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Sector Report Circular Economy Senegal

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Sector Report Circular Economy Senegal

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Presented by

Trinomics B.V.

Westersingel 34

3014 GS Rotterdam

The Netherlands

Contact person

Mr. Rademaekers

E: Koen.rademaekers@trinomics.eu

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Sector Report

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0 Executive Summary

The study **'Sector Report Circular Economy Senegal'** is commissioned by The Netherlands Enterprise & Development Agency (RVO) and the Netherlands Embassy in Senegal to study the status quo of waste streams in Senegal, with a focus on waste management and the plastics sector, and derive opportunities to advance circular economy within it. The report seeks to address the challenge of mismanaged waste in Senegal, accelerated by rapid population growth and resulting in threats to society and environment. **Hence, the report aims to support Senegal's sustainable development, especially by contributing to SDGs 8, 9 and 12¹.**

Methodology

To arrive at recommendations for RVO, the Dutch Embassy and Dutch business stakeholders, first, a sector assessment of the waste and plastic sector was conducted through a literature review, panel discussions and interviews with Senegalese stakeholders as well as visits of company sites and waste deposits in Senegal. Second, opportunities for circular economy in Senegal were identified by means of literature review, an analysis of gaps and opportunities, and the collection of written and verbal feedback from Dutch and Senegalese stakeholders on the opportunities identified. Third, the Dutch interest and expertise in circular economy (in Senegal) was assessed by a literature review, a survey among Dutch companies and follow-up interviews. Fourth and finally, 8 niches (opportunities in Senegal to which Dutch stakeholders can contribute) were prioritized through an assessment and ranking of different criteria (such as maturity of need, economic potential, positive impact, potential donors or CSR risk), additional literature review and the follow-up with Senegalese stakeholders about **the niche's relevance and their interest to get involved.**

Gaps in Senegal

Under the status quo analysis and the sector assessment, the study found that circular economy is **becoming increasingly relevant to Senegal's (and in general Africa's) development strategies and carries great potential to transform Senegal's waste sector** (see Chapter 4). In fact, the concept offers solutions to the following key gaps identified:

- The waste sector struggles from insufficient service provision by the government, leading to a growing informal economy. The informal waste sector can overcome shortcomings in waste management but often disregards standards for labour rights and environmental protection.
- Both infrastructure and waste sorting practices are underdeveloped and thus restrict sustainable waste management.
- While several policies on waste and plastics attempt to organise the sector, its enforcement is lacking. Furthermore, the current governance structure is inefficient and lacks collaboration.
- The sector is underfunded, and businesses struggle to access finance. Its development depends on unlocking finance via more efficient domestic instruments and the support of international donors, initiatives and NGOs.

¹ SDG 8 aims to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, SDG 9 aims to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation and SDG 12 concerns Ensure sustainable consumption and production patterns

- **Senegal's waste sector is a complex system, involving several actors from the country's** Government to businesses and financial institutions, to civil society, academical stakeholders and international organisations.
- There are many actors launching new initiatives in Senegal, from projects promoting women and waste pickers to student exchanges for knowledge-sharing, but they face limitations in scaling-up.
- Due to lacking cooperation, circular economy related interventions are incoherent and lack long-term impact.

Potential for Dutch businesses

Senegal and the Netherlands have a strong foreign and trade relationship **while – even if deviating in progress – for** both countries circular economy represents a priority in their political agendas. Thus, supporting in addressing the gaps in Senegal should not only be seen as CSR measure, but also as a potential business opportunity for Dutch companies. Several factors promise a positive environment. These are (1) the waste management situation in Senegal is becoming more and more critical due to population growth and the lack of funding to improve infrastructure as well as to support circular economy initiatives, (2) through first campaigns and educational measures, the awareness of the Senegalese society has been changing towards seeing the value that circular economy may bring and (3) several local highly relevant initiatives have been formed that represent a starting point for the circular economy journey. Thus, it is now the right time for Dutch businesses to get engaged into the Senegalese market and thereby to expand/deepen their business activities and collaborations in order to enhance the positive trends, offer support in mitigating the gaps and form the market through learning and good-practices from the Netherlands.

Opportunities for Dutch businesses and government to engage in Senegal

The results of this study show that there is (unlocked) potential for the Dutch public and private stakeholders to engage in circular activities in Senegal. Based on the opportunities identified, support from the Dutch may focus on strengthening the governance system (revision of regulations, strengthening of its effective implementation), improving the waste infrastructure, as well as supporting (local) SMEs in setting- and scaling-up businesses, accessing financing and technologies. Additionally, capacity building is another identified opportunity, with a focus on academic and vocal trainings.

More concretely, in total 19 opportunities were identified, structured under the following themes:

Policy and regulation:

- Making the existing policy framework more effective;
- Complement existing policy landscape:
 - Develop Ecodesign regulations;
 - Revisit EPR in the Single-used Plastic Law.

Governance and coordination:

- Improve governance structure and cross-ministerial collaboration;
- Establish a multi-stakeholder framework between Government, private sector, academia and civil society.

