipal programmes are essential.

The second, **WP2 – Creating Local Employment in the Circular Economy**, originates from the high unemployment rates in Rotterdam-Zuid and the need for fair local jobs. The WP focuses on waste processing, repair, maintenance, and local storage of materials at the GSS. It provides low-threshold job opportunities for residents, allowing them to learn by doing. The goals are to reduce

unemployment, prevent food waste, and lower CO₂ emissions through local processing. Achieving these goals requires continued funding for training, equipment, and on-site supervision.

WP3 – Separating as Many Residual Streams as Possible from the Market addresses the need to reduce the large volumes of mixed waste from the Afrikaandermarkt. The main activity is the collection and separation of paper, plastic, wood, organic waste, and other streams on-site. The motivation is to make recycling more efficient and reduce transportation emissions. The goal is to lower CO₂ output and maximise recycling rates, transforming the 700 tonnes of annual waste into reusable resources. Continued collaboration with recycling firm Renes, and improved logistical processes are required to maintain and improve these circular outcomes.

WP4 – Ensuring the Highest Possible Quality in Waste Processing focuses on innovation and improving the quality of processing at the Grondstoffenstation. Motivated by the need to enhance recycling efficiency and prevent downcycling, it aims to install new press containers and develop partnerships with advanced recyclers. The objective is to maximise the material value of each waste stream and reduce environmental impacts further. Achieving this depends on new technical equipment, reliable recycling partners, and continuous process optimisation.

There is a lack of green public space and biodiversity in the neighbourhood. Therefore, **WP5 – Making Circularity and Sustainability Visible and Tangible in the Neighbourhood** turns the GSS into a visible example of sustainable design. The green roof, public stairway and seating areas invite residents to engage with the circular activities happening at the same building. The goal is to foster ecological awareness and biodiversity in the neighbourhood. Continuous maintenance, seasonal replanting, and community participation are required to sustain the space as a living example of circular urban development.

The final package, **WP6 – Developing a New Collaboration Model with the Municipality**, focuses on governance and coordination. Its motivation lies in the pioneering cooperation between the municipality and the AWC. Activities include regular operational and strategic meetings, administrative reporting, and joint evaluation of progress. The goal is to formalise a model for cooperation that increases transparency, trust, and shared responsibility between government and citizens. Success requires consistent communication, structured reporting, and mutual commitment from both parties.

In short, WP1 is linked mainly to the cultural values for the neighbourhood, WP2 to the social values, WP 3 and 4 on financial and ecological values, WP 5 to cultural and ecological values, and WP6 aims to institutionalise MVC itself as a form of governance by pioneering new modes of cooperation with the municipality. Especially the sixth WP is hence a direct embodiment of cultural value: it is aimed at fostering New Public Governance, with public value contestation at its centre. In doing so, the AWC's value creation expands beyond specific outputs towards more collaborative governance as both a process they actively engage in, and an outcome of their practices.

Nonetheless, the contestation of values continues to exist today and will most likely not disappear anytime soon. Some municipal departments start to see the GSS as a cost-saving partner. Moreover, most of the interviewed municipal officials are aware of the GSS's societal worth, but political decisions² above their level restrict their capacity to support the initiative fully³. The AWC continues to experience delayed payments, fragmented responsibilities, and limited recognition by municipal executives of the broader societal value they create. The municipality's accountability frameworks still privilege financial measurability over relational or cultural forms of worth, as seen from the interviews

²"Het is ook heel erg afhankelijk van de politieke keuze en van de gelden die op dat moment beschikbaar zijn"

³"Uiteindelijk komt het daar op terecht. Dan is het inderdaad heel vervelend dat wij ook moeten zeggen: 'ja, sorry we kunnen jullie niet meer helpen, het geld is op, we begrijpen nu dat jullie volgend jaar niet meer kunnen bestaan zonder dit geld. We hebben altijd goed samengewerkt maar we kunnen niet anders.'"

and focus group. On the other hand, the AWC keeps insisting on local ownership and community participation, challenging the conventional value measurements and governance system. These tensions show in practice that the circular market ambition is as much about re-valuing governance structures as it is about recycling materials.

Throughout the years of the AWC project transforming into the GSS, a clear evolution can be observed. In 2018, the dominant value narrative were social and financial: providing employment, reclaiming agency in a marginalised neighbourhood and reverting waste from incineration to reducing cleaning costs. By 2021, the ecological values of the project became more central to the justification of the project. From 2024 onwards, the value ambitions got complemented by more aesthetic and cultural dimensions: the GSS became a circular market identity, educational site, and symbol of pride for the neighbourhood. Financial values shifted from being only cost-reductions for the municipality, to the search for what it means to have a sustainable governance model around a project like the GSS. The contestation between these values become directly apparent from this research, and show that New Public Governance in the form of initiatives like the GSS is an iterative, time-consuming ambition, which may yield broader forms of value through years of evolution. The history of the GSS therefore is a direct example of the continuous negotiation of values in practice, and Figure 4.1 directly demonstrates that a Right to Cooperation can provide a relevant, alternative way of organising governance.

6 | Quantification and contextualisation

The quantification of values may serve as a way to on the one hand show the values that are created in a manner that can be used in many stakeholder discussions, but especially in collaboration with the municipality, as addressed in the previous sections. On the other hand, it may serve as a way to further contest values and their meaning. But it is not a holy grail: quantification has risked undervaluing the GSS practices earlier, nor should it give tools for instrumentalising the initiative. Throughout this thesis, various forms of value quantification have been explored, primarily as a means to make the multiple values created by the GSS more visible to relevant stakeholders. While many of the identified values may be difficult to quantify, or maybe should not be quantified, certain values do lend themselves to more concrete approximation. This section will describe which values *could* be quantified, *why* they *should (not)* be quantified, and *how* it may be done for those values.

As discussed in chapter 4 and chapter 5, the GSS generates a broad range of values. Some of these lend themselves to quantification, for example because their outcomes can be traced through resource or financial flows. Others may not be meaningfully expressed in numbers without losing essential context, or because data is not available. Quantification is therefore approached here as an explorative practice, not as a comprehensive measurement.

6.1 Quantifying values: complement instead of replace

Based on the expert interviews, it is hypothesised that there are three main criteria that determine whether a value can or should be quantified:

1. the causal relation between activity and outcome is sufficiently clear,
2. relevant and reliable data are available, and
3. quantification does not distort the meaning of the value it represents.

First, for certain identified values it may be difficult to couple their outcome solely to the activities of the GSS. Take, for example, social cohesion: although this is enabled through job creation and daily collaboration at the GSS, the market itself, and therefore the market vendors and visitors, also play a significant role in creating this value. The GSS contributes to it, but cannot claim full responsibility. In such cases, qualitative description is more appropriate, as it allows the interdependence of actors and the situated nature of the value to be expressed.

Secondly, even when a value can be coupled to the initiative's activities, relevant and reliable data might be missing to allow for meaningful representation. For example, market vendors mentioned that the proximity of the GSS shortened their working day. Yet, no data was obtained in this research to quantify how much time this actually saves them. Similarly, while subsection 6.2.1 presents an indicative estimate for avoided emissions, there is also an unreliable representation of bio-based flows that might cause a vast underestimation the avoided emissions. Quantification under such uncertainties risks creating an illusion of precision that may not reflect the reality of the presented numbers.

Finally, quantification should not distort the meaning of the value it represents. Ecological values such as avoided emissions can be related to measurable quantities, as life-cycle data from Bijleveld et al. (2021) provide a credible basis, which will be explained more in detail in subsection 6.2.1. Likewise, certain financial effects, like avoided cleaning costs or reduced unemployment payments, can be traced through existing reports. Yet, many of the values identified in chapter 4 emerge from social

interactions and shared experiences rather than material or financial flows. Expressing these numerically risks narrowing their meaning to what can be externally observed. As Bryson et al. (2014) and Schwanen (2024) emphasise, public values are plural and negotiated, and their significance often arises from how they are achieved, rather than in how they are counted. In this sense, quantification can easily shift attention from these lived experiences of value creation towards a purely regulatory interpretation.

For this reason, it is proposed in this study that quantification should only be done when it strengthens the understanding and dialogue between actors with different perspectives, such as between the cooperative and the municipality in this research. In these settings, numbers can serve as a *boundary object* (section 2.5) that helps create a shared frame of reference. However, where quantification risks reducing complex, relational, or experiential values to simplified indicators, qualitative representation is better suited to demonstrate their meaning and role within the MVC at the GSS.

In summary, quantification should be applied carefully and consciously. It can make certain impacts visible, but it cannot capture the full picture. Numbers should therefore be used as tools for communication, not as claims for truth. The following section explores these criteria in practice by presenting an exploratory quantification of the GSS's ecological and financial contributions, in order to complement, rather than replace, the qualitative understanding.

6.2 The case of the Grondstoffenstation

This section will lend itself to testing the aforementioned criteria for the case of the GSS. For each identified value concept, it will be determined whether, based on this research, there is a clear causal relation between the actions of the GSS and the identified value outcome, whether relevant and reliable data is available and it will be assessed if quantification does or does not distort the identified meaning of the value it represents.

Ecological values

Ecological values lend themselves particularly well to quantification, provided that appropriate methods are applied. In this research and previous reports (Afrikaanderwijk Coöperatie, 2018), **reduced waste** has already been quantified through annual market waste processed by the GSS, both in volume and in mass. These figures have been compared to a baseline from 2016 (before the GSS was operational), as well as to more recent waste flows, showing a consistent downward trend. This shows not only that the actions of the GSS directly influence this outcome, but also that reduced waste provides a robust starting point for further quantification of ecological values.

A more comprehensive picture of ecological value creation, however, requires not only tracking waste quantities, but also the **environmental impact** of how waste is processed, and the upstream and downstream supply chains. In subsection 6.2.1, avoided **greenhouse gas (GHG) emissions** are estimated using CO₂-equivalent emission factors from Bijleveld et al. (2021). Still, these figures should be interpreted conservatively due to assumptions around bio-based flows, traffic emissions, and unknown up- and downstream chains. To better capture broader environmental impacts, a similar method to Bijleveld et al. (2021), but specific for the GSS case system is recommended. This Life Cycle Assessment (LCA) would allow for an integrated assessment of GHG emissions, but also other categories such as eutrophication or land use. This could be done as a comparative LCA between two system boundaries: (1) the current situation with the GSS, and (2) a reference scenario without the GSS. However, it should be mentioned that LCA outcomes should be clearly contextualised and communicated, as their complexity can risk obscuring the specific contribution of the practices of the GSS, rather than clarifying, in relation to the ecological value generation by the GSS.

A more comprehensive picture of ecological value creation, however, requires not only tracking waste quantities, but also assessing the **environmental impact** of how waste is processed, including upstream and downstream effects. A Life Cycle Assessment (LCA), according to the international standards (Finkbeiner et al., 2006), is therefore recommended as a method to evaluate the broader ecological impacts. This could be done through a comparative LCA between two system boundaries: (1) the current situation with the GSS, and (2) a reference scenario without the GSS. As a preliminary step toward this, subsection 6.2.1 presents an estimate of avoided **greenhouse gas (GHG) emissions** using CO₂-equivalent emission factors from Bijleveld et al. (2021). These figures offer a first indication of the GSS's contribution to climate change mitigation, but should be interpreted with caution. Furthermore, it only provides a limited scope of ecological impacts, since outcomes such as land-use eutrophication are not presented. LCA can be a powerful tool to make these impacts visible, but the results should always be clearly contextualised and communicated, since their complexity may risk obscuring the specific contribution of the GSS's practices rather than clarifying them. Furthermore, the method can be resource intensive. Therefore, it may be recommended specifically to the GSS to do this in collaboration with scholars.

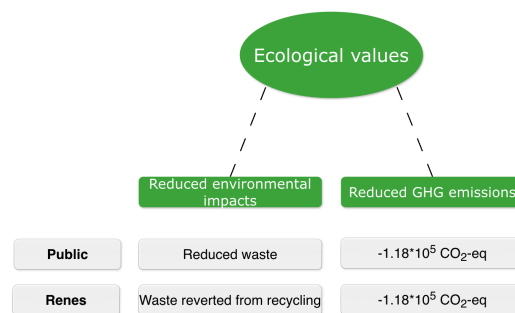


Figure 6.1: Ecological values created by the GSS

In short, ecological values tend to have a high direct causality to the actions of the GSS. Data is already partly available, and more can be generated with the partners of the GSS, and if results are communicated properly according to the method, quantification is encouraged.

Aesthetical values

Identity is a value experienced by many stakeholders. From beneficiaries' notions, it became clear that identity is an outcome of cultural factors already present in the Afrikaanderwijk. Therefore, it is not solely a result of the GSS activities. Secondly, the research also showed that identity has a different meaning for each stakeholder. In other words, identity is a deeply contextual and narrative-driven value. Thus, the value should not be quantified. Similarly, the experienced **pride** is also deeply rooted in the context of the beneficiaries. Hence, also for pride it is recommended to capture its meaning through qualitative narratives instead of quantifiable indicators.

The **Visibility of CE**, however, is seen as a direct outcome of the activities of the GSS. Although this research has some data on how residents experience CE visibility, the data is limited and therefore no reliable indication can be made. However, in future research this may be done using survey-based perception scoring, where residents from the Afrikaanderwijk are asked on what they see at the GSS, and how they perceive it. However, to define proper indicators for the visibility, consultation with the relevant stakeholder, in this case the municipality, is advised, and a separate study could be done on how it may be quantified.

Lastly, the GSS activities directly influence **cleanliness** on market days, but other actors contribute too. The actions of vendors, visitors, but also weather blowing around waste, all has influence on the market. During the focus group an idea arose for quantifying the improved cleanliness through

proxies via complaints or cleaning costs. The quantification of cleaning costs will be discussed later in this section, but it should be noted that quantifying the reduced cleaning cost does not directly show improved cleanliness. In previous reports it was namely indicated that sometimes reduced cleaning costs are also a result of budget cuts at the municipality. Furthermore, cleanliness may have subjective dimensions that cleaning costs may oversimplify. For the complaint proxy, the oversimplification may still hold. However, quantification could still be useful in decision-making processes. A municipality official indicated that handling these complaints at the municipality is quite costly, and therefore quantifying the cleanliness through a reduced number of complaints could still serve as a boundary object in discussions between the GSS and the municipality.

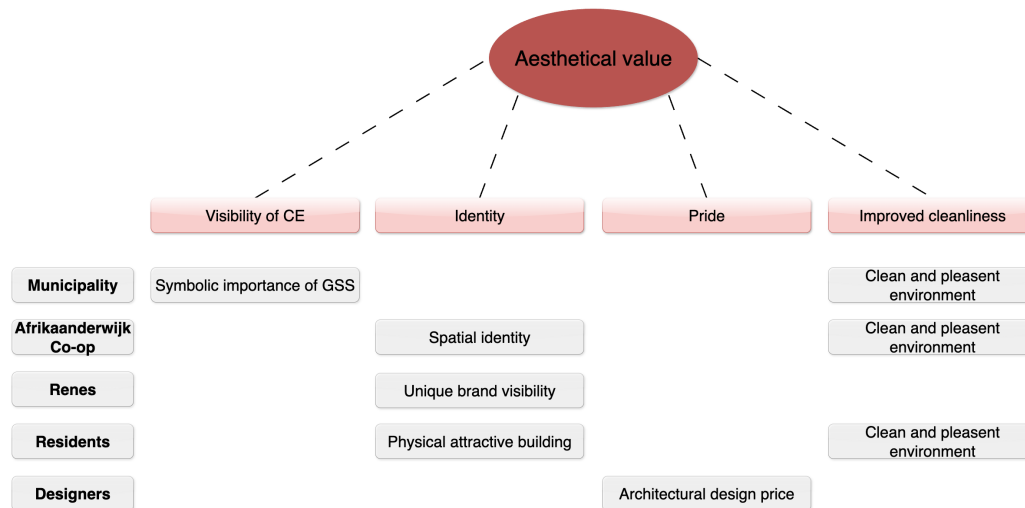


Figure 6.2: Aesthetical values created by the GSS

Financial values

Financial values represent an important dimension of the GSS’s multiple value creation, especially since this is valued quite specifically by one of their most important partners, the municipality. However, even within this category, the degree to which quantification is meaningful varies per value concept.

The **market value from waste** is directly traceable, as the GSS earns income through the sale of their services, as well as through the payments received by to Renes. This financial flow is already recorded by the AWC and will be mapped in subsection 6.2.2. These transactions are inherently monetary and therefore well-suited for quantification, especially in this case to demonstrate cost recovery. However, it should be noted that more market value recovery happens downstream at Renes and their partners. Therefore, the current quantification would be a good indication of the value created purely by the actions of the GSS, but it would not show whether these earnings are in line with earnings from partners downstream. In short, for this case data is available, causality is clear and it would not distort the meaning.

The **material resources for entrepreneurs** form a more informal economic value stream. These flows are used by designers, entrepreneurs, or other creatives in the neighbourhood, as discussed in chapter 4. While GSS staff facilitates access to these materials, there is currently no systematic tracking of what volumes are taken, by whom, or to what economic ends. Hence, data availability is limited. Quantifying this value would require a system of voluntary reporting or case documentation among local entrepreneurs, which could risk introducing barriers to informal and creative reuse practices, and hence towards other values such as neighbourhood engagement and visibility of the CE. Thus, while this value is causally related to the GSS and may have financial outcomes, quantification would likely distort its meaning if not designed carefully in collaboration with the relevant entrepreneurs.

On the other side, **reduced expenses** for partners such as the municipality, are more readily quantifiable. Similar to the market value, this can be done without reducing the meaning of the value, and data is already partially available. Therefore, subsection 6.2.3 already presents preliminary estimates for cost reductions related to waste disposal, cleaning, and allowance payments. However, as will be explained in more detail in subsection 6.2.3, care must be taken when interpreting these results. For instance, reduced cleaning costs may stem from budget cuts rather than improved outcomes, and assumptions about avoided allowances can obscure the social reintegration function of the GSS. Nevertheless, these figures are useful as a boundary object in dialogue with the municipality, especially if combined with these (qualitative) notions.

The fourth value concept, a **stronger local economy**, is the most complex to quantify. The GSS contributes to this value indirectly through local employment, but also the local reuse of materials, and partnerships with local entrepreneurs. However, no single metric that can capture this systemic effect has been identified. While individual components such as jobs (in FTE) or material recovery can be measured, the broader economic effects in the neighbourhood are harder to determine. If quantification is pursued, an input-output analysis might be considered, although it is unsure if this can be properly done with neighbourhood data. Moreover, from this research it did not become particularly clear that this would serve as an effective boundary object. Therefore, quantification is not recommended.

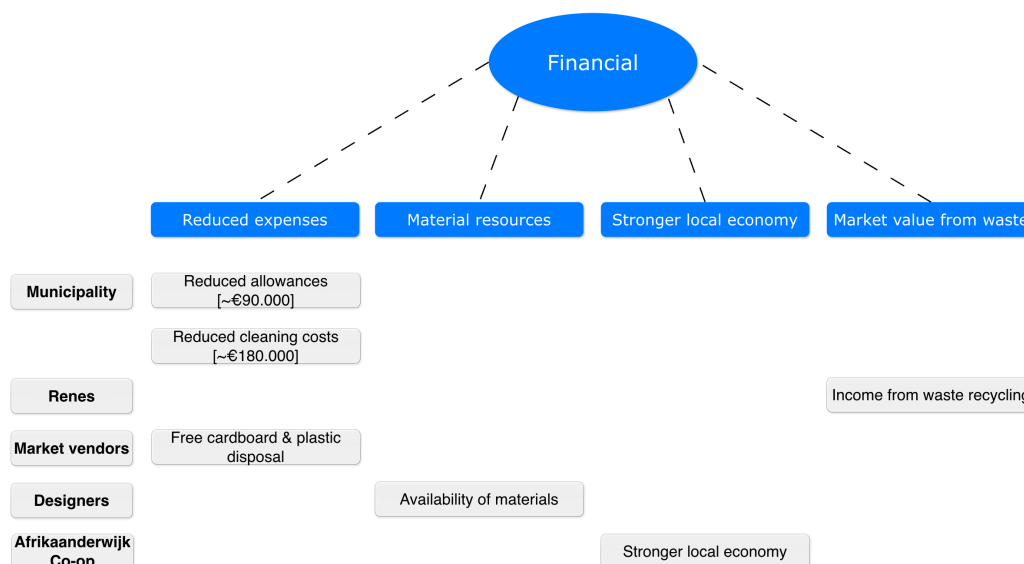


Figure 6.3: Financial values created by the GSS

In sum, while financial values appear highly quantifiable, a closer look reveals different levels of causality, data availability, and risk of value distortion. Clear monetary flows like waste income and partner savings lend themselves well to quantification, but more informal or systemic economic values require more exploratory research on how it may be done, and if it is even desired.

Cultural values

Cultural values often intersect with social and aesthetic dimensions and are therefore partially addressed in other sections. Values such as **employment**, **sense of community**, and **democratic empowerment** are key to understanding the cultural significance of the GSS within the Afrikaanderwijk. Among these, only **democratic empowerment** is discussed in detail here, as the others are already addressed under social values (**employment** and **sense of community**) and aesthetic values (**identity**, **pride**, and **visibility of CE**). Nonetheless, since they also have a cultural dimension, for all these values a similar note should be made. The cultural effects of these outcomes can differ significantly on

beneficiary, context and the system as a whole. Therefore, it is highly recommended to address these values in a qualitative narrative, to avoid distortion of the values.

Democratic empowerment refers to the GSS’s role in strengthening the voice and agency of residents within local governance structures, especially in relation to the pursuit of the CE in the neighbourhood. It is an example of how New Public Governance can be operationalised: it includes the ability to shape operational decisions around the GSS, influence how public space is used, and co-create value in ways that reflect the needs of the neighbourhood. The interviews and observations show that this empowerment is experienced by several stakeholders, especially through the inclusive employment model and the visibility of the GSS in public space, yet the value is difficult to quantify. Democratic empowerment does not translate easily into measurable units: simplified proxies such as the number of meetings attended or feedback sessions organised may not show the actual influence the residents have in the neighbourhood, nor does it show the personal perception part of empowerment, thereby potentially obscuring the value rather than making it more clear. Furthermore, the empowerment process is also highly contextual, as it is shaped by pre-existing power dynamics between the municipality, the residents and the GSS. Therefore, this value is best captured through qualitative narrative, such as storytelling¹, participatory research methods, or longitudinal analysis of governance outcomes.

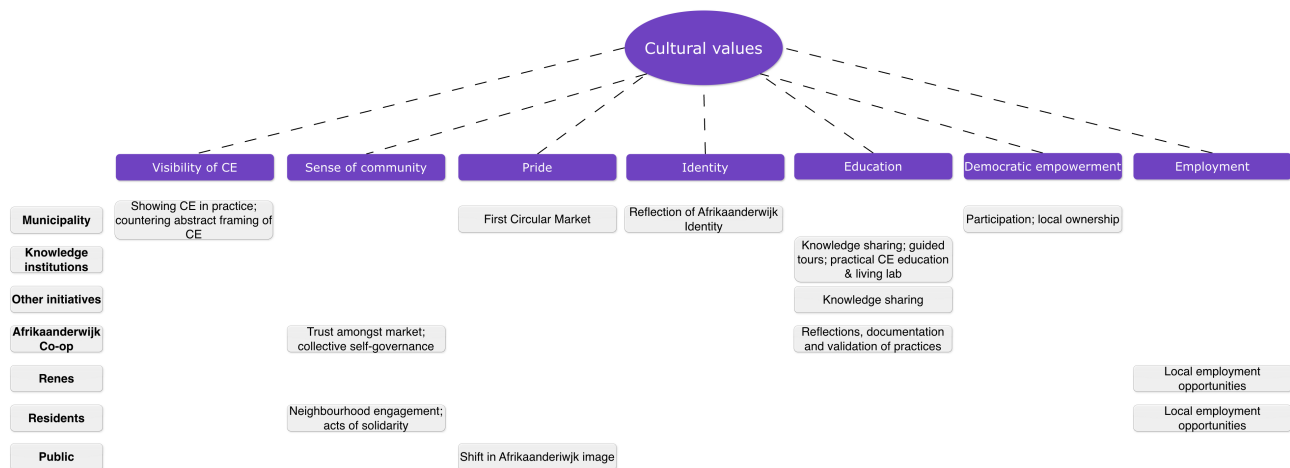


Figure 6.4: Cultural values created by the GSS

Social values

Lastly, Social values form a central pillar of the GSS’s value creation, yet they vary significantly in their potential for quantification. The most directly measurable value concept is **employment** for Afrikaanderwijk residents. Through standard reporting by the AWC (Afrikaanderwijk Co-op, 2025), the number of full-time equivalents (FTE) created can be tracked to 3.0 FTE for 2025. However, this indicator gives a limited scope of the actual social impact: first, FTEs do not reflect the number of individuals affected. In the case of the GSS, these 3 FTEs are distributed across more than ten people with part-time roles and flexible contracts. Second, this metric does not capture the broader psychological, social, or economic effects of employment such as increased self-confidence, improved mental health, or pathways to reintegration into the labour market. These effects were repeatedly mentioned in interviews and observations, and therefore this social value is best documented through qualitative methods, or by using the above indicator always in completion with the qualitative narrative.

Another social value identified is **reduced working hours** for market vendors. By offering an accessible and efficient location for waste disposal, the GSS shortens the workday for many vendors—

¹ One interviewed expert indicated storytelling can be a fitted approach not only to showing qualitative narratives, but also to combine every data available, both quantitative and qualitative, to the desired communication purpose.

particularly on long market days. While exact time savings could not be determined within this research, future studies could explore this more systematically, for instance through vendor surveys. The observation discussions in Appendix A suggest that the use of the GSS may save vendors several hours per market day. In short, the causal relation is clear, the potential for data collection exists, and no reasons are found to assume this value is distorted by quantifying it. Lastly, since the positive perception of the GSS in the perspective of the market vendors came up during the focus group, it may be particularly helpful in discussions with the municipality, especially the department responsible for the market. Therefore, future quantification is recommended, but it should be further assessed whether the effort should be prioritised.

Finally, the GSS fosters a strong **sense of community**, especially among its employees, market vendors, and surrounding residents. This value repeatedly emerged from interviews and participatory observations, where people described the GSS as a “market family” and a “social hub” in the neighbourhood. However, this value is highly contextual, and cannot meaningfully be captured through quantitative indicators without risking distortion: attempts could be made to measure it through simplified proxies such as frequency of social interactions, but would likely fail to capture the depth of its relational nature. In line with the hypotheses outlined, the sense of community should therefore be represented qualitatively, through narrative or participatory methods, such as storytelling.

This section has explored the possibilities and limitations of quantifying the values created by the GSS. The summarised results can be found in Table 6.1. The next section will present indicative quantifications of some of the quantifiable values, based on the data that is available in this research.

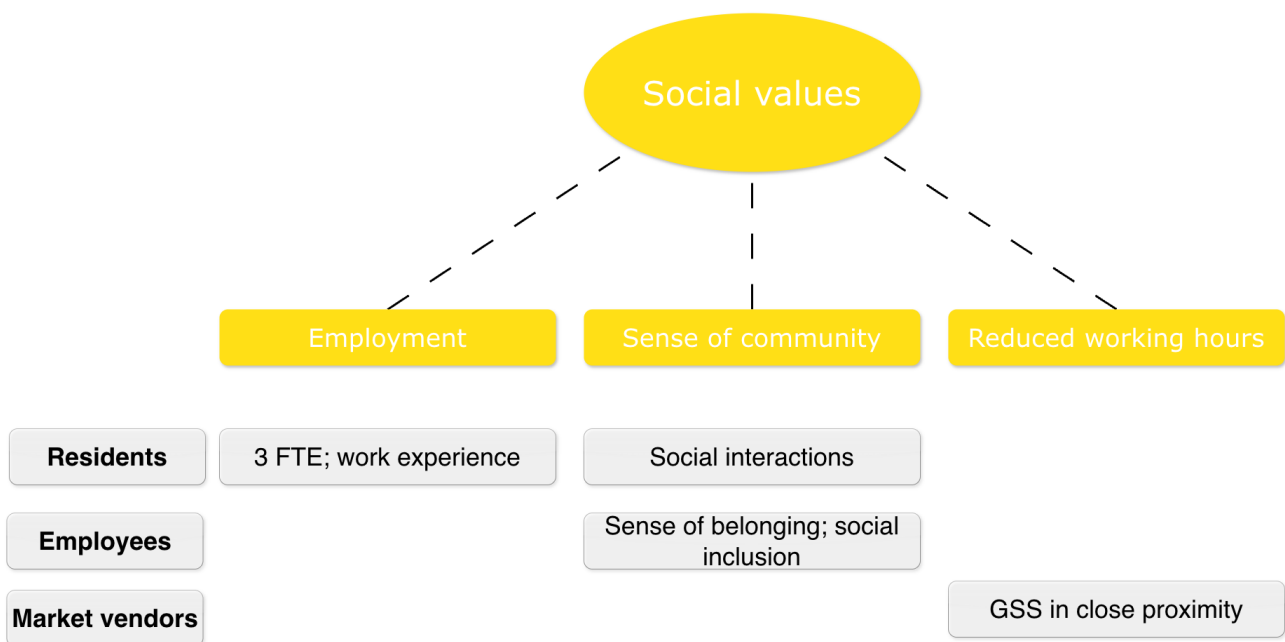


Figure 6.5: Social values created by the GSS

Table 6.1: Summary of quantification potential across value categories

Value category	Value concept	Causality	Data	Distortion
Ecological	Avoided CO ₂ emissions, broader environmental impacts	Clear	Available (with assumptions)	Low, though LCA only captures part of ecological impact
Ecological	Reduced material waste	Clear	Available	Low, directly measurable
Financial	Income from waste streams	Clear	Available (bookkeeping)	Low
Financial	Municipal savings (waste disposal)	Moderate	Partial, outdated or indirect	Medium, due to assumptions
Financial	Municipal savings (cleaning costs)	Moderate	Available (estimated)	Medium, not all reductions are performance-related
Financial	Municipal savings (allowances)	Moderate	Extrapolated from 2018 data	Medium to high, depends on assumptions
Financial	Material availability for designers	Clear	Not tracked	High, informal use not captured
Financial	Strengthened local economy	Indirect	No data	High, systemic and diffuse
Social	Employment (FTE)	Clear	Available	Medium, FTE obscures individual stories
Social	Reduced working hours	Clear	Not measured	Low, could be quantified with surveys
Social	Sense of community	Indirect	No data	High, qualitative only
Cultural	Democratic empowerment	Clear	No data	High, requires narrative representation
Aesthetic	Visibility of CE	Clear	Limited (anecdotal)	Medium, could be measured with surveys
Aesthetic	Cleanliness	Moderate	Proxy via complaints or cost	Medium to high, subjective element
Aesthetic	Pride / Identity	Indirect	No data	High, deeply contextual

6.2.1 Avoided CO₂ emissions

Based on the datasheets of waste processing by the GSS and Life-Cycle Assessment (LCA) data from Bijleveld et al. (2021), a preliminary calculation can be made for the savings of CO₂ with respect to incineration. Bijleveld et al. (2021) present indicative CO₂-eq emissions for the incineration of multiple waste streams, among which four of the streams of this market. Their study focusses on climate impact: the environmental impact caused by greenhouse gas emissions. CO₂ is the best-known greenhouse gas, which is why climate impact is expressed in CO₂ equivalents (Bijleveld et al., 2021). This takes into account other greenhouse gases based on how much they contribute to climate change, but environmental impacts such as biodiversity effects and to land use are not included in their report. Therefore, using this study will only give a marginal representation of reduced greenhouse gas emissions, but not other environmental impacts.

Bijleveld et al. (2021) state that they have based their LCA on Dutch AVI incineration (waste incineration with energy- and heat recovery), which is the case for Rotterdam residual waste according to Renes. They have based their recycling processes on the Netherlands, meaning they have used data from Dutch recycling companies as far as this is available. Bijleveld et al. (2021) state that this LCA may be used to inform decision-making for local municipalities, if they were to recycle certain material flows instead of incinerate them, making it fit for this study. The results are presented in Table 6.2.

Table 6.2: Avoided CO₂ emissions by recycling

Resource flow (Afrikaanderwijk Co-op, 2025)	Incineration emissions [kg CO ₂ -eq/ton] (Bijleveld et al., 2021)	Recycling emissions [kg CO ₂ -eq/ton] (Bijleveld et al., 2021)	Avoided CO ₂ [kg CO ₂ -eq]
Cardboard	-400	-400	0
Plastic	1730	-490	-1.15 * 10 ⁵
Wood	-390	-190	1.44 * 10 ⁴
Biodegradables	20	-120	-1.78 * 10 ⁴

For bio-based materials such as wood, paper, and cardboard, an analysis based solely on CO₂-eq emissions may suggest that incineration is comparable to recycling. However, such results overlook several important aspects (Bijleveld et al., 2021). First, recycling of bio-based materials is beneficial in avoiding other environmental impacts beyond climate change, such as deforestation and land use. Second, wood and paper can be recycled multiple times, each cycle contributing to additional climate benefits. Eventually, the material will likely still be incinerated, but it is preferable to recycle it several times before incineration, rather than burning it immediately, as direct incineration results in the loss of the material after only one use cycle. Third, the combustion of wood and other bio-based materials does in fact release CO₂-eq. Through recycling, the release of this biogenic CO₂-eq is postponed. This disadvantage of incineration and advantage of recycling are not reflected in the LCA results due to the accounting rules applied to biogenic CO₂-eq (Bijleveld et al., 2021).

For 2024, it becomes clear that, even in the conservative case, the recycling of the resource flows amounts to a total **-1.18 · 10⁵ kg CO₂-eq** per year. However, this calculation is conservative due to the bio-based materials. But there are more reasons it does not give an accurate representation for the GSS initiative. First, pallets could not be quantified due to limited data availability, and it could not be assessed how they were processed in the case without the GSS. Second, the GSS compresses their waste locally. It is estimated that because of this² there is over 90% reduction³. This means there is a significant reduction in emissions due to reduced traffic on the road, but this more data is needed on

²“in 1 vrachtwagenrit in een open kuub container zit ongeveer los 700 kilogram en geperst in container ongeveer 3500 kilogram”

³Afrikaanderwijk Coöperatie (2025b): there is an estimated reduction from 6120 rides in the old situation to a maximum of 323 rides with the GSS.

typical truck types and waste trip distances of market vendors to make an indication of how much emissions this saves. Furthermore, it is not exactly known how much material is actually recycled in comparison to what is collected for recycling by the GSS, and since the numbers by Bijleveld et al. (2021) do not take into account these potential differences, the numbers might be overestimated.

In short, there are still many factors that need to be assessed in more detail to give a more reliable result of the annual CO₂-eq savings by the GSS initiative. In order to give a better indication of what the environmental impacts of the GSS are, in comparison to the case without the GSS, it is recommended to perform a proper comparative LCA study specific to the case of the GSS and the respective recycling chains. But already on these results, it may be concluded that the GSS initiative is a significant contribution to the reduction of environmental impacts.

6.2.2 Financial flows through the GSS

Based on several datasheets and reports of the AWC (Afrikaanderwijk Co-op, 2025; Afrikaanderwijk Coöperatie, 2023), the financial flows through the GSS system have been mapped out. These flows help to tackle the transparency question addressed by the municipality. In terms of data age, all data is from 2025, January-September. The data has been linearly extrapolated to October, November and December. This is assumed justified since the data in 2024 was approximately constant throughout the year (Afrikaanderwijk Co-op, 2025). This aligns with the claim of the municipality that the market is used for regular, daily groceries (section 4.1). The data could not be cross-verified with the municipality, due to a lack of transparency by the officials. The resulting financial flows can be found in Figure 6.6.

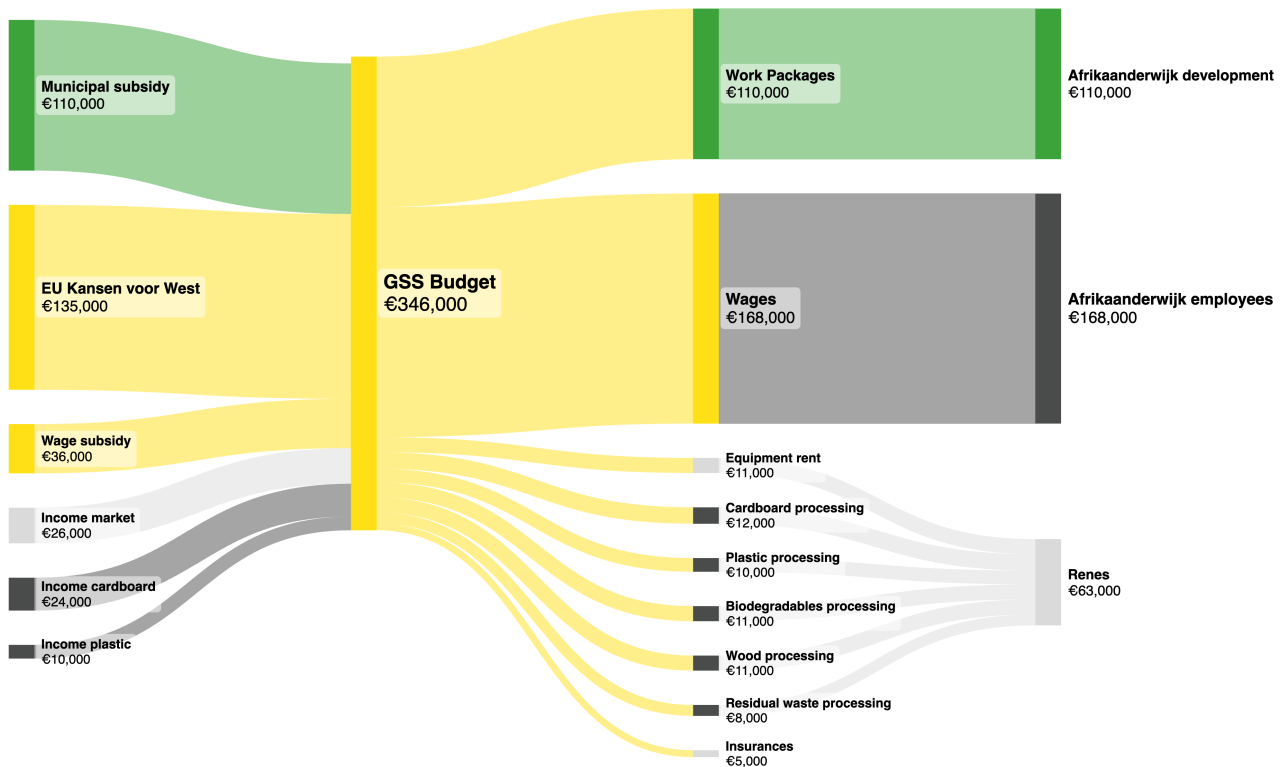


Figure 6.6: Annual financial flows at the GSS

Some interesting conclusions can be drawn. First, the municipality has expressed that they subsidise the GSS for the development of the Afrikaanderwijk Circular Market. From the flows it comes clear that the GSS indeed utilises the subsidy for the Circular Market. Specifically, this is used for the

development of the Circular Neighbourhood Hub, creation of more local employment, improvement of waste separation processes, but also the visibility and tangibility of the Circular Economy, collaboration with residents and collaboration with the municipality. This properly aligns well with the municipal values and public values addressed in section 4.1.