Funding and finance:

- Channel investments into waste infrastructure;
- Improve access to finance for MSMEs;

- Develop new finance mechanisms and business models;
- Build capacity and know-how related to loan applications and financial intelligence.

Support of businesses and the informal sector:

- Update waste collection equipment, techniques and storage sites;
- Increase access to recycling technologies;
- Explore potential synergies between e-waste and plastics;
- Scale-up circular economy initiatives, e.g., reuse and repair initiatives;
- Provide support in the application of EPR systems;
- Increased involvement of the informal sector and protective measures;
- Enhance digitalisation and flow of information;
- Establish a one stop-shop for recovery activities and actors;
- Establish a plastic manufacturing association.

Awareness and capacity building, education and support of NGOs:

- Access private sector CSR budget to support CE projects and initiatives on the community level;
- Develop and expand the curricula for universities and vocational training centres;
 - Expand and align the offer of academic institutions;
 - Expand and align the offer of vocational training centres;
- Educate the population on proper sorting and its relevance;
- Offer support to NGO to become independent and integrate into the system.

Niches for Dutch stakeholders to get involved

The most relevant opportunities were identified as priority niches (8 in total) that can be tackled by (1) RVO and the Dutch Embassy and (2) Dutch private sector stakeholders. For each of the priority niches implementation partners and beneficiaries are identified.

Overall, more investments are needed to increase the coverage, providing access to as many urban, peri-urban and remote areas as possible. In addition to this, they should be complemented by a stronger focus on proper sorting at source and coupled with more equipment and SME support (technical support and advisory) as well as skills and know-how building to enable communities and entrepreneurs. For the capacity building element, it becomes clear that curricula and vocational trainings have to be tailored more closely to the circular economy while at the same time they should be promoted well, showing the necessity and business opportunities under the circular economy. Although there are works undergoing related to the improvement of institutional frameworks and financial mechanisms, there is more room to complement. For instance, the institutional frameworks could profit from aligning regulation and legislation, tailoring them more to the circular economy while also making its regulation easier to implement for the stakeholders on the ground. In fact, many private sector stakeholders struggle to implement the Single-Use-Plastic Law. This could be supported by external expertise of European frontrunners that are far advanced on their circular economy journey. Financial mechanisms, on the other hand, should be worked out with banks directly. While most of the efforts focus on the governmental level, changing the decision and evaluation criteria as well as their loan portfolio would benefit especially small-scale initiatives.

For Dutch businesses four main themes have been identified as the most promising to collaborate with Senegalese stakeholders, these are: finance, technology, scaling up and education. **First, ‘Develop new finance mechanisms and business models’ could increase the capital flow in the sector.** The second

business opportunity niche concerns ‘Build capacity and know-how related to loan applications and financial intelligence’. Third, **‘Increase access to recycling technologies’, also including accessing private sector CSR budget to support circular economy projects and initiatives at the community level’** was selected as priority niche. Lastly, **‘Develop and build capacity through academic and vocational training’ is assessed as an important niche.** This includes the development and expansion of the curricular for circular economy education taught at Senegalese universities and vocational training centres. Furthermore, it addresses the education of the Senegalese society on proper sorting practices and its relevance.

For the Dutch public sector, the three key thematic intervention points identified are related to the Senegalese policy framework, infrastructure investments and collaboration. **The first niche is ‘Making existing policy framework more effective’.** This includes the complementation of the existing policy landscape, including the development of Ecodesign regulations and revision of Extended Producer Responsibility (EPR) in the **Single Use Plastics Law.** **The second selected niche ‘Enhance multi-stakeholder collaboration and stakeholder support’** entails the establishment of a multi-stakeholder national framework between the Senegalese government, the private sector, academia and the civil society. Furthermore, it addresses the support in the application of EPR systems, the establishment of a one-stop shop for recovery activities and the education of the population on proper sorting practices and its relevance. The third priority niche is **‘Channel investments into waste infrastructure (public and private sector)’**, also including the update of waste collection equipment, techniques and storage site.

Means and approaches to implement the niches

As a front-runner in circular economy, both on the technical and institutional level, there is large potential for sharing learnings and lessons-learned as well as directly contributing to the implementation of the proposed niches.

On the Government side, this may include the provision of targeted advisory services through a **government official or a consultant having taken part in the Government’s work, i.e. the development** of national policies and strategies supporting the circular economy (overarchingly and sector-specific). In addition to this, the niches can be promoted through the well-developed foreign policy endeavors and network. At the same time, the Government may play a key facilitating role in the building bridges between Dutch and Senegalese stakeholders, initiating and motivating for the exchange.