Secondly, although the GSS is able to cover its waste processing expenses with the income it generates from the market, wage subsidy, cardboard and plastic, this is not sufficient to completely cover the salaries of the employees. In other words, the subsidy by Kansen voor West is crucial to enabling their circular practices, and, as indicated by the AWC, the current linear economy does not yet allow for a financial sustainable CCI. The material flows generate part of the income, but currently cannot cover for the manual labour that is required for the high-value waste separation. This may change in the future, as some of the work packages also focus on generating more financial value for the GSS through its practices.

Lastly, as expressed by Ombudsman Rotterdam-Rijnmond (ORR) (2025), the GSS is in a very vulnerable position. Even though their value creation can clearly be demonstrated, their practices are not secured for the future. They have no room for any unexpected expenses, nor have they room to engage in new practices if this is found effective for public value creation. The latter is currently covered by the municipality. They subsidise the GSS not in order to stay afloat, but in order to work for public value creation. In a sense, the municipality *in-sources* New Public Governance to the AWC. If the municipality would stop the subsidy, this would thus result in the loss of significant value creation for the Afrikaanderwijk Ecosystem as a whole, but also for the municipality and public values themselves.

In conclusion, what becomes clear is that only looking at the financial flows, the unique role of the AWC does not become clear. In order to give a more thorough picture of their role, the following section will extend these financial flows to three quantifiable components of their value creation. These results will be extended with values that are not quantified in chapter , to give a full picture of the MVC at the GSS within the Afrikaanderwijk Ecosystem.

6.2.3 An estimate on municipal savings

From the interviews with municipal representatives, previous reports from the AWC and the focus group, it was determined that the municipality themselves experiences three specific components in which direct financial value is created: reduced expenses for waste disposal, cleaning costs and allowances. From one of the expert interviews it was determined that making these reduction in costs visible can be very effective in having an informed dialogue with governmental organisation⁴. Therefore, based on Afrikaanderwijk Co-op (2025) and Afrikaanderwijk Coöperatie (2018), estimates are made for current municipal costs. Table 6.3 presents the expenses for waste disposal. Table 6.5 presents the expenses for labour- and equipment costs for cleaning the Afrikaanderplein, and Table 6.6 presents an estimate for the reduction in allowances for the municipality.

Notes on the data usage and presented results.

It should be noted, however, that there is a large caveat in these estimations: very little consistent data was received from the municipality. Although some representatives stressed transparency in data, the municipality themselves were not able to provide this same transparency. It was indicated that they were either unsure if they were allowed to share the data, or they were unsure it was even available. Therefore, several reports by the AWC have been utilised to construct these estimations instead.

⁴One interviewed expert noted that one of the most effective campaigns on showing the value of manual labour to policy-makers was to show the financial cost savings it brought society as a whole.

The lack of data availability on current waste disposal by the municipality has three main issues: first, no current price is known for the waste disposal paid by the municipality. Second, the waste density is assumed to have changed since the collection of biodegradable. Thirdly, no inflation correction was done, likely underestimating the costs of the waste disposal. Renes was able to provide numbers from their perspective, but also stressed the unreliability: they are not the waste processor for the municipality, so they are only able to give indications of the required data, based on their own knowledge. If the same calculation is repeated again with their data, the result are significantly different. They can be found in Table 6.4. The full calculations for all results can be found in Appendix F.

Lastly, in one of the reports it was stated that, due to internal regulations, reduced allowances cannot be regarded as cost savings for the municipality (Afrikaanderwijk Coöperatie, 2018). In discussions with a municipal official and the AWC, it became clear why: once someone is no longer receiving allowances, you cannot continue to "recall" those allowances from the local authority. After all, they are no longer receiving the allowance, and when it is assumed this allowance in the future also stays financial saving of the municipality, would imply the assumption that someone would stay unemployed indefinitely. However, there are some caveats. First, the fact that someone without a job at the GSS would probably end up back on allowances is not taken into account. The GSS namely does more than just providing the job opportunity: they coach people so that they can get back on the job market. Moreover, the 3FTE of people is, as discussed, not referring to the same 3 people. It does not take into account that some people move on to new jobs, and new, before unemployed residents, are employed. Lastly, there is a limit to how many people can be employed, and there will always be a share of residents needing social jobs similar to the ones offered at the GSS⁵ This together, could also be an argument to saying that the savings can at least for some part be seen as structural savings for the municipality: they in-source reintegration to the job market to the GSS.

Table 6.3: Waste disposal expenses (Municipal data)

Year	Volume (m ³ /year)	Estimated cost (€)	Change wrt. 2016 (€)
2016 (baseline)	1,538.5	160,000	–
2017–2018 (reported)	1,135	118,000	–42,000
2025 (estimated)	835	87,000	–73,000

Table 6.4: Waste disposal expenses (Renes data)

Year	Volume (m ³ /year)	Estimated cost (€)	Change wrt. 2016 (€)
2016 (baseline)	1,538.5	160,000	–
2025 (estimated)	1,151.3	144,000	–16,000

Table 6.5: Material and labour expenses

Year	Cleaning Cost (€)	Reduction wrt. 2016
2016 (baseline)	415,000	–
2018 (reported)	338,000	19%
2025 (estimated)	250,000	40%

⁵One of the interviewed experts indicated that there is a limit to how many people can actually be employed in a country, due to many diverging limiting factors, somewhere around 80-85%. A large part of the remaining number of people is, however, often suited for doing part-time jobs, coached work or other forms of social employment, which is provided by the GSS.

Table 6.6: Savings from reduced allowances, 2018–2025

Year	FTE	Reduction wrt. 2016 (€)
2016 (baseline)	0	–
2018 (reported)	1.6	€34,000
2025 (estimated)	3.0	€90,730

6.2.4 Reflection on quantification

This chapter has shown that quantification can play an important role in articulating the value created by CCIs like the GSS. However, it also makes clear that quantification must be approached carefully. Three criteria were used to explore when quantification may be meaningful: (1) a clear causal relation between activity and outcome, (2) availability of reliable data, and (3) assurance that quantification does not distort the meaning of the value it represents.

Each criterium proved relevant in practice. For example, Full-Time Equivalent (FTE) employment figures are useful for illustrating savings in allowance expenses, yet they may also obscure the broader social value: in the case of the GSS, 3 FTEs represent over ten individuals gaining work experience, confidence, and social inclusion. Similarly, avoided emissions can be estimated using LCA data by Bijleveld et al. (2021), but this narrows the ecological value to climate impact alone, neglecting land-use, biodiversity, and other ecological outcomes. Estimates for municipal cost savings suffered from missing or outdated data, making outcomes uncertain and dependent on assumptions.

Moreover, some values are relational or experiential in nature, like sense of community, democratic empowerment, or identity, and cannot be reduced to numbers without distorting their inherent meaning. Quantification attempts therefore may risk undermining their deeper social or cultural importance. Hence, qualitative narratives may remain the most credible way to express these values.

That being said, certain numbers can serve as boundary objects. They support dialogue between actors with diverging priorities, in this case particularly between the GSS and the municipality. But they should not be taken as truths. Quantification must complement qualitative understanding, not replace it⁶. If used complementary, it can help make visible what matters to stakeholders, while still leaving in tact the complexity and plurality of value creation within initiatives like the GSS.

⁶“Want als je ergens een bedrag op plakt, dan gaan mensen daar wat van vinden. Dat kan ook negatief zijn”

7 | Discussion

This chapter will synergise the findings of chapter 4, chapter 5 and chapter 6 using the theoretical concepts from chapter 2. It will present the discussion in two perspectives: specifically for the studied initiative (GSS) and its surrounding system, and for future policy and regulation.

7.1 Implications for the Grondstoffenstation, the Afrikaanderwijk and the municipality

This section discusses the main barriers (subsection 7.1.1) and identifies the opportunities (subsection 7.1.2) that could strengthen the GSS's position in the local circular economy ecosystem.

7.1.1 Barriers

While the previous sections focused on the processes and outcomes of value creation at the GSS. This could give a somewhat one-sided, positive image of the practices at the GSS, but not everything emerges without difficulties. Several obstacles have proven detrimental to the realization and continuation of these value creation processes. Therefore, it is equally important to acknowledge the obstacles that hinder or complicate these processes.

The relationship between the GSS and the municipality

From this research it became clear that the relationship between the GSS and the municipality is plural and complex. At the same time, this relationship is crucial for both the GSS and the municipality as enabler for multiple value creation for the Afrikaanderwijk as a whole, especially when shaping transitions, according to the municipality¹. First, observations and interviews revealed recurring frustrations among employees towards the municipality. A central fear amongst employees was that the municipality might eventually take over the initiative, undermining local ownership and the sense of community built on the market. Interestingly, the Ombudsman also identified this as a risk in collaborations with municipalities (Ombudsman Rotterdam-Rijnmond (ORR), 2025). This risk therefore might be similar for many other initiatives.

But next to this perception, there are institutional barriers as well: the municipality often pays the GSS their subsidies too late², provides no future security in collaboration³, provide little information and data⁴, and there is a lack of involvement from certain departments⁵, even though the GSS is serving a public service⁶, and they are trying to process the waste in a more sustainable way⁷, which has additional costs since they still function within a linear economy⁸. In short, the municipality facilitates many of the practices of the GSS, but at the same time they also present significant obstacles to

¹"Want het proces is vaak belangrijker dan waar je eigenlijk eindigt, want je hebt een andere manier van samenwerking nodig. Je hebt vertrouwen nodig. Het is een andere taal, andere systemen die je allemaal moet inrichten"

²"ze hebben zeven maanden later pas betaald. Dus we hebben al die tijd alles voor moeten financieren."

³"Want het is gewoon een hele onbetrouwbare opdrachtgever"

⁴"Wat ook heel lastig is is dat de informatievoorziening vanuit de gemeente heel karig was"

⁵"We hadden gisteren een overleg en er waren dan zes mensen voor uitgenodigd. En er waren er twee vanuit de gemeente. Dus er is ook gewoon echt heel weinig betrokkenheid [...] het zijn altijd dezelfde."

⁶"Wij voeren dus een soort publieke dienst uit. Op eigen kracht"

⁷"Maar dat gaat niet als je dat duurzaam wil doen zeg maar. Dus dan dat gaat gewoon niet lukken."

⁸"... ik denk ook als je naar zo'n circulaire economie toe wil, [...] dan kost dat nu gewoon nog een investering, want de wereld is gewoon nog heel lineair. De wereldeconomie."

the continuation of those practices.

Despite the notion that the GSS generates clear financial benefits for the municipality, its subsidy remains temporary and fragmented across several departments. This disconnect between municipal goals being realized through the GSS and the lack of recognition within the municipal system reflects a structural barrier also described in the literature and are also recognised as a structural barrier in national policy, according to the interviewed experts. While the initiative provides, in many stakeholders' eyes, tangible ecological, financial, aesthetical, cultural and social values, the GSS struggles to translate these achievements into stable, long-term support or collaboration with the municipality. But this barrier goes even further: even though the municipality officials recognise the value of the GSS, and subsidies have been secured until 2027, the GSS faces delayed payments: not just a few weeks or months, but at the moment of writing this report (October, 2025), they haven't received their payments for any of the quarters of 2025. When they brought up this issue with their municipal partners, this was not even known. These officials were under the impression that the payment had already been done. In short, the fragmentation of the municipal system has led to internal officials not knowing the status of their colleagues in other departments. If the GSS would not raise the alarm, the officials would not even be aware that they are structurally neglecting the agreed support.

In a previous report by the Ombudsman, they already called for a "warme overdracht": a warm transfer between the many clusters of the municipality for initiatives who transcend one cluster. This report clearly showed that the GSS is such a cluster-transcending initiative, with benefits for the department of Work & Income, department of Circularity, the department of Markets, and more. The Ombudsman Rotterdam-Rijnmond (ORR) (2025) already identifies that the "warme overdracht" is severely limited, with the cluster-transcending contact points and teams within the municipality having little to no capacity to support initiatives, at least not bindingly, that face issues within the municipality. In the previous report they recommended to have one single account manager. The GSS received this account manager, but even this manager was not aware of the delayed payments within the municipality. The Ombudsman Rotterdam-Rijnmond (ORR) (2025) even indicated that the officials in these roles can face significant pressure within the municipality when they are properly trying to do their work.

In summary, the fragmentation of departments and misalignment between departments continues to be a severe barrier for the GSS. And even though some improvements have been made with regards to previous reports by the Ombudsman, the issue continues to be one of the larger barriers between good collaboration. Many improvements must still be made within the municipal system to better support cluster-transcending initiatives like the GSS.

Additionally, from the NPCE Ministerie van Infrastructuur en Waterstaat (2023b) it can be determined that governance strategies in the Netherlands remain predominantly top-down, with limited representation of smaller initiatives, cooperatives, and civic actors in decision-making and policy design. Funding and subsidies tend to favour larger, established market actors rather than grassroots experiments. Together with the aforementioned barrier, these factors create an institutional environment that hinders structural, long-term collaborations between municipalities and local initiatives such as the GSS.

Another related barrier concerns the vagueness of waste rule enforcement at the market. Municipal officials themselves express uncertainty about how to enforce these rules, given the difference between markets without an initiative as the GSS, and the Afrikaandermarkt⁹. Furthermore, some municipal officials feel unclear about what exact value the GSS creates and whether similar results

⁹"En dat is, hoe zou ik het zeggen, ingewikkeld. Want op de ene markt moet je handhaven van: 'je moet alles meenemen.' En op deze markt, de volgende dag, dan is het van: 'het is grondstofstation is er.'"

could be achieved more cheaply through internalising operations¹⁰¹¹. This illustrates a lack of internal alignment and shared understanding regarding the GSS's societal and financial contributions, and makes the contextualisation and quantification of chapter 6 even more relevant in discussions with the municipality.

A final tension concerns how some municipality officials view the GSS primarily as a temporary employer for unemployed residents. This perspective contrasts with the local reality: the AWC faces no shortage of willing hands. Moreover, both employees and volunteers from the neighbourhood actively contribute to the initiative. This discrepancy is striking given that, at the national level, finding capable workers is widely perceived as a bottleneck for the circular economy transition (Ministerie van Infrastructuur en Waterstaat, 2023b).

The presented barriers result partly from bureaucracy, fragmentation, or sometimes notions of individuals. But they do not only stem from here. For a large part, they are a result from political prioritisation¹² that shapes how officials can allocate resources to support CCIs. They are the result of institutionalised, top-down control, and hence do not yet allow for proper facilitation of these CCIs.

These barriers can be understood as frictions in NPG: they illustrate how collaborative infrastructures like the GSS struggle to fit within hierarchical or market-oriented governance logics (Bianchi et al., 2021; Torfing & Triantafillou, 2013). The fragmentation of municipal support thus reflects a misalignment between the principles of co-creation and existing institutional structures. These obstacles represent what Bekkers and Tummers (2018) describe as the "implementation gap" in public value governance: where actors recognise interdependence but lack the mechanisms and infrastructure to operationalise it.

Tensions with vendors and unwritten rules

Another set of barriers arises within the market itself. Employees occasionally face illegal dumping from vendors seeking to avoid disposal fees, often occurring before opening hours (6 a.m.). In one instance, the team collectively decided to arrive at 3 a.m. to catch offenders in the act (PO - Week 3). These conflicts illustrate how employees have taken on roles beyond their formal responsibilities, enforcing waste attentiveness on the market despite lacking the formal authority of municipal inspectors. The market's waste management thus depends not only on formal regulations but also on informal, unwritten rules maintained by employees of the GSS.

Further complications occur when materials from the GSS temporarily fails. For example, in one instance when the compressor containers malfunctioned, vendors were unable to dispose of pallets which they could usually deliver straight to the GSS¹³. Although it should be noted that these issues were quickly solved. During the observation period of the researcher, one container frequently broke down. Although this created occasional inefficiencies, it did not significantly disrupt operations. Therefore it may be assumed that the GSS learns from earlier errors in the operations. Moreover, these containers were replaced by new ones during the summer of 2025, and these issues did not arise since.

¹⁰"... qua cijfers, levert het wat op of niet? Want op een gegeven moment moet je als stichting ook gezond zijn natuurlijk. Het kan niet zo zijn dat je een jaar lang subsidie vangt om dat te doen. Dan is het misschien goedkoper om het zelf te doen als gemeente. Dus dat is ook maar de vraag."

¹¹"Misschien is het heel circulair, winstgevend, et cetera. En dan snap ik het, dan is het iets moois"

¹²"... uiteindelijk zou het zo moeten zijn dat er steeds minder subsidie nodig zou moeten zijn, want uiteindelijk komt er een probleem door een politieke keuze."

¹³"Het was eerst een keer dat die containers stuk waren. En toen hadden heel veel kooplieden met pallets die niet meer in hun auto pasten, omdat ze er vanuit gingen dat het Grondstoffenstation er was. En toen hadden ze een probleem, want ze konden het weer niet meenemen."

Employment: a risk to representation or a strength?

Two interviewed experts indicated that throughout the Netherlands, community initiatives do not always properly represent their community. They indicated that often initiatives can be ran by retired people, residents with higher education, or residents who relatively have a privileged position to work on topics for their broader community. The AWC collaborates closely with its residents, allowing for broader representation and therefore more just contestation of values and processes. Although they have no normalised criteria for employment, such as CV requirements or experience, they do have one specific criteria to employ residents. People need to, and want to collaborate, no matter where you come from. This requires certain social skills that maybe not everyone adapts.

Whether this is a barrier or an opportunity, however, is more complex: on the one hand, these are key competences for NPG, especially value contestation. At the same time, this might exclude people who, for one reason or another, might have a lower set of social skills. This could be a risk for true representation of the Afrikaanderwijk community, especially if there would be a large number of individuals that have difficulty working in social environments. Moreover, the AWC actively coaches new employees in agreement with the municipality. Therefore, they also help employees gain more collaboration skills. In short, it may not be stated that this is a risk, nor an opportunity. Being reflective of this aspect can be a key enabler to improving representation of the Afrikaanderwijk community.

Perceptions among residents

Perceptions from residents of the Afrikaanderwijk varied strongly. Some viewed the GSS positively, while others expressed clear disapproval of the GSS¹⁴. These diverging conceptions show that despite the close collaboration with the community, the GSS remains facing challenges in public perception. This duality in being both a neighbourhood initiative and a waste processing site can simultaneously act as a barrier and an opportunity.

Furthermore, participants recognised the presence of stigmas among residents¹⁵, and indicate that this is often because *now* there is someone to blame, whereas before the GSS was initiated, no one could be blamed for issues in the neighbourhood¹⁶. So whereas there is a duality in the role of the GSS, they are often blamed for issues, like vermin, experienced by Afrikaanderwijk residents, even though it cannot be stated with certainty that they are the cause of these issues.

Quantification and valuation barriers

While initiatives such as the GSS provide unique forms of social and ecological value that private firms often cannot deliver, these contributions are often difficult to quantify¹⁷. This inability to easily translate values into measurable indicators risks undervaluation of initiatives such as the GSS in policy discussions and funding decisions, especially since economic values often still dominate the discussions.

Risks of instrumentalization

Finally, several experts warned against the danger of governments treating initiatives as policy instruments¹⁸. Such instrumentalization may undermine intrinsic motivation of members of the initiative

¹⁴“Want de wijkraad, die noemt het het rattenhotel. Dus ze zijn geen fan van het grondstofstation. Ik denk dat niemand dat zou zijn, want je hebt een soort van milieupark in je wijk eigenlijk. Dus iets wat altijd aan de rand van de gemeente zit.”

¹⁵“Want er werd wel vaak gezegd ... dat het grondstoffenstation een aanzuigende werking op afval zou hebben”

¹⁶“Maar omdat het grondstoffenstation er is, wordt er ook wel makkelijk met een vinger gewezen naar ons.”

¹⁷“Maar het is niet per se gezegd dat maatschappelijke initiatieven efficiënter zijn dan bedrijven. Ik denk dat ze een unieke bijdrage hebben die bedrijven niet kunnen leveren. En daarom is het de euro's waard. Maar dat is natuurlijk een nadeel.”

¹⁸“Wat ook een uitdaging is voor ons advies is dat je ook niet wilt dat de overheid maatschappelijke initiatieven als een beleidsinstrument gaat zien.”

¹⁹ and lead to unwanted political interference ²⁰. As the Ombudsman explicitly recommends for municipalities, ownership should remain with the innovators themselves (Ombudsman Rotterdam-Rijnmond (ORR), 2025). Although the GSS already pays its employees, which might mitigate part of this risk on intrinsic motivation, these concerns remain relevant for maintaining autonomy and motivation for the GSS employees, and for CCIs in general.

Economic barriers

Before the barrier on late payments and subsidy recognition was discussed. However, these are not the only financial barriers faced by the GSS. As some representatives noted, the transition towards a circular economy still requires structural investments ²¹. The GSS indicated that there is a financial gap between the financial value generated by their activities and the labour costs²². They do recognise that they may function as a material hub for the neighbourhood, which could gain even more financial value from the waste streams²³. Currently, however, these practices are not sufficient to cover the wage gap. Moreover, the GSS has no room for development of this hub only from their own income.

The municipality also recognised this economic barrier, and simultaneously identified that many parties, including themselves, remain reluctant to giving up profits in order to realize a more circular economy^{24,25}. This financial tension limits the willingness of stakeholders to fully commit to sustainable practices, even when the initiative at hand might have a net positive effect on financial value for the involved parties. Quantification could again form a strategy in battling this barrier, at least through the financial perspective of the municipality.

7.1.2 Opportunities

Despite these barriers, several opportunities were also identified for the GSS to strengthen their value creation processes. First, a clear and demonstrable circular performance could provide a strong foundation for dialogue with the municipality ²⁶. Municipal officials expressed, also on behalf of residents, the desire for the stability and continuity of the GSS if the positive effects become evident²⁷. Quantifying and communicating these results could further strengthen the GSS's position with the municipality. This research began to explore possibilities, though more thorough research on this topic remains necessary.

¹⁹"Dus als je bijvoorbeeld in één keer maatschappelijke initiatieven gaat belonen en gaat subsidiëren, en vrijwilligers gaat betalen, dat dan een intrinsieke motivatie verdwijnt. Want dan gaan ze het voor een extern doel doen. Namelijk geld. Dus dat is ook een risico."

²⁰"En als een overheid het gaat financieren dat dan ook in één keer de politiek van alles gaat vinden van zo'n maatschappelijk initiatief, waar dat dan aan moet voldoen. En dus zich inhoudelijk heel erg gaat bemoeien met de koers van zo'n maatschappelijk initiatief. Dat kan ook erg demotiverend werken voor die mensen."

²¹"Nou ja en ik denk ook als je naar zo'n circulaire economie toe wil, wat allemaal gezegd wordt natuurlijk, ja dan kost dat nu gewoon nog een investering, want de wereld is gewoon nog heel lineair. De wereldeconomie zeg maar."

²²"Dus dat karton en plastic levert natuurlijk allemaal geld op maar dat is niet genoeg om die arbeid te dekken."

²³"In de ideale wereld heb je natuurlijk allemaal soort van winkeltjes en bedrijfjes die dan iets maken vanuit die reststromen."

²⁴"Wij vinden een initiatief ook heel goed. Zeker persoonlijk kan je zo'n initiatief heel goed vinden en denken van hoe is het mogelijk, wat jij ook zegt. Het levert zoveel op en toch hebben we er geen geld meer voor. [...] Uiteindelijk komt het daar op terecht."

²⁵"Maar dan denk ik meer in grotere lijnen, wat kost het als dingen niet circulair zouden zijn? En dat het wel circulair is? Op een gegeven moment is het gewoon een strijd dat iemand moet inleveren. Maar tot nu toe wil in mijn ogen niemand inleveren, iedereen wil gewoon doorgaan zoals ze gaan. En het kerndoel is om alles circulair te maken bijvoorbeeld. Maar op een gegeven moment gaat het denk ik toch allemaal om geld."

²⁶"Wat kost de gemeente meer geld? Wat kost de gemeente minder geld? Wat is circulair? Want het kan meer geld kosten, als het dan ook echt circulair is. Dan is dat iets waar je over na moet denken. Het resultaat is natuurlijk ook belangrijk."

²⁷"Dit is het. Hier gaan we mee verder. En we gaan hier naar geen nieuwe plannetjes verzinnen. Dat je ook voor mensen het gevoel geeft van. Oké mooi. In plaats van hoe lang gaat dit duren."

Well-willingness of officials and collaboration efforts

Although the municipal system showed a significant barrier in the operations of the GSS, the same municipality holds key opportunities for the GSS. Close collaboration with “well-willing” municipal officials such as Wijkmanagers (Ministerie van Infrastructuur en Waterstaat, 2023b), and the Afdeling Circulair in Rotterdam specifically, can overcome some of the structural barriers presented. First, Ministerie van Infrastructuur en Waterstaat (2023b) recommend the *Verschilmakers*²⁸, a platform that provides practical tools for officials to help overcome barriers faced in supporting circular practices. Since this platform was only launched very recently, and the official platform only takes shape in 2026, the platform can already be used by municipal officials to seek assistance. If the GSS keeps collaborating closely with these officials, they may recommend the platform to their respective contacts as well, strengthening the possibilities for the municipality to overcome the structural barriers they face in supporting circular practices. Moreover, structural support may also be found through cooperation between the municipality and Rotterdam-fondsen (Ombudsman Rotterdam-Rijnmond, 2025). Specifically funds such as *Stichting Per Pugnam*, *Quod Ames*, the *Elise Mathilde Fonds*, and the *Cultuurfonds Zuid-Holland* may be a well fitted partner for the municipality and the GSS in funding the initiative. These municipality and Rotterdam-fondsen created a shared vision of long-term collaboration and could help secure alternative, structural funding mechanisms for the GSS (Ombudsman Rotterdam-Rijnmond, 2025).

Municipal officials themselves also acknowledge the need for more proactive and integrated collaboration²⁹, recognizing that no single department or actor possesses the full picture³⁰. It should be noted, however, that the GSS structurally invites municipality officials, but only a few show up in meetings, and often they are the same officials. This may oppose a serious barrier, since well-willing officials are key partners for initiatives in securing structural support from local governments³¹. However, the recently introduced law known as the *Dienstbaarheidsbeginsel* requires governmental bodies to take on a facilitating role for society, which includes not only residents but also initiatives³². Therefore, this law may be used to convince municipality officials that currently do not facilitate the initiative to at least have a joint conversation with the GSS. Taken altogether, a close collaboration the already well-willing officials, other not yet involved officials and the GSS could provide serious opportunity for strengthening the MVC processes of the GSS. In the future, the interviewed experts and Ministerie van Infrastructuur en Waterstaat (2023b) stress that, next to the *Dienstbaarheidsbeginsel*, governmental bodies will act as facilitators of cooperation rather than top-down controllers.³³

Furthermore, unlike many societal initiatives that primarily engage highly educated or retired citizens, the GSS may represent a more diverse segment of society³⁴. By employing residents from the Afrikaanderwijk, and staying in close contact with the residents. the GSS can strengthen inclusivity and representation through their practices.

²⁸<https://deverschilmakers.nl/verschilmakersplein/>

²⁹“Weet je wat ik zou willen veranderen? [...] Ik zou het niet veranderen. Ik zou gewoon een veel betere samenwerking willen hebben. En dan meer aan de voorkant. Wat is de juiste oplossing? Ja, voor eigenlijk, problemen wil ik het niet noemen. Het is er gewoon. Maar hoe kan markten bijdragen dat het circulaire wordt bijvoorbeeld. Hoe kan het grondstoffen bijdragen dat het circulaire wordt. Hoe kan iedereen eigenlijk zijn bijdrage leveren.”

³⁰“Misschien kost mijn idee jou te veel geld. Maar dat weet ik niet. Of andersom.”

³¹“... een bereidwillige ambtenaar die zich wel dienstbaar opstelt voor maatschappelijke initiatieven wel echt een sleutelrol of een succes, heel belangrijk is voor het succes voor een goede omgang met maatschappelijke initiatieven.”

³²“het opnemen van het dienstbaarheidsbeginsel in de Algemene Wet Bestuursrecht, wat eigenlijk expliciete opdracht geeft aan bestuursorganen, dus de overheid in de algemene zin, maar specifiek is dat het van belang voor gemeenten, om een dienstbare houding aan te nemen richting de samenleving”

³³“En de volgende stap, qua laaghangend fruit, lijkt me om de expertise die er is op juridisch vlak of op praktisch vlak van de omgang met deze maatschappelijke initiatieven om die breed te delen. Want er zijn ontzettende waardevolle lessons learned al, en die zijn nog niet in de haarvaten van de overheid terechtgekomen.”

³⁴“Het laatste punt dat ik nog mee wil geven is dat bij maatschappelijke initiatieven, het klinkt heel mooi vanuit de samenleving, maar het is vaak een bepaald gedeelte van de samenleving: wat hoger opgeleid, soms met pensioen, in etniciteit is dat niet een afspiegeling van de samenleving. Dus als je hen gaat stimuleren, zeker in de vorm van subsidies, dan komt er ondersteuning terecht bij mensen die het misschien niet het hardst nodig hebben.”

While the well-willingness is visible at the operational level, many of these officials operate within limits set by political choices. They are aware of the societal worth of initiatives like the Grondstof-fenstation, yet the room to support them structurally is restricted by decisions made at the political level. This distinction between officials' intentions and political direction is a direct representation of top-down governance structures that are still the reality. It underlines why cooperation currently still depends on temporary support schemes rather than long-term arrangements. A stronger collaboration between the GSS and these officials could help bridge this gap³⁵: by jointly articulating the public value that is being created to municipal executives and by providing each other with the relevant data to solidify the claims, they may help make the political layer of the municipality more aware that the GSS represents an investment in public value resulting in broad forms of value rather than a cost.

A location for internships

Additionally, the GSS could serve as a learning site or internship location, as came up in the Focus group. Not only would this provide internship spots, but it connects to national educational goals in the circular economy. The Ministerie van Infrastructuur en Waterstaat (2023b) also calls for more learning sites and internships spots for circular jobs. This can be used in a two-fold way, since interns can practically learn about the CE, but also since scholars may help tackle certain barriers faced in the MVC processes of the GSS.

The GSS's embeddedness in the neighbourhood and the trust of its local partners exemplify what Warnke et al. (2023) describe as collaborative infrastructures. These conditions allow Multiple Value Creation to materialise in practice: ecological, social, and cultural values can co-emerge through cooperation rather than compete. The use of quantified indicators and contextualised values as "boundary objects" can help bridge institutional logics, supporting the value-based coordination rather than top-down control of NPG.

In summary, the barriers identified in subsection 7.1.1 reveal a structural misalignment between the ambitions of governmental bodies, especially regarding the circular economy, and the institutional frameworks within which the GSS operates. At the same time, the opportunities discussed in subsection 7.1.2 demonstrate that these challenges are not impossible to overcome. By strengthening and maintaining collaboration with municipal officials, using the shifting governance frameworks, improving the quantification of its values, and maintaining its roots in the local community, the GSS can strengthen its position as a key actor in Rotterdam's NPG.

7.2 Implications for future policy and regulation

The NPCE states that future circular economy policy is situated within an adaptive and iterative governance cycle that emphasizes learning, monitoring, and the gradual normalization of circular practices. According to Ministerie van Infrastructuur en Waterstaat (2023b), this involves progressing from experimentation and pilot projects toward institutionalization. Future policies are expected to balance economic incentives and environmental accountability for instance, by revising taxation to favour labour over material use. The document also promotes participatory policy design and citizen engagement. A particularly relevant recommendation concerns regionalized policy implementation. Municipalities and provinces should be empowered with resources, legal clarity, and networks to translate national ambitions into locally grounded circular ecosystems. Such multi-level coordination between the national government, provinces, and local governments is crucial to bridging the gap between policy rhetoric and tangible, community-level circular value creation (Ministerie van Infrastructuur en Waterstaat, 2023b). This aligns with the notion that effective circular governance

³⁵"Zo'n wethouder, die gaat dan ook aan het ambtenaren-apparaat vragen 'maar waarom krijgt dit positieve initiatief nou geen geld meer?' [...] Als het goed is zouden wij als ambtenaren kunnen vertellen van 'ja, maar jullie hebben gezegd vanuit de politiek dat er minder geld gaat naar nieuwe ontwikkelingen of naar circulaire zaken of naar werkgelegenheid'"

requires institutional embedding of local initiatives and shared learning across scales, and may foster stronger positions for CCIs as key enablers of NPG, especially related to the CE. However, concrete plans to collaborate with local initiatives that are not companies remain lacking in their strategy. This is for example seen the fact that residents and initiatives have no structural place in policy debates, whereas the several sustainability-related company organisations, but also youth representatives and worker unions are already at this table. How may future policy better incorporate civic engagement and local initiatives?

Defining initiatives

An important and ongoing challenge for this engagement is the definition of what a CCI is. Experts note that designing such a definition is far from straightforward³⁶, but yet it may be a crucial pillar in designing future policy. A clear definition could help ensure that support reaches those initiatives that need it most, but may also risk excluding others that contribute meaningfully to public values. Initiatives can appear in many different stages of maturity, from informal, ad-hoc projects to professionalized organizations³⁷. Despite these ambiguities, experts agree that the core of such initiatives lies in their orientation toward public values³⁸. This raises a key reflective question: if public values are central to the definition, do the values promoted by governments indeed represent the broader public? Or would this also require a new way to define public value?

Broader societal relevance

The emergence of citizen initiatives (note, this is broader than CCIs) is not a new phenomenon. In 2015, their existence peaked with the rise of the so-called “participation society”³⁹. More recently, technological innovations and increased accessibility of tools, have sparked another growth in the number of initiatives, especially climate related⁴⁰. Particularly within this domain, initiatives often arise from perceived gaps left by both the state and the market⁴¹. This observation underlines a key principle of NPG: the need for collective action beyond hierarchical or market-based mechanisms. When civic initiatives emerge to fill governance gaps, they may, next to complementing existing public goals, actively shape the (re)definition of public values.

Historically, citizen initiatives have often been supported and abandoned by the government. Some eventually became institutionalized within governmental structures, while some were later commercialized again⁴². If, instead of this back-and-forth dynamic between civic, public, and market domains, the citizen initiatives become a core pillar next to state and market, it may bring a unique position for public value discussions by being able to bridge shifting governance goals to perceived

³⁶“Wat is nou precies een maatschappelijk initiatief? En het flauwe antwoord is dat het niet makkelijk is om daar een één definitie voor te vinden. Misschien dat je dat wel zou kunnen maken. Maar dan sluit je toch al gauw organisaties uit die je er misschien wel onder wil laten vallen.”

³⁷“Nog een element wat het ook lastig te definiëren maakt is dat maatschappelijke initiatieven verschillende stadia kunnen hebben. Het begint vrij spontaan, maar dan is het nog vrij ad- hoc en niet echt formeel georganiseerd. Dan kan het op een gegeven moment een start-up of scale-up worden, of een professionele organisatie. En dan is de vraag: wanneer is zo’n maatschappelijk initiatief zo ver door ontwikkeld dat het misschien zelfs geen maatschappelijk initiatief meer is?”

³⁸“Het gaat echt om publieke waarde en publieke doelen die ermee beoogd worden. En het is een initiatief van onderop zoals het allemaal wordt genoemd. Dus echt uit de samenleving zelf. Niet vanuit commercieel oogpunt dus, en dus niet vanuit een overheid.”

³⁹“Dus rond 2015 in de participatiesamenleving zag je wel weer duidelijk een piek.”

⁴⁰“En nu bijvoorbeeld ook rond, omdat er bepaalde technologische ontwikkelingen zijn, waardoor zonnepanelen goedkoper zijn geworden. En ook bepaalde organisatie vormen rondom energiegemeenschappen wat meer gemeengoed zijn geworden. Men heeft er weer meer ervaring mee, men organiseert zich beter, zien we ook de laatste jaren daar echt wel een piek.”

⁴¹“Ons vermoeden, of de hypothese, is nu wel dat we veel maatschappelijke initiatieven op het gebied van klimaat ook zien ontstaan omdat daar duidelijk nog een gat ligt. Dat ze daar ook echt een behoefte voor zien, wat op dit moment nog niet door andere partijen als de markt of de staat wordt gedaan, maar dat mogelijk in de toekomst wel zou kunnen.”