On the business and academia side, the support opportunities relate, first, to provide advisory and knowledge to enable Senegalese stakeholders with important know-how and skills to successfully pursue the niches and their activities. More specifically this support may be on circular business models, financing mechanisms or financial intelligence. Second, Dutch businesses are best placed to provide technical support and share technological know-how and expertise if not even their technologies related to waste management and treatment (generally and for plastic). For instance, many companies are dominant in developing and improving (PET) recycling technologies, but also in the set-up and effective implementation of EPR schemes (for instance for e-waste). Third, the Dutch private sector can support in leveraging financial resources in different forms (e.g. loan with low interest rates or leasing of equipment) that entrepreneurs and start-ups struggle with. The main motivation for Dutch businesses in doing so is the exploration of business opportunities in Senegal or investing under their CSR portfolio. Both ways require a foundation of trust. RVO and the Dutch foreign policy endeavors represent an optimal ground for this.

Building upon existing initiatives

Besides relying on Dutch expertise when exploring identified niches and opportunities in the future, it is important to build upon existing initiatives whose structures could be used or expanded and whose learnings could be embedded. There are multiple relevant initiatives and projects ongoing in Senegal that may be built upon in the future and when realising identified opportunities. Starting with *foreign investors and institutions*, examples are the European Investment Bank or MAVA Foundation that have provided funds to improve solid waste management and to establish the Plastic Pact and required collaboration among stakeholders, respectively. Another example is the initiative of UNIDO, ECOWAS, the European Commission and the Senegalese Government to organise a High-Level Regional Conference on Circular Economy, Green Industries and Jobs which represents a great starting point of pushing the transition on a governmental level. Relevant *domestic financial and governmental initiatives* are, for instance, the National Programme of Waste Management (PNGD) or the Sustainable Urban Solid Waste Management Project (PGDSU) that already supports waste management infrastructure and funding tools. An interesting initiative from the *academic sector* is a short training course on sustainable development that could be further expanded on. It is run by the City College of New York (CCNY) and Cheikh Anta Diop University, and the Center of University Works of Dakar (COUD). From the *civil society* side, only a few initiatives exist which relate to campaigning and trainings in plastic waste. The involvement of the *private sector in Senegal's waste and plastic sectors is rather* recent and yet only includes PPPs or small-scale initiatives. The only formal and larger-scale initiative is Proplast Industry that collects plastic waste from waste pickers for recycling activities. Finally, other important initiatives relate to knowledge sharing, incubation and collaboration. The RVO initiative #CoCreateDAKAR connects Senegalese and Dutch students in workshops to increase their problem-solving capacity to successfully address waste challenges of Dakar. And through a multi-stakeholder dialogue, the Alliance for Advancing Recycling, Awareness and Livelihoods in Plastics (TAARAL) translates governmental initiatives on circular economy in plastic into practice.

Dutch (financial) support elements to apply to priority niches

The last step of this study is the analysis of which and how (financial) support elements for business development and private sector development provided by the Netherlands Enterprise Agency (RVO) can be applied to the priority niches. These include support means leveraging on Government-to-Government, Business-to-Business and Knowledge-to-Knowledge relationships.

1 Introduction

This is the Sector Report of the study *'Sector Report Circular Economy Senegal'* tendered by The Netherlands Enterprise & Development Agency (RVO) and the Netherlands Embassy in Senegal. It details the status quo of waste streams in Senegal, with a focus on plastics, and identifies opportunities to advance circular economy in the waste management and plastics sector.

These two sectors have been focalized due to the following reasons: First of all, examining and optimizing the waste management represents a fundamental step in order to enable the circular economy. Second of all, the plastic sector has been chosen as pilot sector as efforts and initiatives related to the circular economy are relatively advanced, compared to other sectors. Once the opportunities and recommendations have been successfully applied, they can be translated to other sectors.

For this aim, the study identifies concrete niches where Dutch and Senegalese stakeholders can join forces and how Private Sector Development (PSD) Tools can support this effort. This promises a win-win effect resulting in business development opportunities for Dutch organisations while enabling Senegalese circular economy initiatives to evolve while building a stronger collaboration between Dutch and Senegalese government bodies.

Senegal faces continuous population growth accompanied by increasing consumption, especially of **plastic products, challenging the country's sustainable development. Despite increasing efforts to improve the plastic and waste management sector, much of Senegal's waste is mismanaged. This means** that it is littered or ends in uncontrolled dumpsites, open fires and the environment. Besides causing environmental damage, this severely impacts society. Waste management is a thriving sector that provides livelihood to many. However, activities are largely informal, resulting in workers facing threats to their health and labour rights. Solutions to this are vital for transforming the Senegalese economy towards a more circular system of production and consumption while leaving no one behind².

Therefore, the project aim is to inform the development of a coherent framework for circular economy actions in Senegal to create positive economic and ecological impact as well as opportunities for the private sector and employment. It seeks to support the Ministry of Environment and Sustainable Development of Senegal (MEDD) which has launched the idea of a National Roadmap for Circular Economy³ through the Directorate of Green Financing and Partnerships in 2020. It currently gets revised to align it with the objectives of the Plan for an Emerging Senegal (PSE), the Nationally Determined Contribution (CDN) and stakeholder feedback. The openness of MEDD to make the roadmap as inclusive as possible offers opportunities for stakeholders along the value chain to contribute. This also allows learnings from further experiences since a fully circular economy demands global engagement. As such, the Netherlands is one of the most advanced countries regarding implementing a circular economy and Dutch public and private stakeholders can take the chance to have an impact now while the initiatives are still under development and support Senegal in its sustainability transition.