⁴²“Ja en je hebt ook heel veel, als je meer historisch kijkt, voorbeelden van wat ooit maatschappelijke initiatieven waren. Die zijn op een gegeven moment bijvoorbeeld verstatelijk. De overheid is gaan financieren en gaan overnemen. Vervolgens is er weer een periode geweest waarin ze vervolgens vermarkt zijn. Dus voorbeelden zijn zorginstellingen of zorgcoöperaties, woningbouwcoöperaties.”

values of citizens.

Experts also note that initiatives may not need to be explicitly climate-focused to contribute to a more “socially climate-adaptive” society⁴³. Strengthening social cohesion and networks at the local level can indirectly enhance community resilience and adaptive capacity in the face of climate-related challenges.

Interviewees further implied that the effectiveness of cooperation between local initiatives and the municipality depends not only on administrative coordination and resolving fragmentation, but also on how political priorities shape long-term embrace of these initiatives. While municipal officials often acknowledge the importance of initiatives like the GSs, their capacity to act on this recognition is limited, especially when political priorities shift. Strengthening collaboration between initiatives and the officials who already see their public value could help to make these effects more visible at the political level⁴⁴. By doing so, the initiative and the municipal partners could contribute jointly to a more consistent understanding within the municipality that supporting CCIs may be an investment in public values, with worth-wile returns on investments, rather than recurring costs or burdens.

Local governments as key enablers

Among all governmental layers, local governments, especially municipalities, are the most important partners for citizen initiatives⁴⁵. Experts emphasize that policies are twofold: they concern both the formulation of rules and regulations, and the execution of these rules in practice. While the first is generally manageable and does not pose a large barrier for initiatives in general, the latter often presents the real bottleneck for initiatives. Current regulatory and administrative frameworks are largely designed to facilitate collaboration between governments and private enterprises, but not community-based actors like these CCIs⁴⁶. As a result, companies often employ specialists to navigate bureaucratic processes, whereas initiatives like the GSS rely on volunteers who lack the time or expertise to manage such tasks, and even if they exist, the frameworks are even more difficult for these initiatives to navigate⁴⁷. In order to embrace CCIs as an equal partner, acknowledged for its contribution to achieving societal goals and public values, a different form of governance would be required. In theory, the principles of NPG offer an appropriate model for such collaboration. However, in practice, this may be constrained by the fragmented interests and responsibilities of different municipal departments. Additionally, municipalities may find themselves constrained by their own legal departments. Even well-willing officials face the risk of being accused of favouring initiatives when offering tailored support to initiatives⁴⁸. These legal and institutional limitations hinder the municipality’s ability to act as a genuine facilitator of community-driven circular initiatives and co-operation based governance.

⁴³“ook initiatieven die niet in eerste instantie als doel hebben om bij te dragen aan klimaatneutraal en bestendig Nederland, kunnen daar indirect wel aan bijdragen. Dus dan heb je bijvoorbeeld een buurt waarin een comité van mensen jaarlijks een buurtfeest organiseert in een buurthuis bij wijze van spreken. Ik heb nog niet het woord klimaat genoemd. En dat hoeft op zich ook niet. Maar het kan wel voor sociale cohesie zorgen, en die sociale cohesie kan er wel weer aan bijdragen dat als de straten onder water komen te staan vanwege een regenbom, dat ze elkaar snel weten te vinden.”

⁴⁴“Het zal altijd helpen door zo goed mogelijk inzichtelijk te maken wat iets oplevert. Zeker als er geld heen gaat en je kan op NPO1 elke dag vertellen: dit kost wel 1 miljoen maar het levert ook 3 miljoen op, dan gaat niemand bedenken dan moeten we ermee stoppen.”

⁴⁵“juist ook omdat de eerste overheidslaag, of het onderdeel van de overheid waar maatschappelijke initiatieven het meest mee te maken hebben, is denk ik wel de gemeente, of soms ook waterschappen”

⁴⁶“dat raakt eigenlijk aan de kern van het overkoepelende of onderliggende probleem. Dat is namelijk dat we het wettelijk stelsel hebben ingericht om samenwerking tussen de overheid en de bedrijven vorm te geven.”

⁴⁷“Als je een bedrijf bent dan heb je vaak iemand in dienst die weet hoe je een vergunning moet regelen bij een overheid. Dus dat contact loopt veel logischer en makkelijker. Voor maatschappelijke initiatieven moeten we dat vaak doen vanuit vrijwilligers, die er ook nog weinig zijn. En daar zit een groot pijnpunt.”

⁴⁸“Soms is het ook zo dat je wel een welwillende gemeente hebt en een maatschappelijk initiatief die van bepaalde regelingen, vergunningen of wat dan ook, of subsidies gebruik wil maken. Maar waarvan de juristen bij de gemeente zeggen: ‘wij zien hier risico’s, dat gaan we niet doen, want anders hebben we zo meteen een bedrijf dat ons aansprakelijk gaat stellen dat wij hen bevooroordeelen.’”

These findings suggest that municipalities could evolve from transactional partners to facilitative actors in line with Bianchi et al. (2021), adopting a governance style that builds institutional trust and enables long-term, co-created policy learning. Embedding CCIs as legitimate agents of multiple value creation could form a shift towards NPG in reality.

In sum, while the national government proposes mostly large scale and private-sector focussed strategies, there are notions of a more adaptive, regionally anchored, and participatory governance model for the circular economy. The current operational reality for initiatives remains complex, but if structurally embraced by governmental bodies, they may pose as key enablers for NPG. Definitions of what qualifies as a "societal initiative" are contested, their institutionalism is dynamic, and legal frameworks are often not suited to accommodate bottom-up collaboration. Nonetheless, the historical presence and societal diversity of these initiatives demonstrate their critical role in advancing public values where state and market mechanisms fall short. Empowering municipalities with the flexibility, knowledge, and legal instruments to support these initiatives is thus essential for bridging the gap between national ambitions and locally grounded public value creation.

8 | Conclusion

This chapter synthesizes the findings of the research. It revisits the research questions, discusses the implications for policy and practice, and outlines the main contributions of the study, as well as acknowledging its limitations.

8.1 Findings

This thesis aimed to investigate how Circular Community Initiatives can create multiple values, and how this can be structurally supported by governance frameworks. The research was executed through a participatory action research approach with the Grondstoffenstation and yielded outputs relevant both to the specific initiative and the academic knowledge in general. The research was guided by five sub-questions.

The first question explored which values are created by the Grondstoffenstation, and for whom. The findings show that the Grondstoffenstation creates a wide spectrum of ecological, social, cultural, aesthetic, and financial values. These include, among others, the reduction of CO₂ emissions, employment for neighbourhood residents, improved visibility of circular practices, and the reinforcement of community bonds. These values matter to various stakeholder groups including residents, employees, market vendors, varying municipal departments, and educational institutions.

The second question addressed how these values are realised through internal practices. The research demonstrated that value creation emerges through a combination of system parts such as physical infrastructure and daily workflows, resource cycles like the processing of organic and residual waste, and enabling capital including skills, networks, and passion of employees and partners of the Grondstoffenstation. These elements' interactions allow the Grondstoffenstation to function not only as a waste separation facility, but also as a community hub, educational platform, and symbolic public space. It also showed that the success of the Grondstoffenstation is highly dependent on its partners, especially the municipality.

The third question considered the role that quantification can play in demonstrating their value creation. The analysis revealed on the one hand that certain values, such as municipal cost savings and avoided emissions, can be meaningfully quantified. Yet, many others are not suited for numeric representation. Values such as democratic empowerment, pride, and social inclusion are deeply contextual and relational. In such cases, qualitative narratives and participatory methods are more appropriate tools to convey their meaning. Nevertheless, quantification may still play a supporting role when used as a boundary object to facilitate discussion with institutional partners. Qualitative and quantitative narratives together will yield the best representation of value creation of these initiatives.

The fourth question examined barriers and opportunities for sustaining the multiple value creation of the initiative. The largest barrier identified for the value creation is the fragmented, delayed and bureaucratic municipal support. There is a lack of structural embedding of the initiatives, hindering long-term collaboration with the public governance actor. Opportunities, on the other hand, can be found in the initiative's embeddedness in the local community, growing visibility, and alignment with both municipal and national circular policy agendas. The focus group and interviews highlighted that meaningful collaboration is not only possible, but also desired. However, it requires long-term commitment from the municipality, which can likely be achieved through joint efforts from officials and the initiative to show the societal worth.

The final question investigated how governance frameworks could better support initiatives like the Grondstoffenstation. The findings indicate that municipalities and national governments could move towards a New Public Governance approach, by treating community initiatives not as short-term projects but as long-term partners in delivering public value. This would involve recognising the full spectrum of value creation, including values that cannot be directly quantified, and adopting more flexible institutional structures like cluster-transcending municipal officials and more binding or recognised roles for these officials within the municipal system itself. Together, this may lead to new forms of public value creation, embedded in participation, co-creation and shared responsibility.

In line with the literature on Multiple Value Creation (Dembek et al., 2015; Smit & Leclercq, 2023), the findings show that the Grondstoffenstation generates ecological, social, cultural, and aesthetic value simultaneously, illustrating how different forms of value can coexist within a shared local context. While this reflects the potential of collaborative governance structures, the research also shows that such collaboration governance remains severely limited in practice. The Grondstoffenstation functions as a form of collaborative infrastructure (Warnke et al., 2023), yet the principles of New Public Governance, like trust, participation, and mutual learning, are only partially realised. Their implementation varies across municipal departments: some actively seek to strengthen coordination and shared learning, while others still approach the initiative as a conventional project to be managed. Thus, the case of the Grondstoffenstation demonstrates potential to materialise the New Public Governance principles, but institutional barriers currently block its emergence.

Taken together, these findings suggest that the Grondstoffenstation is not simply a recycling facility but can be regarded as an agent of multiple value creation. In answering the overarching research question *How does the Circular Community Initiative “the Grondstoffenstation” create multiple values for the broader socio-economic system, and how may this be facilitated by municipal organisation and policy in the future?* this thesis concludes that this Circular Community Initiative creates multiple forms of value through deep collaborations, the aim for long time partnerships and with a mission of shifting from competition to cooperation. This requires structural support in the future by governance actors in order to continue to create public values. Through mixed qualitative and quantitative communication and recognition of shared values, the role of Circular Community Initiatives can become more evident for involved stakeholders. Future policy should prioritise models for long-term collaboration over short-term project funding, and prioritise value-based impact as much as measurable outcomes.

8.2 Limitations

This research was subject to several limitations, resulting from its approach and its methods. First, the research is based in a lot of experiences, and therefore risks being subjective. Although it was aimed to make this research transparent, it remains important to stay reflective of its subjective nature.

A limitation that builds on the subjectivity, is the generalisation of certain stakeholder groups. First, market vendors: with over 200 individual vendors operating in the Afrikaandermarkt, it is highly likely that their motivations, needs, and perceptions diverge significantly. Future studies could include a more granular engagement with vendors to better reflect this diversity. Second, the representation of residents: due to a combination resource constraints and ethical considerations, residents of the Afrikaanderwijk were not directly interviewed. Their perspectives were instead distilled from other stakeholders, especially municipal representatives and Afrikaanderwijk Co-op representatives. This may have left out important voices and notions, especially those of residents not directly involved in the Grondstoffenstation. A follow-up study focused specifically on resident experiences could offer more insights. Together, these limitations pose the risk of this research over-representing certain viewpoints and under-representing others. Therefore, the findings should always be presented with this nuance.

Quantification methods presented in chapter 6 also rely on several assumptions and simplifications. First, the proportionality assumption between waste reduction and cleaning costs may have wrongly estimated municipal savings, as a portion of labour and equipment costs are likely fixed. Similarly, the scaling of employment impacts using Full-Time Equivalents (FTEs) simplified a more complex reality. For example, 3 FTEs at the Grondstoffenstation represent over ten individuals in flexible or part-time contracts. This obscures the broader psychological and community effects of employment.

Finally, the participatory approach, while valuable, may introduce observer- and researcher bias. Despite mitigation through triangulation and transparent documentation, the embedded nature of the research meant that certain viewpoints may have been unintentionally prioritised. These limitations highlight that the results of this research should be interpreted with care. Furthermore, it is suggested to refine certain viewpoints in the future. In this way, future research could give more depth to certain notions presented here.

8.3 Recommendations

Several recommendations can be drawn from the findings of this research, both for the Grondstoffenstation, the municipality, and other involved stakeholders.

For scholars working with the Grondstoffenstation, like members of the D3C project, one important recommendation is to further explore “low-effort” indicators for values that can be feasibly monitored over time. However, these indicators should not replace the qualitative narratives that express the social and cultural significance of the initiative. Scholars and the Grondstoffenstation could continue to combine narrative- or communication-based methods such as storytelling with numerical data in order to make its value creation more tangible to stakeholders. Strengthening collaborations with academic institutions could also help generate useful tools, such as simplified versions of LCAs, participatory monitoring frameworks, and digital dashboards. Especially the findings from chapter 6 pose a basis for this continued research.

For the municipality, a key recommendation is to move away from short-term, fragmented subsidies and toward long-term, structural partnerships with initiatives like the Grondstoffenstation. This is not only to structurally secure the impact of the initiatives, but also to enable transitions to a more circular economy, and especially to enable more public value contestation. Embracing these initiatives and their community-based work is a direct opportunity for realising more participatory government strategies similar to New Public Governance (Bekkers & Tummers, 2018; Bianchi et al., 2021; Torfing & Triantafillou, 2013). Although this research recognises the difficult position municipal officials are in, there are practical advises readily available, both from this report and from previous reports by the Ombudsman that may help achieve this goal. This means recognising the Grondstoffenstation not only as a circular initiative, but as a public service provider that contributes directly to public goals, such as reduced emissions, increased employment, and stronger community resilience. The municipality should also work to improve internal alignment across departments and ensure timely funding to reduce bureaucratic burdens for initiatives like the Grondstoffenstation. By structurally supporting these initiatives, and embracing their multiple value creation, the municipality can in-source participatory governance for policy-making to these initiatives.

The analysis suggests that closer collaboration between the Grondstoffenstation and the officials who already acknowledge its importance could help strengthen the link between practice and political awareness. By sharing evidence of the initiative’s effects on employment, inclusion, and financial returns, both parties could communicate more clearly to the political level that the Grondstoffenstation represents an investment in long-term public value. This alignment would not require new structures,

but mutual recognition of the roles that CCIs and officials can play in informing political choices.

Additionally, an underexplored benefit of the Grondstoffenstation is its location for internships. The Grondstoffenstation could further strengthen its social and educational impact by developing a structured programme for youth participation. While younger participants have been involved in practical activities such as sorting and moving materials, these experiences currently offer limited direct connection to circular economy learnings. By shaping these practices into guided internships the Grondstoffenstation could provide unique learning experiences that combines both the practical skills as the expertise on the circular economy. This could also form a topic for future research: the development of an educational program at the Grondstoffenstation.

Other stakeholders also play a role in advancing the insights from this research. First, although, according to the theoretical backbone of this study, the success of an initiative may be context-dependent, the context of initiatives is not crucial to defining structural support. Initiatives existing in many forms and with many different goals still face the same structural barriers. Hence, overcoming these barriers through future policy can serve many initiatives without being overly complex. Second, regulatory frameworks that go currently facilitate mainly collaborations between state and market, could be adjusted to better accommodate community initiatives as legitimate public actors. Future policy should operationalise the principles of New Public Governance by creating stable, facilitative infrastructures that support long-term partnerships with CCIs.

Furthermore, knowledge institutions could help develop this change by translating already existing knowledge to community-based work and practice. Reports recognising community needs, combined with more academically grounded methods such as comparative LCA case studies, can be synergised to mixed qualitative-quantitative narratives to support public and community needs, next to building academic research. Lastly, a larger participatory research programme like the Data Commons initiative could help establish shared infrastructures for community-generated data, enabling new ways to support transparency, evaluation, and collective learning across different CCIs and community initiatives in general.

In sum, the Grondstoffenstation offers valuable lessons for how circularity can be embedded in community life. Realising its full potential, however, requires structural support, more inclusive governance, and recognition of the value of community initiatives in the broader sustainability transition.

9 | Personal Reflection

9.1 The experience of writing my master's thesis

As mentioned in the foreword, I have written a *Capita Selecta* piece about Climate Justice. There, but also before, I was exposed to Community-based and participatory research, and what they may yield for shaping transitions and forming future narratives. I have used this thesis to design and experience a completely new, immersive, study, that I had not done before in this format, based on the claims we made in that previous *Capita Selecta* study.

Although my previous learnings, especially the minor in which I was coached by Fátima Delgado Medina, and a few of her master courses I followed, gave me some basic know-how on how to do this, this master thesis has truly challenged my research skills. How do you balance academic expectations with the participatory action approach? How do you make sure that your empirical data is presented in a transparent way on the one hand, and you avoid biases in the other?

One thing that became particularly clear is that Transparency is key. Research with social dimensions cannot be 100% unbiased, so I better make sure my work is scrutinizable, by making it as transparent as I can do - within the limits of what an ethics committee allows of course. Trying to navigate the intersection of the academic world and the real world in this way, was it a smart choice for my thesis? It makes your work very vulnerable. But I believe, especially after this experience, academics *can be* critics and change makers. And when, during this thesis, our government for the first time ever, resigned a second time, reports by the Ombudsvrouw came out *and* even more academic discourse was released on the vulnerable yet important position of citizen initiatives, grass roots, etc., I am more and more sure that academics shouldn't only produce results for the academic world. I think I may use these resources and skills I was equipped with in the master's for broader value: outcomes for the academic, western, knowledge world, but also direct, tangible outcomes that everyone can use. In this way, academics can build the bridge between knowledge and practical know-how. They can support change.

9.2 A note on the usage of AI

As a researcher, I highly value transparency. In the light of current trends with AI, I think we can no longer deny the fact that it exists, nor that it is a perfect technology. I would like to shortly reflect on how I have used AI and why I have used it in this way.

You should be very careful in its usage. Atlas.ti makes use of the OpenAI software to provide certain analysis functions. It may produce a list of facts of which 80% is true, but those other 20% might be complete nonsense, but framed in a way it seems viable from whatever you feed it. Therefore, AI cannot be used without fact-checking, and should only be used complementary to reading through all the literature and data yourself. I have decided on a different approach: I read papers myself, studied the data myself, and bombarded a notes file with all my thoughts, analysis and interesting things that should end up in my report. Then, I have used AI to restructure, rather than analyse. Afterwards, I could then review its structured version of the notes and see if it had missed anything of my own reflections. In short, I used AI as a means to structure my thoughts processes. And since those process may be a bit chaotic, using it in this way was actually a helpful tool in my research.

Just as my thought processes can be a bit chaotic, so can be my writing. And it is not the first

time I've noticed it. I do my best to improve my writing style with every piece I write, but in the end my report should be readable to everyone. A professor in an LCA course that I followed expressed this as feedback to me, and it clung. He said I should use AI as a secondary right-hand, to improve my writing. And hence, so I did in some past reports, and I found a way I can use the technology to improve the narrative, without hurting my own reflections and writing style. To accomplish this, I have used AI to rewrite some parts of my draft. But again, AI is no replacement for your own reflections and thought processes. So, after having AI rewrite these sections, I went through them again, aligned them with my draft texts and changed paragraphs until I felt the narrative worked in the way I wanted it to. Long story short, if used appropriately, AI may be a useful technology, but it cannot replace the researcher. It may be used, but be very careful and reflective of how you use it.

References

- Afrikaanderwijk Co-op. (2025). Data sheets [Not publicly available].
- Afrikaanderwijk Coöperatie. (2017). *Business case circulaire afrikaandermarkt* (Internal business case document). Afrikaanderwijk Coöperatie. Rotterdam. <https://www.wijkcooperatie.org>
- Afrikaanderwijk Coöperatie. (2018). *Resultatenverslag pilot wijkbeheer afrikaandermarkt* (Pilot evaluation report for the Circulaire Afrikaandermarkt). Afrikaanderwijk Coöperatie. Rotterdam.
- Afrikaanderwijk Coöperatie. (2023). *Projectplan circulaire afrikaandermarkt 2024–2027* (tech. rep.) (Funding application Kansen voor West (GTI-Klimaat 2.0SR.G1)). Afrikaanderwijk Coöperatie. Rotterdam.
- Afrikaanderwijk Coöperatie. (2024). Het Grondstoffenstation. https://wijkcooperatie.org/nl/diensten/het_grondstoffenstation/
- Afrikaanderwijk Coöperatie. (2025a). *Home - de afrikaanderwijk coöperatie*. <https://wijkcooperatie.org/nl/home/>
- Afrikaanderwijk Coöperatie. (2025b). *Projectplan circulaire markt 2025, versie 2* (tech. rep.) (Operational work plan and annual budget for 2025). Afrikaanderwijk Coöperatie. Rotterdam.
- Bekkers, V., & Tummers, L. (2018). Innovation in the public sector: Towards an open and collaborative approach. *International Review of Administrative Sciences*, 84(2), 209–213. <https://doi.org/10.1177/0020852318761797>
- Bianchi, C., Nasi, G., & Rivenbark, W. C. (2021). Implementing collaborative governance: Models, experiences, and challenges. *Public Management Review*, 23(11), 1581–1589. <https://doi.org/10.1080/14719037.2021.1878777>
- Bijleveld, M., Beeftink, M., Bruinsma, M., Uijtewaal, M., & CE Delft. (2021, March). *Klimaatimpact van afvalverwerkroutes in nederland* (No. 20.190400.163). CE Delft. https://www.circulus.nl/upload/file/CE_Delft_190400_Klimaatimpact_afvalverwerkroutes_Nederland_Maart2021_DEF.pdf
- Bourgeois, J. (2025). *D3c: Data commons for cooperative consultancy*. <https://www.tudelft.nl/io/overio/afdelingen/sustainable-design-engineering/kind/projects-labs/d3c>
- Bryson, J. M., Crosby, B. C., & Bloomberg, L. (2014). Public value governance: Moving beyond traditional public administration and the new public management. *Public Administration Review*, 74(4), 445–456. <https://doi.org/10.1111/puar.12238>
- Cameron, J., & Hicks, J. (2013). Performative research for a climate politics of hope: Rethinking geographic scale, “impact” scale, and markets. *Antipode*, 46(1), 53–71. <https://doi.org/10.1111/anti.12035>
- Ceddia, A. R., Oricchio, S., Barberio, G., & Innella, C. (2024). A systematic literature review exploring the nexus between circular economy and communities. *Frontiers in Sustainable Cities*, 6. <https://doi.org/10.3389/frsc.2024.1404279>
- Clark, A., Holland, C., Katz, J., & Peace, S. (2008). Learning to see: Lessons from a participatory observation research project in public spaces. *International Journal of Social Research Methodology*, 12(4), 345–360. <https://doi.org/10.1080/13645570802268587>
- Corbin, J., & Morse, J. M. (2003). The unstructured interactive interview: Issues of reciprocity and risks when dealing with sensitive topics. *Qualitative Inquiry*, 9(3), 335–354. <https://doi.org/10.1177/1077800403009003001>
- Dembek, K., Singh, P., & Bhakoo, V. (2015). Literature review of shared value: a theoretical concept or a management buzzword? *Journal of Business Ethics*, 137(2), 231–267. <https://doi.org/10.1007/s10551-015-2554-z>
- Design & Publics. (2025). Design & publics [Accessed: 2025-10-16].

- Duijn, M., & Van Popering-Verkerk, J. (2018). Integrated public value creation through community initiatives—evidence from dutch water management. *Social Sciences*, 7(12), 261. <https://doi.org/10.3390/socsci7120261>
- Feola, G., & Nunes, R. (2013). Success and failure of grassroots innovations for addressing climate change: The case of the transition movement. *Global Environmental Change*, 24, 232–250. <https://doi.org/10.1016/j.gloenvcha.2013.11.011>
- Finkbeiner, M., Inaba, A., Tan, R., Christiansen, K., & Klüppel, H. (2006). The new international standards for life cycle assessment: Iso 14040 and iso 14044. *The International Journal of Life Cycle Assessment*, 11(2), 80–85. <https://doi.org/10.1065/lca2006.02.002>
- Friant, M. C., Vermeulen, W. J., & Salomone, R. (2020). A typology of circular economy discourses: Navigating the diverse visions of a contested paradigm. *Resources Conservation and Recycling*, 161, 104917. <https://doi.org/10.1016/j.resconrec.2020.104917>
- Geeraert, A., & Van Bottenburg, M. (2025). How the pursuit of public value facilitates collaborative governance: The case of la vuelta holanda. *Public Management Review*, 1–24. <https://doi.org/10.1080/14719037.2025.2484800>
- Gray, D. E. (2021, December 11). *Doing research in the real world* (5th ed.). Sage Publications Limited.
- Hadfield, P., Ningrum, D., Aditya, B., Hardesty, B. D., Holden, J., Maheshwari, T., Marthanty, D. R., Ombasta, O., Prescott, M., Priadi, C., Purnomo, C. E., Ramirez-Lovering, D., Skidmore, M., Suwarso, R., Tanumihardja, D., Taufik, F. D., Wong, T., & Raven, R. (2025). Transformative principles for circular economy transitions in the global south. *npj Urban Sustainability*, 5(1). <https://doi.org/10.1038/s42949-025-00225-9>
- Hobson, K. (2015). Closing the loop or squaring the circle? locating generative spaces for the circular economy. *Progress in Human Geography*, 40(1), 88–104. <https://doi.org/10.1177/0309132514566342>
- Igalla, M., Edelenbos, J., & Van Meerkerk, I. (2019). Citizens in action, what do they accomplish? a systematic literature review of citizen initiatives, their main characteristics, outcomes, and factors. *VOLUNTAS International Journal of Voluntary and Nonprofit Organizations*, 30(5), 1176–1194. <https://doi.org/10.1007/s11266-019-00129-0>
- Jamshed, S. (2014). Qualitative research method-interviewing and observation. *Journal of Basic and Clinical Pharmacy*, 5(4), 87. <https://doi.org/10.4103/0976-0105.141942>
- Kindon, S. L., Pain, R., & Kesby, M. (2007, December 18). *Participatory action research approaches and methods*. Routledge. <https://doi.org/10.4324/9780203933671>
- Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources Conservation and Recycling*, 127, 221–232. <https://doi.org/10.1016/j.resconrec.2017.09.005>
- Kirchherr, J., Yang, N. N., Schulze-Spüntrup, F., Heerink, M. J., & Hartley, K. (2023). Conceptualizing the circular economy (revisited): An analysis of 221 definitions. *Resources Conservation and Recycling*, 194, 107001. <https://doi.org/10.1016/j.resconrec.2023.107001>
- Kuitert, L., Volker, L., & Grandia, J. (2023). Facing npg implementation problems in municipal organizations: The wickedness of combined value systems. *Public Policy and Administration*, 39(3), 365–383. <https://doi.org/10.1177/09520767231189016>
- Leclercq, E. (2025, May 12). Personal communication: Discussions on the cvf method.
- Leclercq, E., & Rijshouwer, E. (2025, March 5). Personal communication: Discussions on thesis and its scope.
- Milieu Centraal. (2022, January). *Rapport: Verkenning naar circulaire wijken*. <https://www.milieucentraal.nl/professionals/factsheets-en-rapporten/rapport-verkenning-naar-circulaire-wijken/>
- Ministerie van Infrastructuur en Waterstaat. (2023a). *Circulaire economie in 2050*. <https://www.rijksoverheid.nl/onderwerpen/circulaire-economie/nederland-circulair-in-2050>
- Ministerie van Infrastructuur en Waterstaat. (2023b). *Nationaal programma circulaire economie 2023–2030*. Rijksoverheid. Den Haag.
- Ministerie van Sociale Zaken en Werkgelegenheid. (2018, January). *Persbericht uitkeringsbedragen per 1 januari 2018* (tech. rep.) (Persbericht v 08-01-2018. Omvat aanpassingen Participatiewet, IOAW,

- IOAZ, AOW, Anw, Wajong, WW, WIA, WAO, ZW en Toeslagenwet.). Rijksoverheid. Den Haag. Retrieved October 14, 2025, from <https://www.rijksoverheid.nl/documenten/publicaties/2017/12/15/uitkeringsbedragen-per-1-januari-2018>
- Ministerie van Sociale Zaken en Werkgelegenheid. (2025, July). *Uitkeringsbedragen per 1 juli 2025* (tech. rep.) (Officiële publicatie van uitkeringsbedragen gekoppeld aan de stijging van het minimumloon per 1 juli 2025.). Rijksoverheid. Den Haag. Retrieved October 14, 2025, from <https://www.rijksoverheid.nl/onderwerpen/minimumloon/bedragen-minimumloon/bedragen-minimumloon-2025>
- Murray, A., Skene, K., & Haynes, K. (2015). The circular economy: An interdisciplinary exploration of the concept and application in a global context. *Journal of Business Ethics*, 140(3), 369–380. <https://doi.org/10.1007/s10551-015-2693-2>
- Ombudsman Rotterdam-Rijnmond. (2025). *Omarm me: Bestuurlijke reacties* (Reacties van gemeenten Rotterdam, Albrandswaard, Capelle aan den IJssel, Krimpen aan den IJssel en Voorne aan Zee). ORR. Rotterdam.
- Ombudsman Rotterdam-Rijnmond (ORR). (2025). *Onderzoeksrapport omarm me* (Onderzoek naar samenwerking tussen gemeenten en initiatiefrijke inwoners). ORR. Rotterdam.
- Raworth, K. (2017). *Doughnut economics: Seven ways to think like a 21st-century economist*. Random House.
- Rijksoverheid. (2025). *Hoe kan ik de hoogte van mijn ww-uitkering berekenen?* [Accessed 14 October 2025]. Ministerie van Sociale Zaken en Werkgelegenheid. <https://www.rijksoverheid.nl/onderwerpen/ww-uitkering/vraag-en-antwoord/hoe-kan-ik-de-hoogte-van-mijn-ww-uitkering-berekenen>
- Rood, T., & Kishna, M. (2019, January 11). *Circulaire economie in kaart*. <https://www.pbl.nl/publicaties/circulaire-economie-in-kaart>
- Saldaña, J. (2011, March 18). *Fundamentals of qualitative research*. Oxford University Press. <https://cic.nii.ac.jp/ncid/BB08837930>
- Schwanen, T. (2024). Geographies of value and valuation: On boundary objects, a sensibility and trajectories. *Environment and Planning F*. <https://doi.org/10.1177/26349825241296070>
- Schwartz, S. (2012). An overview of the schwartz theory of basic values. *Online Readings in Psychology and Culture*, 2. <https://doi.org/10.9707/2307-0919.1116>
- Sekulova, F., Anguelovski, I., & Argüelles, L. (2023). Redefining success in organizing towards degrowth. *Environmental Innovation and Societal Transitions*, 48, 100764. <https://doi.org/10.1016/j.eist.2023.100764>
- Smit, M., & Leclercq, E. (2023, January 10). *Circular communities: The circular value flower as a design method for collectively closing resource flows*. nai010. <https://doi.org/10.34641/mg.62>
- Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, 'translations' and boundary objects: Amateurs and professionals in berkeley's museum of vertebrate zoology, 1907-39. *Social Studies of Science*, 19(3), 387–420. <https://doi.org/10.1177/030631289019003001>
- Teasdale, S. (2011). What's in a name? making sense of social enterprise discourses. *Public Policy and Administration*, 27(2), 99–119. <https://doi.org/10.1177/0952076711401466>
- Thabit, S., Sancino, A., & Mora, L. (2024). Strategic public value(s) governance: A systematic literature review and framework for analysis. *Public Administration Review*. <https://doi.org/10.1111/puar.13877>
- Torring, J., & Triantafillou, P. (2013). What's in a name? grasping new public governance as a political-administrative system. *International Review of Public Administration*, 18(2), 9–25. <https://doi.org/10.1080/12294659.2013.10805250>
- Vos, M. B., Martinsuo, M., & Loots, E. (2025). Projecting to promote sustainability transitions through joint value creation. *International Journal of Project Management*, 102692. <https://doi.org/10.1016/j.ijproman.2025.102692>
- Warnke, P., et al. (2023). Participatory design. In P. W. et al. (Ed.), *Public engagement in the tradition of participatory approaches – an approximation* [In: Responsible research and innovation across europe] (pp. 125–126). Springer. <https://doi.org/10.1007/978-3-031-14710-4>

- White, M. D., & Marsh, E. E. (2006). Content analysis: A flexible methodology. *Library trends*, 55(1), 22–45. <https://doi.org/10.1353/lib.2006.0053>
- Wittmayer, J. M., De Geus, T., Pel, B., Avelino, F., Hielscher, S., Hoppe, T., Mühlemeier, S., Stasik, A., Oxenaar, S., Rogge, K. S., Visser, V., Marín-González, E., Ooms, M., Buitelaar, S., Foulds, C., Petrick, K., Klarwein, S., Krupnik, S., De Vries, G., ... Härtwig, A. (2020). Beyond instrumentalism: Broadening the understanding of social innovation in socio-technical energy systems. *Energy Research & Social Science*, 70, 101689. <https://doi.org/10.1016/j.erss.2020.101689>
- Wittmayer, J. M., Schöpke, N., Van Steenbergen, F., & Omann, I. (2014). Making sense of sustainability transitions locally: How action research contributes to addressing societal challenges. *Critical Policy Studies*, 8(4), 465–485. <https://doi.org/10.1080/19460171.2014.957336>

A | Observation summaries

A.1 Week 1 (23 - 29 juni)

A.1.1 Observatiemomenten:

- Kick-off Buurtbuik
- 1e meeting met coördinator

Samenvatting:

Het Grondstoffenstation (GSS) kampt met diverse uitdagingen én kansen op het gebied van afvalverwerking, sociale werkgelegenheid en financiering. Zo bleek een investering in een machine voor piepschuimrecycling niet haalbaar vanwege de (relatief) hoge kosten (van minder dan 20k), en tegelijkertijd is het aanvragen van subsidies voor het betalen van medewerkers al erg lastig. Afval zelf wegbrengen zou kosten besparen, maar ook hier hebben ze geen ruimte in (vrachtwagen invresteren). Dit zou de kosten enorm verlagen, maar investeringsruimte in een vrachtwagen is er niet. Daarom blijft de praktijk alsnog prijzig.

Momenteel is er onduidelijkheid over wat er precies binnenkomt aan grondstoffen, zoals pallets karton (geschat op zo'n 2000 kg). Er is wel inzicht in wat er het terrein verlaat. Een mogelijke oplossing hiervoor is het invoeren van een eenvoudige digitale registratie (bijv. via Google Forms), met informatie over de hoeveelheid van het afval, herkomst (welk marktlied) en wat ervoor betaald is.

Het GSS biedt werkplekken aan mensen "op de rand van de maatschappij", bijvoorbeeld aan 'Wajongers'. Vaak weten de medewerkers van marktlieden weinig over het bredere plaatje, zoals het terugvragen van BTW op hun kosten via de bonnetjes die het GSS kan uitgeven. Ondanks dat verdient het GSS nu officieel aan onder andere hout, restafval en AGF. Nog niet aan bijvoorbeeld piepschuim. Er is een wens om ook, net zoals de uren van medewerkers, materiaalstromen transparant te registreren, in het kader van verantwoording en inzicht. Dit zou kunnen helpen bij hun impact hard maken en daarmee subsidie aanvragen beter te onderbouwen.

Opvallend is dat plastic kratjes maar weinig binnenkomen in verhouding tot karton, waardoor medewerkers op woensdag aan het einde van de dag plastic moeten opsparen en plasticpers voor karton gebruiken. Dit scheelt ruimte en Renes trekt het weer uit elkaar. Ondanks het sociale karakter van het GSS is er regelmatig spanning. Gesprekken met marktlieden over 'vervuilde' pallets werkten niet: pas toen de prijzen verhoogd werden voor rommelpallets ging men beter scheiden. Medewerkers belanden vaak in lastige discussies met marktlieden, wat extra druk op hen legt. Als je niet sterk in je schoenen staat, lopen ze zo over je heen. Dit maakt het functioneren als 1 team soms lastig.

Financieel is het complex: het project bespaart jaarlijks zo'n €60.000 aan uitkeringen per persoon, en ontvangt subsidies van bijvoorbeeld gemeenten (€27.000 per kwartaal) en 'Kansen voor West' (40% van lonen). Toch zijn subsidies per definitie tijdelijk en bieden ze geen structurele basis. De vraag rijst waarom er dan niet meer gevraagd wordt voor afvalinzameling. Al betalen marktlieden nu al meer dan voor reguliere afvalverwerking. Tegelijkertijd haalt GSS jaarlijks circa 80 vrachtwagens van de weg, een duidelijke milieuwinst. De discrepantie tussen kostenbesparingen en ontvangen subsidie is opvallend.

Sociale impact is groot: vroegere situaties met ±6000 kg zwerfafval en een vervuilde wijk zijn sterk verbeterd. Toch zijn ook bredere problemen zichtbaar, zoals de slechte afvalinzameling in Rotterdam en de gevolgen van statiegeldsystemen, die afvalbakken juist rommeliger maken. De introductie

van een statiegeldapparaat zou hier deels op kunnen inspelen, maar ook hiervoor is geen investeringsruimte.

Binnen het team leeft angst dat, ondanks al het voorwerk, de gemeente uiteindelijk het initiatief overneemt (of onderdelen ervan) of de stekker eruit trekt. Deze onzekerheid maakt structurele samenwerking moeilijk. Contact met de wijkraad levert gemengde reacties op: hoewel GSS zich goed presenteerde, werd ook geklaagd over het gebouw (“lelijk neergepleurd”), en lijkt de voorzitter niet neutraal in zijn houding.