² Maclean (2022) ['Everyone's looking for plastics.' As wastes rises, so does recycling.](#)

³ European Commission (2021) [Going circular - National level processes towards a circular economy](#); European Commission (2019) [Dakar pathways to advance circular economy, green industries and jobs in West Africa](#)

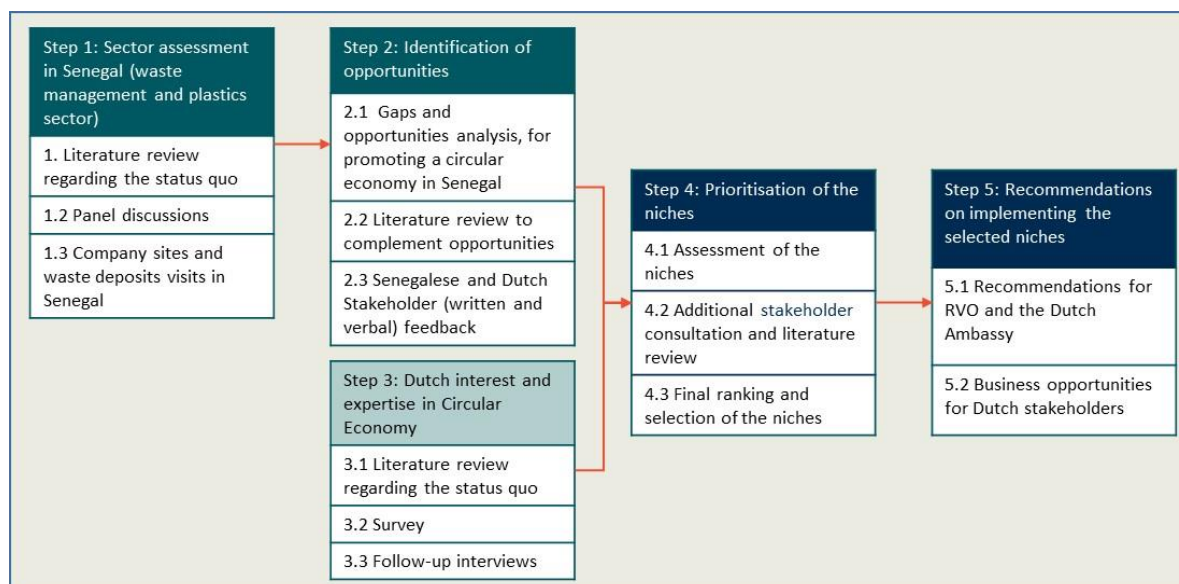
Further governmental initiatives in Senegal have been developed in the meantime and will be used in this report to build upon. For example, the government developed projects for the Promotion and Strengthening of the Circular Economy on e-waste and plastic waste, supporting small- and medium-sized enterprises (SMEs) involved in recycling plastic waste and e-waste. Other sectoral ministries also launched initiatives and projects. The most eminent one is the project for the Promotion of Integrated Management and Solid Waste Economy (PROMOGED) led by UCG (Solid Waste Management Coordination Unit) under the Directorate General of Water Resources Planning and Directorate of Sanitation (ONAS).⁴

⁴ As announced in May 2022, UCG and its public projects and programmes for solid waste management will be transferred to the National Integrated Waste Management Company (Sonaged). A date for this has not been published yet ([Magoum, 06 May 2022](#)).

2 Methodology

The methodology for developing this report is based on a five-step approach (see Error! Reference source not found.):

Figure 2-1 Structure of this study



Step 1: A sector assessment has been conducted to determine the status quo of the waste management and plastic sectors in Senegal. Areas, such as materials flows, policy landscape or key stakeholders and initiatives have been analysed. This was based on data collection, literature review as well as stakeholder consultation. Two panel discussions were organised as well as several individual interview with representatives of the private and public sector, civil society and academia in Senegal. Additionally, company sites and waste deposits in Senegal were visited to get a better perception of the local circumstances.

Step 2: The next step concerns the identification of opportunities based on the gaps found during the sector assessment. The opportunity section further elaborates on solutions to bridge the identified gaps. In addition, both Senegalese and Dutch stakeholder were asked to provide (written) feedback on the proposed opportunities. In total, 5 interviews were conducted with Dutch stakeholders⁵, see interview guideline in Annex D. The selected stakeholders covered a wide range of relevant themes e.g. EPR scheme for E-waste, business models for waste collection, sorting and recycling in African countries and the application of PDS tools provided by the RVO. In total, 15 Senegalese stakeholders provided written feedback on the niches (see Annex F).