A.2 Week 2 (30 juni - 6 juli)

A.2.1 Observatiemomenten:

- 1e Meedraaidag woensdagmiddag

Samenvatting:

Het Grondstoffenstation (GSS) is meer dan alleen een inzamelpunt – het functioneert als een sociaal centrum voor markt en buurt. Informele contacten spelen hierbij een grote rol. Denk aan rondleidingen vanuit het GSS aan mensen uit de buurt, het uitlenen van water aan de schooltuintjes en ter verkoeling, en de aanwezigheid van personen zoals koffieman Hatim, die zijn werkzaamheden min of meer gedoogd voortzet, nadat zijn officiële business opgeheven moest worden. Er ontstaat een organische uitwisseling tussen medewerkers, marktkoopliden en bezoekers; het GSS is zo een verbindende plek voor markt én mens.

De samenwerking met externe partijen zoals Renes is essentieel, maar ook kwetsbaar. GSS heeft jarenlang met een vaste contactpersoon binnen Renes gewerkt, die binnenkort met pensioen gaat. Het is nog onduidelijk welke gevolgen dit zal hebben voor het dagelijkse contact en de onderlinge afstemming. Problemen zoals kapotte containers worden nu al traag opgevolgd.

Renes is bovendien een van de weinige partijen die bereid zijn te betalen voor plastic afval, tenminste ten tijde van de contractafsluiting. Nieuwe spelers, zoals Sirkulair, bieden weliswaar betere deals aan, maar er is nog geen vertrouwen opgebouwd. De vraag blijft dan wat er gebeurt als zo’n nieuwe partij plots met het contract er vandoor gaat. Zijn de financiële opbrengsten dan nog wel gegarandeerd in de toekomst? Hebben ze überhaupt nog een contract een jaar later of wordt het collectief overgenomen door investeerders met puur economische visie?

A.3 Week 3 (7 - 13 juli)

- 2e meedraaidag (woensdagochtend)
- 3e meedraaidag (zaterdagmiddag)
- Turfsessie binnenkomend afval

Samenvatting:

De verwerking van afval op de markt verloopt efficiënt, al is het systeem niet vlekkeloos. Hout en karton worden gratis ingenomen, plastic en AGF tegen een kleine vergoeding. Op marktdagen vullen zich zo’n 4 à 5 bakken met AGF (9-10 per week), die op donderdag worden opgehaald. Plastic kratten worden vaak als displays gebruikt door de marktlieden. Op zaterdagen worden ze buiten bewaard in de container. Woensdag wordt het in de pers gegooid. Opvallend is wel dat de kratten ook hergebruikt zouden kunnen worden, maar schoonmaken is tijdrovend en kostbaar.

Sommige marktkoopliden huren een GFT-bak en scheiden hun afval keurig, maar de beschikbaarheid van kratten is beperkt. Het GSS kan niet aan de vraag van alle marktlieden voldoen. De reden waarom er niet meer geleverd worden via Renes is onduidelijk. Ideeën zoals gezamenlijk huren

worden besproken.

Er zijn geregeld rondleidingen op het terrein. De medewerkers zien hierin waarde: het versterkt betrokkenheid van de buurt, die overwegend positief is. Soes vergelijkt het terrein zelfs met een soort "Central Park" en benadrukt hoe medewerkers om 6 uur 's ochtends onderweg naar werk al rommel opruimen.

Het sociale aspect is sterk: medewerkers helpen elkaar en voelen zich verantwoordelijk voor de plek. Tegelijk zijn er spanningen. Zo werd er in een appgroep een foto gedeeld over fouten op zaterdag, wat als oncollegiaal werd ervaren. Ivan kijkt regelmatig camerabeelden terug bij illegale stortingen van Marktklieden. Er zijn discussies tussen medewerkers en marktkooplieden over de toegangspoort: sommigen gebruiken de achterdeur en gooien er verkeerd afval bij. De drukte op zaterdag maakt het sorteren minder efficiënt, terwijl op woensdag rustiger gewerkt kan worden.

De diversiteit van de medewerkers is groot. Sommigen combineren het werk met andere banen, zoals groenonderhoud, technieklés op school of schoonmaken in de Rotterdamse haven. Toch heerst er onzekerheid over de toekomst en gebrek aan structurele betaling vanuit sommige marktleden. Ook komt het voor dat de administratie van afval niet klopt.

Er is behoefte aan betere voorzieningen en coördinatie, zoals meer GFT-bakken, afhandeling van visafval (blauwe bakken, centrale ophaalservice) en betere afspraken over het gebruik van de persmachine. De machinecapaciteit is beperkt, en er bestaat een wens voor extra perscontainers. Echter is dit qua kosten niet haalbaar, en al helemaal niet qua ruimte.

Tot slot is de relatie met de wijk niet altijd even makkelijk. Ondanks betrokkenheid en inspanningen wordt GSS door sommigen (zoals de voorzitter van de wijkraad) negatief neergezet, wat demotiverend werkt voor medewerkers zoals Boris.

De medewerkers van het GSS dragen veel verantwoordelijkheid, en doen dat grotendeels zelfstandig, zonder formele hiërarchie. Ze zorgen zelf dat het terrein en de vloer schoon blijft, letten op de inrichting en houden toezicht op het afval. Dat gebeurt niet omdat een baas het zegt – er is geen baas – maar omdat het team zich gezamenlijk verantwoordelijk voelt. Sommigen leggen op een werkdag wel 30 kilometer af en sjouwen zware pallets: het werk is fysiek intensief.

Er zijn veel informele bandjes met de marktkooplieden. Zo worden bezems uitgeleend om de markt schoon te houden, en betalen sommige marktleden pas later op de dag, wat wordt gedoogd omdat zij zich betrouwbaar hebben bewezen. Anderen nemen dat vertrouwen juist minder serieus en worden strikter gecontroleerd. Tegelijkertijd is er onderlinge betrokkenheid; medewerkers helpen elkaar, houden elkaar scherp en bouwen aan een soort familiegevoel op de markt.

Toch zijn er ook spanningen. Sommige marktkooplieden proberen onder betaling uit te komen door afval al vroeg vóór 6 uur 's ochtends te dumpen. Een keer besloten de medewerkers al om 3 of 4 uur te komen om hen op heterdaad te betrappen. Dat had effect, maar het probleem is niet verdwenen. Afval wordt nu buiten camerabereik, bijvoorbeeld achter het elektriciteitshuisje, illegaal neergezet. Dit ruimt het GSS alsnog op.

Eerder schreef ik dat er wordt nagedacht over een vierde perscontainer. Hoewel dit financieel aantrekkelijk lijkt, zou het ook betekenen dat er minder werk te doen is, benoemt een van de medewerkers. Juist het heen en weer sjouwen van afval geeft medewerkers extra uren en een gevoel van verantwoordelijkheid. Het is een vorm van 'betekenisvolle inefficiëntie': het houdt mensen aan het werk, betrokken en zichtbaar, en biedt werkuren die anders zouden verdwijnen.

De drukte op zaterdag maakt efficiënt sorteren lastig: er wordt veel buiten opgestapeld en tot maandag bewaard. Woensdag werkt rustiger. Marktkooplieden gebruiken soms de achterdeur om karton in de machine te stoppen, wat leidt tot frictie. Medewerkers wijzen erop dat schone pallets afval (zoals karton) gratis is, maar vuile pallets niet. Deze moeten door het GSS uitgesorteerd worden en ontdaan worden van GFT en plastic verspreid tussen het karton en het hout. De extra kosten worden niet altijd goed nageleefd door de marktkooplieden, en sommige medewerkers vinden het lastig deze discussies aan te gaan.

Bezoekers gebruiken de tribune rond het GSS als ontmoetingsplek; vriendinnen zitten er te kletsen voor ze de markt opgaan. Dat benadrukt hoe het GSS langzaam ook een plek in het publieke leven is geworden. Rondleidingen versterken die verbinding. Een van de medewerkers vergelijkt het met "Central Park": een plek die netjes, open en gastvrij moet blijven, waar kinderen moeten kunnen spelen en waar men zich veilig voelt. Deze medewerker komt hier al sinds jong.

Als onderzoeker word je vaak aangekondigd als "de jongen van de TU Delft die onderzoek doet naar afvalstromen." Soms wordt er lacherig gereageerd en een grapje gemaakt, soms met onverschilligheid. Het blijft onduidelijk hoe mensen het echt ervaren dat je daar rondloopt. De marktmeesters waren te druk voor een gesprek, maar hopelijk is daar volgende week ruimte voor.

Het beeld dat blijft hangen: medewerkers nemen hun rol serieus. Ondanks de sterke verhalen hier en daar, komen hun woorden meestal overeen met hun daden. Ze werken zichtbaar mee aan de missie van het GSS.

A.4 Week 4 (14-16 juli)

- 4e meedraaidag (woensdagochtend)
- gesprek marktmeesters

Samenvatting:

Wat begon als een gepland gesprek met de marktmeesters, leidde toevallig tot een veel breder perspectief. Ik liep de coördinator van alle Rotterdamse markten tegen het lijf. Hij benadrukte hoe complex afvalverwerking op de markt is. Het wordt officieel gezien als bedrijfsafval, maar in de praktijk is er ook veel vervuiling door consumenten (normaal huishoudelijk afval). Denk aan plastic verpakkingen en etensresten. Er zit volgens hem een fundamentele scheefgroei: evenementen zoals de marathon worden wel betaald vanuit de afvalheffing, maar de markt, die ook duizenden bezoekers trekt, niet. Daarmee betaalt de markt dus indirect voor publieke rommel. Dat kun je natuurlijk terecht vinden als je de markt beschouwt als puur een samenkomst van wel. Tegelijk is het GSS voor veel marktkooplieden een uitkomst, al begeven ze zich volgens deze coördinator in een juridisch grijs gebied zonder formeel afvalcontract. De bonnen van het GSS helpen wel bij btw-teruggave, maar structurele erkenning vanuit de gemeente ontbreekt.

A.5 Week 5 (25-29 aug)

Per toeval had ik een ontmoeting met de coördinator van alle markten in Rotterdam. Het gesprek begon met mijn wens om de lokale marktmeesters te spreken, maar gezien zij niet aanwezig waren, en de coördinator toevallig wel, werd het gesprek een bredere reflectie op hoe afval op de markt, en de markt zelf, gezien en behandeld wordt.

Volgens hem had ik "het meest twisted onderwerp gekozen" voor mijn scriptie. De markt is geen centraal aangestuurde organisatie zoals een supermarktketen, maar een verzameling van meer dan 200 zelfstandige ondernemers, maar ook tienduizenden bezoekers. Elk met hun eigen afvalstromen en verantwoordelijkheden. Hierdoor wordt alles dat op de markt achterblijft bestempeld als bedrijf-

safval. Dat betekent dus per definitie kosten voor de marktkoopliden.

Maar hij stelde dat niet al dat afval van de ondernemers. Er is ook veel rommel afkomstig van bezoekers. Mensen kopen bijvoorbeeld een patatje of een mango. Als het eten dan op is, eindigt de patazak, schil van de mango of het plasticje dat om de mango heen zat, vaak gewoon op de grond. En niet alleen omdat mensen het zomaar weggooien, ook vanwege het tekort aan prullenbakken. Maar als er meer prullenbakken worden geplaatst, is de gemeente ook weer bang dat marktliden er vaker in gaan dumpen. Er ontstaat dus een mengeling van bedrijfs- en consumentenafval.

Hij vergeleek de markt met een evenement zoals de Rotterdam Marathon: beide trekken tien-duizenden mensen en genereren afval. Voor de marathon betaalt de gemeente de schoonmaak vanuit gemeentelijke middelen, omdat het wordt gezien als een evenement voor de burger. Ik weet niet in hoeverre dit waar was. Ik was in de veronderstelling dat de marathonorganisatie daar ook voor moest betalen? Geen idee, out of scope. Zijn punt: op marktdagen komen er ook 15.000 tot 20.000 bezoekers naar het plein. De markt is meer dan een economische activiteit voor de 200 ondernemers: het is een ontmoetingsplek voor buurtbewoners, een plek voor mensen met een kleine portemonnee, en een vaste 'rituele plek' voor veel bezoekers. Toch wordt het formeel slechts als commerciële activiteit erkend, en wordt het dus als onterecht bestempeld dat de gemeente ook geld kwijt is aan schoonmaak.

Daarnaast wees hij op het grijze gebied rondom het Grondstoffenstation. Officieel moet elke marktkoopman een contract hebben voor het afvoeren van bedrijfsafval. Die contracten zijn er meestal niet bij het GSS. Maar omdat het een Right2Challenge van de gemeente is, wordt het gedoogd. Maar niet per se legaal in zijn ogen. Bonnetjes van het GSS helpen wel om bijvoorbeeld BTW terug te vragen, maar het hele systeem hangt samen van praktische oplossingen, informele afspraken en wederzijds vertrouwen. Volgens hem is dat ook wat de markt draaiende houdt, maar tegelijk erkende hij dat structurele ondersteuning vanuit marktmeesters daardoor lastig is.

Lang verhaal kort, een nieuw perspectief dat wel wat nuances kan inbrengen. We gaan verder middels een interview.

A.6 Week 6 (8-12 september)

Dichtbijheid van afvalverwerking lijkt cruciaal voor de marktkoopliden. Ze kiezen voor het GSS omdat het voor hun "om de hoek" zit. Dat is sneller én makkelijker. Hoe eerder ze klaar zijn, hoe sneller ze terug kunnen naar hun teler of naar huis, om klaar te maken voor de volgende marktdag. Toen ik vroeg naar hoe ze met hun afval omgingen op andere markt, gaf een van hen aan dat veel afvalverwerking gebeurt via informele contacten. "Ik vind mijn lijntjes wel". Deze uitspraak vat het eigenlijk goed samen: afval wordt geregeld via wie je kent, en wie je de beste deal geeft. Niet via regels. Daarmee is informaliteit dus niet alleen een risico voor het GSS (wat ik twee weken terug vernam), maar ook een pluspunt voor het GSS.

B | Focus group documents

These focus group materials have been created by Design & Publics (2025) for the Data Commons for Cooperative Consultancy project (Bourgeois, 2025), based on preliminary results of this research.

B.1 Materials

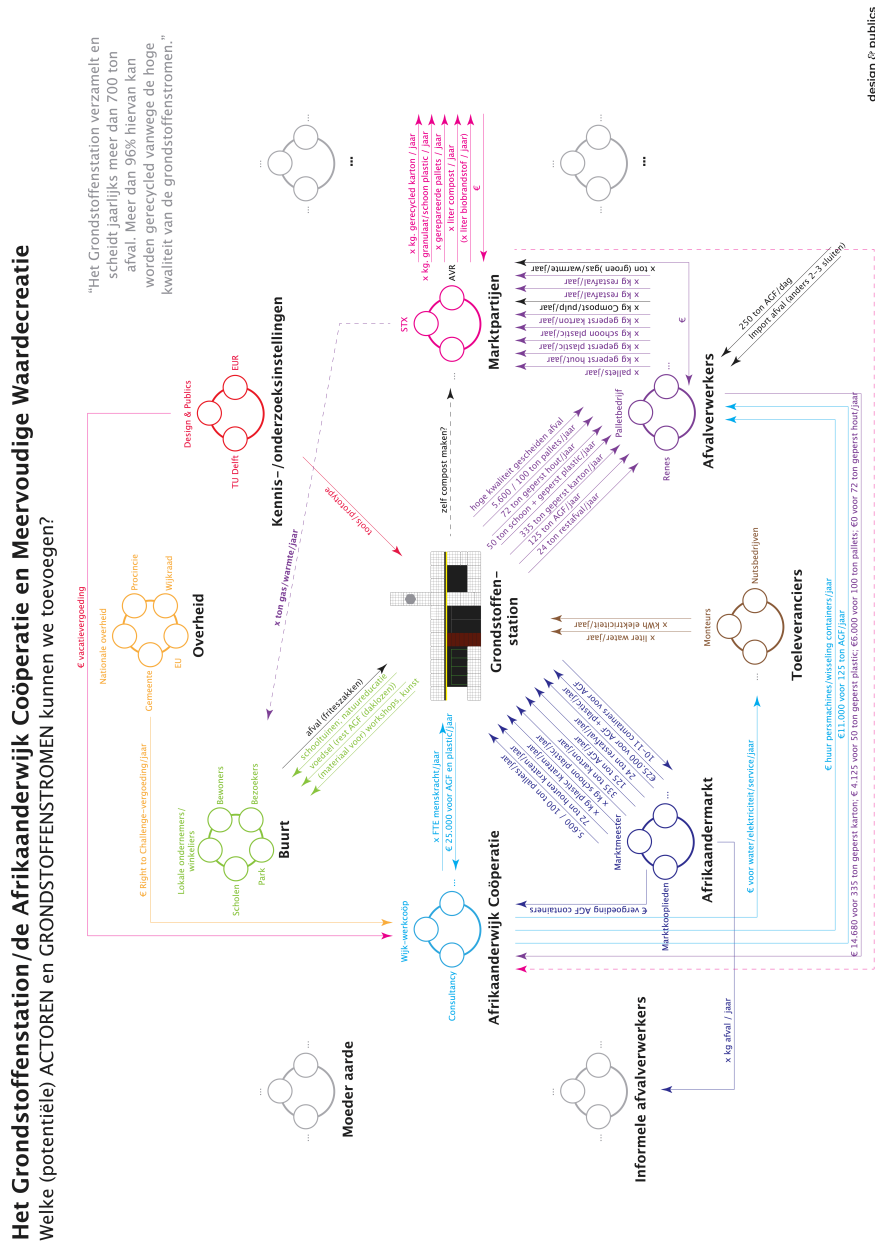


Figure B.1: Focus group worksheet by Leclercq and Rijshouwer (2025)

B.2 Results

Grondstoffenstation – Resources and Values

Summary/highlights of meeting/brainstorm 24-09-2025 (see graphs in D3C_Werkmateriaal_Werksessie_20250916c_Uitwerking20251010a.pdf as well)

Stakeholders	Resources/values
Resource station	<ul style="list-style-type: none"> • Multiple value creation • Sense of community; (social) • Setting an alternative example; pioneering; living and working according to ideals of a just and circular economy (cultural) • Employment (financial)
Afrikaanderwijk coöp	<ul style="list-style-type: none"> • Providing a different approach to the dominant economic system. Experience with developing, managing and operating a resource station, and all challenges involved; potentially to inform/instruct/support comparable initiatives (cultural) • Right-to-challenge/self-organization specialist; idem (cultural)
Market/vendors	<ul style="list-style-type: none"> • Saving money (no need to drive to waste processor; discount) (financial) • Saving time/sleep (no need to drive to waste processor); more sleep, better health (social; financial)
Waste processors	<ul style="list-style-type: none"> • Provision of pre-sorted, clean materials (scheiding aan de bron is the most effective for the purpose of recycling) (financial, ecological)
Neighbourhood	<ul style="list-style-type: none"> • A clean neighbourhood (aesthetic) • A front-runner, exemplary, innovative, social, pioneering neighbourhood (social) • Potential materials can be used to provide local organizations with gas/heat directly (decentrally)? (ecological; financial)
Municipality	<ul style="list-style-type: none"> • Saving money: in reduction of benefits and reduction in waste collection (financial) • Having a partner/independent entity in the city that demonstrates how steps towards a social, just and circular economy are made; and what (amongst others, 'systemic') barriers there are. So, ideally,

Figure B.2: Results (a) by Design & Publics (2025)

	the municipality's organization gets first hand experiences and signals to inform it how to transform itself to an entity to provides the right circumstances for realizing this transition (cultural)
Private parties	<ul style="list-style-type: none"> • Potential resources to be traded? (financial)
Other neighbourhoods	<ul style="list-style-type: none"> • Potential access to knowledge of and experience with and a partner in waste collection; setting-up and managing a resource station; uitdaagrecht; pioneering with the circular economy (cultural)
Knowledge institutions	<ul style="list-style-type: none"> • First-hand knowledge and experience with developing, managing and operating a resource station, and all challenges involved (cultural) • First-hand knowledge and experience with a practice with the aim to realize a circular economy, and all challenges involved (cultural) • Providing students with an opportunity to learn from/with this initiative (cultural)
Planet earth	<ul style="list-style-type: none"> • Keeping resources in the loop (saving them from incineration) (ecological) • Reduction of CO₂-emissions (ecological)

The Resource Station/Afrikaanderwijk Coöperatie's main objectives are to run a social, just, economically viable circular operation. They would need/benefit from structural recognition and (financial) support from the municipality (as they fulfill some of its tasks and ambitions).