Step 3: In parallel, the Dutch expertise in circular economy, and the interest of Dutch stakeholder to engage in Senegal, was analysed by means of literature review (both policy documents and scientific literature) and stakeholder consultation. Dutch companies with specific expertise in circular economy and/or international focus were selected to provide input to a survey (see list of organisations in Annex

⁵ The followings organisations were interviewed: Stichting Open, Closing the Loop, Colubris CleanTech, MetaSus and Invest International

F). In total, 12 responses were collected in the period between March 22 and 7 April. Survey questions are presented in Annex D.

Step 4: Based on the findings of the previous sections, 19 niches are formulated where Dutch public authorities, companies or knowledge centres can engage in establishing and elevating a circular economy in Senegal. The niches are rated based on several criteria, such as the maturity of the need or the estimated positive impact when a gap is successfully addressed⁶. The final ranking and selection of the niches is validated by means of stakeholder consultation (see stakeholder consultation under step 2). As a result of the ranking process, 10 niches with the highest score are further investigated and elaborated in the next step. Those niches include business opportunities, as well as opportunities for the Dutch Government to come in.

Step 5: The last step concerns the formulation of recommendations on implementation of the niches e.g. deploying the Private Sector Development Tools or connecting with existing initiatives.

⁶ See Annex H for detailed methodology for niche assessment and selection

3 Context of the circular economy in Africa

A circular economy has already been practiced in ancient Africa, encouraged by the community spirit 'Ubuntu'. This means 'I am because you are' and indicates that one would care as much about the welfare of one's neighbour as one's own. Thus, an object or good was only disposed of when no one else needed it. This favoured the maintenance of the resource in use for as long as possible and at its greatest possible value. Today, as most African countries are developing economies, only small parts of society live in opulence in terms of access to certain goods and services, such as electronic gadgets and other manufactured goods. Thus, the importance of repair and reuse remains and secures the practice of the highest principals of circular economy.

While circular economy is thus naturally inherent to many African economies, its mainstreaming into economic growth and development strategies is important to gain the full potential that circular economy can bring to the continent. Potential benefits include higher value supply chains, greater resilience, natural conservation, to name a few.⁷ Even though many African countries made significant progress in terms of economic development and achieving several SDGs, the continent still faces significant challenges and problems. These include strong population growth combined with high urbanisation rates, the impact of climate change on African economies, alarming rates of habitat loss and associated biodiversity loss caused by agricultural expansion and deforestation. Furthermore, conflicts and political instability related to resource extraction, growing environmental pollution and health problems due to waste accumulation, and most recently the strong hit of the COVID-19 pandemic challenge the continent. Moreover, Africa must address the pressing issues of both job creation and income generation for a drastically increasing population of which 300 million people live in poverty, especially in low-income Sub-Saharan countries.⁸

To all these issues, circular economy offers an opportunity for Africa to improve and mitigate. It **synergises with the economic diversification and industrialisation policies high on Africa's political agenda**. It also provides opportunities for the development of new economic activities which can eventually create new jobs. Simultaneously, circular economy addresses urgent environmental and social problems, such as the growing problem of plastic waste pollution. Considering projected high population growth in Africa combined with increasing levels of economic well-being, circular economy is a necessary strategic paradigm for a sustainable development of society while reducing virgin resource consumption and negative environmental impacts.⁹ This could enable Africa to leapfrog the linear economy. For this, lessons learnt by other countries should be considered to avoid pitfalls of resource-intensive practices.

Recently, circular economy has been increasingly mentioned in Africa, explicitly in national strategies and continental declarations. On the continental level, efforts are becoming more concrete in 2017 with the launch of the African Circular Economy Alliance (ACEA). Also, the 17th African Ministerial Conference on the Environment (AMCEN) in 2019 **reassured Africa's commitment to promote circular economy**. The highlight of this journey is the anticipated African Circular Economy Action Plan, which is currently under development. It aims to formulate a strategic outline of the **country's circular economy transition** as well as plans out goals and necessary interventions.

⁷ WEF (2021) [The circular economy transition is a billion-dollar opportunity for Africa: here's why](#)

⁸ Raworth (2017) [Why it's time for Doughnut Economics](#)

⁹ European Commission (2021) [Circular Economy in the EU-Africa Cooperation - Continental report](#)

4 Status quo of the waste management and plastics in Senegal

This section provides an overview of the Senegalese waste sector's current situation, focusing on its transition towards a circular economy and plastics, its most relevant sub-sector. Thereby, the legal, institutional and financial frameworks as well as circular economy initiatives and stakeholders shaping the ecosystem are covered. More elaborate information on each section and information on other significant waste streams, i.e. electronic and organic waste, can be found in Annex A.

4.1 Waste management and infrastructure

4.1.1 Waste generation

Senegal's average municipal solid waste (MSW) production is 172.11 kg/inhabit/year¹⁰ with an estimated population of 16,705,608 in 2020¹¹. In 2015, 2.4 million tonnes of solid waste were generated of which 1.1 million tonnes remained uncollected¹². Today, the total production is estimated to have increased to nearly 3 million tonnes/year.

About 80% of Senegal's waste is generated by households, 20% by companies.¹³ Industrial waste includes next to ordinary waste, like plastics, paper and cupboards, a separate waste stream for special and hazardous waste. Because of its accompanying threats to the people handling it, this waste stream demands a special treatment. The largest treatment facility is SOCOCIM processing tyres, rags and others. However, the capacity is insufficient, resulting in significant amounts of hazardous industrial waste being stored. A greater enforcement of regulations is needed to address this issue.¹⁴

The bulk of waste produced though is ordinary waste, treated at dedicated facilities or dumpsites. One of the largest open landfills in Africa, called Mbeubeuss, is located outside of Dakar. The composition of waste is dominated by fine elements, such as clay or sand¹⁵ (52.63%), followed by organic or putrescible elements (12.06%) and plastics (9%). Thereby, differences in the amount of waste generated per region and in the waste's composition¹⁶ across urban and rural areas are remarkable. For example, plastics contribution reaches up to 18% in major cities.¹⁷

¹⁰ UCG (2016) Rapport campagne nationale de caractérisation des ordures ménagères et assimilés (2014/2015/2016)

¹¹ ANSD (2020) http://www.ansd.sn/index.php?option=com_ansd&view=titrepublication&id=30

¹² World Bank (2020) [Senegal Municipal Solid Waste Management Project](#)

¹³ TAARAL (2022) Taaral Presentation

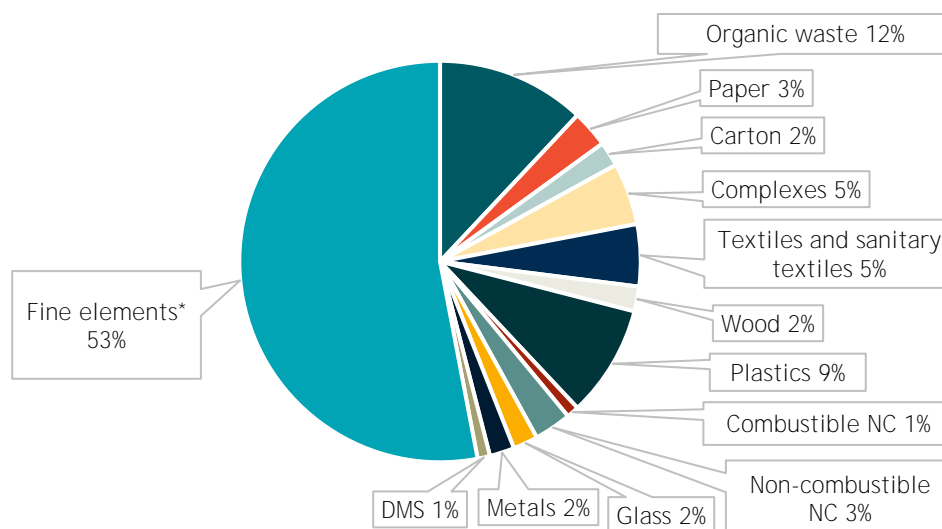
¹⁴ GIZ (2021) [Sector Brief Senegal: Solid waste management and recycling](#)

¹⁵ This is because of the nature of the soil. In Senegal, there is sand everywhere and when sweeping (in front of the house or outside), a lot of sand is carried away in the dustbin. This phenomenon is even more present during the rainy season. With the rain, the sand sticks to the rubbish and increases the number of fine elements.

¹⁶ UCG (2016) Rapport campagne nationale de caractérisation des ordures ménagères et assimilés (2014/2015/2016)

¹⁷ Beri (2018) [Improvement of the Waste Management System in Senegal](#)

Figure 4-1 Average Household and Affiliate Waste Composition in Senegal (UCG, 2016)



* Fine elements contain oil-type materials and minerals.
Source: own figure based on UCG (2016)

Plastic waste

Of the estimated 3 million tonnes of annually generated waste, plastics account for 8.64% which is equivalent to 259,200 tonnes.¹⁸ The share of generated plastic waste is made of:

- polyolefin films: 63.39%;
- PET bottles and flasks: 18.30%;
- PVC and polystyrene: 3.21%; and
- other plastics: 15.10%.¹⁹

Plastic waste increases in Senegal due to changing consumption and production patterns towards single-use packaging and is accelerated by urbanisation. Additionally, a significant deposit of plastic waste exists. Plastic pollution is especially visible at the entrance and exit of cities and causes major environmental problems. Mismanaged plastic waste, meaning that waste is incinerated or landfilled in unapproved facilities, can cause air pollution by dioxins and furans and contamination of groundwater, respectively. Other impacts are the deterioration of the living environment and the risk of indigestion in ruminants, among others. Thereby, the whole value chain contributes to the pollution.

4.1.2 Waste collection

Senegal's solid waste collection differs across regions in methods and coverage rates. The greatest average coverage rate is achieved in the major city Dakar with 84%. Rufisque, another big city, reaches around 36%.²⁰ The collection's organisation depends on the size of the territory, the available human, material and financial means and especially the state and presence of roads. It is mostly carried out by waste collectors on motorised vehicles like crushers or tractors equipped with boxes.