Potential ways to achieve this is to:

- develop a model for true pricing [redacted] students could work on this); currently, for example, revenues for materials are relatively low, while costs for labor are high.
- communicatie multiple value creation in order to demonstrate the municipality of the GSS's value + find ways for the municipality to incorporate GGS as integral part of their governance structure.
- communicatie the benefits of GSS (in terms of multiple value creation) to community, municipality market vendors etc. (to all stakeholders) visible at the GSS or in public space

Figure B.3: Results (b) by Design & Publics (2025)

C | Informed Consent Forms

MSc Study Programme Industrial Ecology

INDUSTRIAL ECOLOGY
INNOVATIVE BY NATURE

Toestemmingsformulier voor een Interview: Circulaire Economie in de Praktijk – een scriptie

Beste deelnemer,

Ik wil u graag uitnodigen om deel te nemen aan een interview over de Circulaire Economie in de Praktijk, als deel van een master scriptie van het MSc-programma Industrial Ecology aan de Universiteit Leiden en de TU Delft.

In Nederland is het grondstoffenbeheer sterk gecentraliseerd, wat kan leiden tot gemiste kansen voor lokale, circulaire oplossingen en tot inefficiënties. Initiatieven zoals het Grondstoffenstation in de Afrikaanderwijk in Rotterdam proberen op een veerkrachtigere, lokaal gerichte benaderingen van afvalbeheer te verkennen. Ondanks hun insteek ondervinden dit soort initiatieven aanzienlijke uitdagingen, zoals complexe regelgeving en beleid gefocust op een lineaire economie. Dit onderzoek richt zich op hoe het Grondstoffenstation meerdere waarden creëert voor het bredere sociaal-economische systeem en hoe beleid en regelgeving dit in de toekomst zou kunnen faciliteren.

Het interview zal worden opgenomen en getranscribeerd. De transcriptie zal vervolgens worden geanalyseerd, en de resultaten van de analyse zullen anoniem worden opgenomen in het eindrapport. Deze zal worden gebruikt als onderdeel van de beoordeling van de student voor het afronden van de master. U krijgt de mogelijkheid tot herziening van het transcript voordat deze in het eindrapport gebruikt zal worden.

Al het materiaal verzameld tijdens dit interview, inclusief de audio-opname, zal worden opgeslagen in de TU Delft OneDrive en zal alleen toegankelijk zijn voor de betrokken student en hun TU Delft begeleider (Dr. ir. Udo Pesch (e-mail: u.pesch@tudelft.nl)).

Als u geen toestemming geeft voor het gebruik van het materiaal, worden uw persoonsgegevens aan het einde van de onderzoeksperiode verwijderd en wordt uw bijdrage alleen gebruikt voor educatieve doeleinden (de beoordeling van de student).

Uw deelname is volledig vrijwillig. U mag het interview op elk moment onderbreken, zonder hiervoor een reden te hoeven geven. U mag weigeren om vragen te beantwoorden die u niet wilt beantwoorden, zonder negatieve gevolgen.

Contactpersoon:
Tadé Whenu (e-mail: t.k.d.whenu@student.tudelft.nl)

Gelieve de juiste vakjes aan te vinken	Ja	Nee
Ik heb de bovenstaande studie-informatie gelezen en begrepen, of het is mij voorgelezen. Ik heb vragen over het onderzoek kunnen stellen en deze zijn naar tevredenheid beantwoord.	<input type="checkbox"/>	<input type="checkbox"/>
Ik begrijp dat het in de eerste plaats zullen worden gebruikt voor de beoordeling van de prestaties van de student als onderdeel de MSc Industrial Ecology.	<input type="checkbox"/>	<input type="checkbox"/>
Ik begrijp dat het rapport publiek beschikbaar zal worden via de TU Delft repository.	<input type="checkbox"/>	<input type="checkbox"/>

Ik geef toestemming om deel te nemen aan het onderzoek en voor de gegevensverwerking zoals hierboven beschreven.

Naam Deelnemer [in blokletters]	Handtekening	Datum
---------------------------------	--------------	-------

Figure C.1: Interview Informed Consent Form

Toestemmingsformulier voor de Workshop: het Grondstofvenstien in de Afrikaanderwijk

Beste deelnemer,

Wij willen u graag uitnodigen om deel te nemen aan een workshop over het Grondstofvenstien in de Afrikaanderwijk, als deel van een onderzoek van het MSc-programma Industrial Ecology aan de Universiteit Leiden en de TU Delft, en dient ook als onderdeel van door NWO gefinancierde onderzoek D3C – Data Commons for Cooperative Consultancy. Lees onderstaande informatie zorgvuldig door. Als u akkoord bent, kunt u onderaan uw naam invullen en toestemming geven waar dit van toepassing is voor u.

Wij willen u erop attenderen dat het deelnemen van deze workshop het volgende omvat:

- Het bijhouden van uw aanwezigheid: uw naam wordt genoteerd ter bevestiging van uw aanwezigheid.
- Gebruik van gegevens: gegevens die tijdens de workshop worden verzameld (bijv. observaties, schriftelijk werk & discussies) kunnen worden gebruikt voor onderzoeksdoeleinden.
- Gebruik van foto's: tijdens de workshop kunnen foto's worden genomen. Deze kunnen worden gebruikt in publicaties van het onderzoek, of voor presentaties. Als u liever niet op foto's verschijnt, zijn er keycards beschikbaar om duidelijk te maken aan de fotograaf dat u niet op de foto wilt. Daarnaast zullen de foto's die keycards bevatten verwijderd worden. Ten slotte kunt u ook verzoeken om genomen foto's van u te laten verwijderen tijdens de workshop.

Al het materiaal verzameld tijdens deze workshop, inclusief de foto's, zal worden opgeslagen in de TU Delft Surfdrive folder D3C en zal toegankelijk zijn voor de betrokken student, hun TU Delft begeleider Dr. ir. Udo Pesch (e-mail: u.pesch@tudelft.nl), de projectleider D3C Dr. Jacky Bourgeois (j.bourgeois@tudelft.nl) en samenwerkingspartners Dr. ir. Els Leclercq (els@design&publincs.com) & Dr. ir. Emiel Rijstouwer (emiel@design&publincs.com).

Als u geen toestemming geeft voor het gebruik van het materiaal, worden uw persoonsgegevens aan het einde van de onderzoeksperiode verwijderd en wordt uw bijdrage alleen gebruikt voor educatieve doeleinden (de beoordeling van de student).

Uw deelname is volledig vrijwillig. U mag de workshop op elk moment verlaten, zonder hiervoor een reden te hoeven geven. U mag weigeren om vragen te beantwoorden of deel te nemen aan gesprekken, zonder negatieve gevolgen.

Contactpersoon:

Tadé Whenu (e-mail: L.k.s.whenu@student.tudelft.nl)
 Els Leclercq (e-mail: els@design&publincs.com)

Figure C.2: Workshop Informed Consent Form (a)

Ik geef toestemming om deel te nemen aan het onderzoek en voor de gegevensverwerking zoals hierboven beschreven:

Naam	Emailadres	Toestemming gebruik van gegevens	Toestemming foto gebruik	Handtekening	Datum
		<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>		

Figure C.3: Workshop Informed Consent Form (b)

D | Basis interview guide

Interview guide - basis

Doelgroep:

Beleidsmakers, coördinatoren GSS, business partners, experts

Doel:

Begrijpen wat waarden zijn voor de interviewee, hoe deze waarden ontstaan, hoe beleid ze versterken of belemmeren, hoe gemeenschapsinitiatieven een rol spelen.

Deel 1

1. Welke meerwaarde zie jij dat het GSS biedt aan de wijk, markt of stad als geheel?
 - Heb je hier voorbeelden van?
2. In hoeverre past het werk van het GSS binnen jullie visie op de circulaire economie?
3. Welke waarden zijn volgens jou het lastigst in kaart te brengen of zichtbaar te maken?
 - Heb je hier voorbeelden van?

Deel 2

4. Welke vormen van ondersteuning zijn er (geweest) vanuit jullie richting het GSS?
5. Waar lopen jullie zelf tegenaan als je met initiatieven zoals het GSS werkt?
6. Wat zou er volgens jou anders moeten in beleid of regelgeving om initiatieven zoals het GSS beter te ondersteunen?

Deel 3

7. Hoe ziet een goede samenwerking eruit tussen jullie en een initiatief zoals het GSS in jullie ogen?
8. Wat zijn juist risico's in dit soort samenwerkingen?

Deel 4

9. Als je één ding zou mogen veranderen aan het GSS of de samenwerkingen eromheen, wat zou dat zijn?

Deel 5

10. Zijn er dingen die ik je niet heb gevraagd, die je wel zou willen delen?

E | Values

Category	Value Concept	Notion of Value	Beneficiary
Aesthetical	Identity	Physical attractive building	Residents
Aesthetical	Identity	Unique brand visibility	Reenes
Aesthetical	Identity	Spatial identity for the Afrikaanderwijk	Afrikaanderwijk Co-op
Aesthetical	Improved cleanliness	Clean and pleasant environment	Municipality
Aesthetical	Improved cleanliness	Clean and pleasant environment	Afrikaanderwijk Co-op
Aesthetical	Pride	Architectural design price	Designers
Aesthetical	Visibility of CE	Symbolic importance of GSS	Municipality
Cultural	Democratic empowerment	Local ownership	Municipality
Cultural	Democratic empowerment	Participation	Municipality
Cultural	Education	Knowledge sharing	Public
Cultural	Education	Guided tours	Public
Cultural	Education	Living lab & access to real world data	Knowledge institutions
Cultural	Education	Guided tours	Knowledge institutions
Cultural	Education	Knowledge sharing	Other initiatives
Cultural	Education	Living laboratory & real-world data	Knowledge institutions
Cultural	Education	Reflections, documentation and validation of practices	Afrikaanderwijk Co-op
Cultural	Education	Practical CE education activities	Neighbouring school
Cultural	Employment	Local employment opportunities	Reenes
Cultural	Employment	Local employment opportunities	Afrikaanderwijk Co-op
Cultural	Identity	Reflection of Afrikaanderwijk identity	Municipality
Cultural	Identity	Shift public image of Afrikaanderwijk	Public
Cultural	Pride	Pride (first circular market)	Municipality
Cultural	Pride	Shift public image of Afrikaanderwijk	Residents
Cultural	Sense of community	Neighbourhood engagement	Residents
Cultural	Sense of community	Acts of solidarity	Residents

Category	Value Concept	Notion of Value	Beneficiary
Cultural	Sense of community	Trust amongst market	Afrikaanderwijk Co-op
Cultural	Sense of community	Collective self-governance	Afrikaanderwijk Co-op
Cultural	Visibility of CE	Showing CE in practice	Municipality
Cultural	Visibility of CE	Countering abstract framing of CE	Municipality
Ecological	Reduced environmental impacts	High quality recycling	National
Ecological	Reduced environmental impacts	High quality recycling	Public
Ecological	Reduced environmental impacts	High quality recycling	Renes
Ecological	Reduced GHG emissions	Waste reverted from incineration	National
Ecological	Reduced GHG emissions	Waste reverted from incineration	Public
Ecological	Reduced GHG emissions	Waste reverted from incineration	Renes
Financial	Market value from waste	Income from waste recycling	Renes
Financial	Material resources	Accessibility and availability of materials	Designers
Financial	Reduced expenses	Reduced allowences	Municipality
Financial	Reduced expenses	Reduced cleaning costs	Municipality
Financial	Reduced expenses	Free cardboard & plastic disposal	Market vendors
Financial	Stronger local economy	Stronger local economy	Afrikaanderwijk Co-op
Social	Employment	Employment for residents	Residents
Social	Employment	Work experience	Employees
Social	Reduced working hours	GSS in close proximity	Market vendors
Social	Sense of community	Sense of belonging	Employees
Social	Sense of community	Social interactions	Residents
Social	Sense of community	Social inclusion	Employees

F | Estimates for municipal expenses

Reduced waste disposal expenses - municipal data

The municipality collected on average in 2025 $W_{2025} = 3321.2$ kg/week. Given an average waste density, based on the waste data of the municipality from the baseline in 2016, and the measurements in 2017 and 2018, of $\rho = 207 \frac{\text{kg}}{\text{m}^3}$, the corresponding annual waste volume is:

$$V_{2025} = \frac{W_{2025} \times 52}{\rho} = \frac{3321.2 \times 52}{207} \approx 835 \text{ m}^3/\text{year} \quad (\text{F.1})$$

In 2016 (baseline year), the annual collected waste volume was: $V_{2016} = 1538.5 \text{ m}^3/\text{year}$. During 2017–2018, this volume was reduced to an average of: $V_{2017-2018} = 1135.3 \text{ m}^3/\text{year}$. Afrikaanderwijk Coöperatie (2018) indicated a cost saving of approximately €42,000 per year for 2017–2018. Thus, the average cost per cubic meter of waste disposal was:

$$C_{m^3} = \frac{42,000}{V_{2016} - V_{2017-2018}} = \frac{42,000}{1538.5 - 1135.3} \approx 104.2 \text{ m}^{-3} \quad (\text{F.2})$$

Assuming this cost remained constant and no inflation correction is applied, the current disposal cost can be estimated as:

$$\text{Cost}_{2025} = C_{\text{per m}^3} \times V_{2025} = 104.2 \times 835 \approx \text{€}87,000 \quad (\text{F.3})$$

Compared to the 2016 baseline cost:

$$\text{Cost}_{2016} = C_{\text{per m}^3} \times V_{2016} = 104.2 \times 1538.5 \approx \text{€}160,000$$

This represents a saving of approximately €73,000 per year on labour and equipment, with respect to the baseline year of 2016.

Reduced waste disposal expenses - Renes data

From the focus group it was decided to also analyse the reduced waste disposal expenses based on data provided by Renes. The lack of data by the municipality has three main issues: first, no current price is known for the waste disposal paid by the municipality. Second, the waste density is assumed to have changed since the collection of biodegradable. Thirdly, no inflation correction was done, likely underestimating the costs of the waste disposal. Renes was able to provide numbers from their perspective, but also stressed the unreliability: they are not the waste processor for the municipality, so they are only able to give indications of the required data, based on their own knowledge.

According to Renes, the waste density could be assumed $\rho_{\text{Renes}} = 150 \frac{\text{kg}}{\text{m}^3}$. The average price per disposal of one cubic meter of waste they expected to be higher, namely $C_{m^3, \text{Renes}} = 125 \text{ m}^{-3}$. If the same calculation is repeated again with this data, the result is significantly different:

$$V_{2025, \text{Renes}} = \frac{W_{2025} \times 52}{\rho_{\text{Renes}}} = \frac{3321.2 \times 52}{150.0} \approx 1.15 \times 10^4 \text{ m}^3/\text{year} \quad (\text{F.4})$$

$$\text{Cost}_{2025, \text{Renes}} = C_{m^3, \text{Renes}} \times V_{2025, \text{Renes}} = 125 \times 1.15 \times 10^4 \approx \text{€}144,000 \quad (\text{F.5})$$

This represents a saving of approximately €16,000 with respect to the baseline year of 2016. Note that the baseline cost did not change, since the exact data was available.

Reduced material and labour expenses

The baseline (2016) annual cleaning expenses were $C_{2016} = \text{€}415,000$. In 2018, the reported cleaning expenses were: $C_{2018} = 338,000$ which represents a reduction of:

$$r_{2018} = 1 - \frac{338,000}{415,000} = 0.19 = 19\% \quad (\text{F.6})$$

Over the same period, the waste volume decreased by:

$$r_{\text{waste},2018} = 1 - \frac{1135}{1538.5} = 0.26 = 26\% \quad (\text{F.7})$$

This implies that labour costs reduced slightly less than waste volume, by roughly 10% difference. For 2025, waste has been reduced by approximately 46% relative to 2016. Assuming a proportional reduction in labour costs with a correction factor of 10% (to account for slower cost decline), the 2025 cost is estimated as:

$$C_{2025} = C_{2016} \times (1 - 0.46 + 0.10) = 415,000 \times 0.64 \approx \text{€}266,000 \quad (\text{F.8})$$

This implies an approximate annual saving of €149,000.

Reduced allowances (WW) expenses

The municipality reported savings of $C_{WW,2018} = \text{€}34,000$ in 2018, which will be used as a baseline, at an employment level of 1.6 FTE. Assuming (first approximation) that savings scale proportionally with FTE, the scaling factor from 2018 (1.6 FTE) to 2025 (3.0 FTE) is $f = \frac{3.0\text{FTE}}{1.6\text{FTE}} = 1.875$. Therefore, the direct extrapolation becomes

$$C_{WW,2025_1} = C_{WW,2018} \times f = \text{€}34,000 \times 1.875 = \text{€}63,750. \quad (\text{F.9})$$

However, over the years there have been changes in unemployment benefit levels, due to policy changes and indexations. Therefore, this calculation must be adjusted using the Dutch Unemployment Act (WW) changes from 2018 to 2025. Using the open data from the national government on the changes in maximum day earnings in the WW, proxies of respectively €209.26 (Ministerie van Sociale Zaken en Werkgelegenheid, 2018) and €297.82 (Ministerie van Sociale Zaken en Werkgelegenheid, 2025) are used. This results in an indication factor $f_{WW} = \frac{297.82}{209.26} = 1.4232$. Applying the WW index factor to the previous estimate:

$$C_{WW,2025_2} = C_{WW,2025_1} \times f_{WW} = \text{€}63,750 \times 1.4232 \approx \text{€}90,730 \quad (\text{F.10})$$

It is therefore reasonable to assume the current savings are approximately 91k. The WW scaling is not perfect, since it can not take into account differences in salaries a person earns before they enter the WW, and not everyone working at the GSS comes from the WW act. Some of them also come from the Participation Act. However, using the WW indexations as proxy for the estimating the reduced allowances over time can be justified, since the height of allowances is derived directly from the capped maximum day earnings (Rijksoverheid, 2025).