The management of waste in Senegal was transferred to communities with the Law 96-07 by dedicating the responsibility for the management of the environment to them. This law was repealed by Law 2013-10 of the General Code for Local Authorities. However, local authorities still have the power to manage

¹⁸ PAGE (2021) Évaluation du marché des déchets en vue de l'avantage coopératif dans le secteur

¹⁹ UCG (2016) Rapport campagne nationale de caractérisation des ordures ménagères et assimilés (2014/2015/2016)

²⁰ Kaza, Silpa; Yao, Lisa C.; Bhada-Tata, Perinaz; Van Woerden, Frank. 2018. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050

and thus organise the waste management system in their territory. The waste collection in big cities and touristic areas is largely carried out by UCG. UCG aims to support local and regional authorities in their waste management responsibilities by creating human and operational capacities within these communities. If municipalities lack collection, transport and human resources, UCG supports them with **their own means. UCG's involvement is case-dependent**. In some urban centres, UCG cooperates with the municipality on equipment and staff. In the Dakar region, waste management is entirely the responsibility of the UCG. However, the service provision is scattered in Dakar due to the inaccessibility of some areas.

The inaccessibility is caused by regional challenges such as scarcely urbanised areas and roads too sandy or narrow for vehicles. Combined with the established waste management system being partially built on unmanageable distances to relay sites waste is often dumped on empty spaces like streets or uninhabited houses. To overcome regional inaccessibility, pre-collection activities developed around those illegal depots. Pre-collection is the disposal and collection of waste at the place of production and its transportation to transit places or landfills. Pre-collection is done in all territorial collectives of Senegal, mostly via wagons, tricycles or horse carts. It can be organised by the municipality or private initiatives, like groups, youth associations or health committees. The service is offered for a monthly **fee which varies between 1500 and 4000 FCFA (2.28 to 610€)**. Those transport the garbage to landfills at a fixed frequency. Thereby, they rely on collection points²¹ as the most common means, door-to-door collection²² and the collection in containers²³. The pre-collectors can liaise with UCG's collection trucks, but its failures create opportunities for illegal dumping and informal waste collectors.

Informal collectors travel with wagons through neighbourhoods and offer their services for a daily or monthly fee. Furthermore, itinerant waste pickers go from door-to-door and collect recoverable materials from households. Thereby, they are usually focussed on one material, e.g. iron, plastic or aluminium. Since these actors are not involved in the formal collection and landfill system, they contribute to the proliferation of informal landfills.

Plastic waste

The informal sector is highly involved in the collection of plastic waste. Thereby, the collection can be structure in 3 types:

1. Primary collection by many small waste pickers who can be surface technicians, itinerant waste pickers or working on landfills;
2. **Secondary collection by early acquirers who are often local wholesalers at the "paaks²⁴" and landfill level;** and
3. Tertiary collection distinguishing between industrial units and major exporters of raw materials. Manufacturers buy plastic waste at collection points set up for individuals to deposit and sell plastics at fixed prices of around 75 FCFA/kg. The waste is then sent to recycling units.

²¹ I.e. the temporary waste disposal sites or cans are positioned at a street corner where users of around 10 households transport their waste to; the waste staff then only ensures the emptying of the garbage cans.

²² I.e. the staff in charge of the collection is responsible only for the lifting and emptying of the bins taken out by the users in front of the houses.

²³ I.e., a container is placed in free access and lifted at a defined frequency; this usually applies for larges waste producers, such as markets.

²⁴ These sites are for storage and sale of recovered products.

4.1.3 Waste treatment

The most common waste treatment method in Senegal is the disposal at landfills. Official landfills of well-equipped cities could complement this by on-site works and the compaction by machines when the waste accumulates. Mostly however, landfilling in Senegal is informal and accounts for a significant amount of Greenhouse Gas (GHG) emissions²⁵ and threatens surrounding societies and the environment through toxification of the soil and groundwater. Furthermore, materials are rarely recovered from landfills, demonstrating the prevalent linear consumption patterns. This is also caused by a lacking selective sorting system. The current recovery of materials is practiced through primarily informal ways by so-called surface and cleaning technicians usually for plastic, metal, cardboard and glass, which are then sold to wholesalers.²⁶ The informal recovery of materials such as iron, aluminium, plastics or food scraps is accompanied by poor sanitary and hygienic conditions. Waste pickers work mostly without any protection and expose themselves to a high risk of injuries and skin or respiratory diseases.

The practice of recovery in the landfill of Mbeubeuss has become a real economy, which is featured in sub-section 4.6. While such examples illustrate the existence of waste recovery activities, those processes are still in their infancy stage and lack controlled and enforced management of externalities. Nonetheless, Senegal has started to engage in high-value recycling of most materials. These include scrap, plastic, paperboard, organic waste as well as electrical and electronic waste. Valorisation of glass is not yet available in Senegal.

Plastic waste

When circular economy principles are applied to Senegal's plastic waste sector, recycling is the flagship activity. 9% of all plastics can currently be recycled. The majority of the waste is either contaminated due to insufficient waste separation practices or lost through inappropriate/not existent waste collection practices. This **is why Senegal's waste management sector** needs to put efforts to enable circular activities.²⁷ Repair and reuse have only been demonstrated as being a topic of interest for the future even though their practices are inherent in the Senegalese culture.

According to COMTRADE, plastic imports have been significantly increasing since 2016 from \$170 mio. to \$230 mio. in 2020²⁸. This highlights the increased burden on the local recycling system since plastic products often have a linear and short life and mostly end up as waste that needs to be treated.

If recovered, plastic materials are cleaned and sold to industrialists for the manufacturing of elements like basins, buckets or pots. Plastic bottles are the most common input material for recycling, especially for retailers using recycled packaging of their products. LDPEs, such as light plastic bags, are unattractive for collection because a certain volume is needed to become economically relevant. Furthermore, plastic recycling faces technological challenges because of lacking capabilities to treat mixed waste.

The collection, selling and upgrading of plastic materials is done by a formal and informal sector. The informal sector is predominantly involved in the collection and recovery of waste from landfills. Pre-treatment like crushing and pellet production is done by formal units, recycling is provided by

²⁵ Landfilling accounts globally for up to 8-19% (UN Habitat (2019) [Traitement des déchets solides en milieu urbain, module 5](#))

²⁶ European Commission (2020) Circular Economy in EU-Africa Cooperation - Senegal Country Report

²⁷ Greenpeace, consulted during an interview panel on the 03.03.2022

²⁸ Trading Economics (2022) [Senegal imports of plastics and articles](#)

industrialists. Some Senegalese manufacturers are specialised in plastics processing. Nonetheless, the sector is not structured yet. For example, an organisation for plastics manufacturers providing guidance on how to dispose of and treat plastic waste or on shifting to recyclable materials does not exist.

There are several steps in waste recovery:

- After being recovered and collected, the waste is pre-treated. It is sorted by small processing **units (women's groups, EIGs, etc.), cut, washed and grinded**; the materials obtained are then grinded and resold to other industrial units which can further process the material.
- Afterwards, the collected waste passes to an extrusion phase filtration, granulation and then bagging; the last stage requires major investments; raw material obtained is sold to the plastics industries; this is the procedure used by PROPLAST.
- From the secondary raw material, the plastics industries produce finished products with or without the input of primary materials; various domestic articles are manufactured (basins, buckets, chairs, bags, sanitation articles); these enterprises include SIMPA, RECYPLASTIC, SODIAPLAST, ULTRAPLAST and TRANSTECH.

To summarise, Senegal faces an unstructured waste management leading to hazards to environmental and human health. Because of the inability of public institutions to provide appropriate services, the private sector engages. While this provides work and thus a living to several individuals, most of the activities happen informally and disrespect labour rights and environmental standards. Thereby, the informal sector is more engaged the further down the value chain, like material recovery from landfills. Despite being important for recycling, its development is restricted by lacking sorting practices, a scattered waste collection and inappropriate infrastructure, especially roads.

4.2 Legal and regulatory landscape

4.2.1 Overarching strategies

Senegal's main development goals are captured in the Plan for an Emerging Senegal (PES). This policy framework envisions 'an emerging Senegal in 2035, with a cohesive society under the rule of law'²⁹. The PES recognises the Green Economy as a means to meeting basic social needs and sustainable development. Its latest update links interventions aimed at a Green Economy to the principles of a circular economy.³⁰

The Ministry of Environment and Sustainable Development of Senegal (MEDD) has launched the idea of a National Roadmap for Circular Economy through the Directorate of Green Financing and Partnerships in 2020. This is based on a study conducted in 2018 on the green economy in Senegal in which circularity will have a prevalent role.

In addition to this and more specific to plastics, the government of Senegal ratified several international conventions on the protection of the environment, also focused on tackling the environmental nuisances caused by plastic. From 1974 to 2020, several legislative and regulatory texts were signed, but the plastic pollution remains unsolved.

²⁹ Bonnaire et al. (2020) [Circular economy in Africa-EU cooperation: Country report Senegal](#)

³⁰ European Commission (2020) Senegal Country Report; Presidency of Senegal (2019) [Vision 2019-2024](#)

4.2.2 Laws and decrees

Senegal's government framework related to waste management dates back to 1972 when a household waste collection tax was implemented (Law No. 72-52). The tax is calculated (1) according to the net income as the basis for the land tax for tenants and (2) by comparison with the income attributed to similar premises subject to property tax for persons who are not paying rent (owners, if the accommodation is not rented, houses for civil servants). In this context only 30% of Dakar's households pay this tax. Initially this law has been adopted to provide Senegal with financial means for managing its waste but is financially insufficient.³¹

Decree No. 74-338 (1974) was the major text on solid waste management in Senegal for about forty years. It identifies the categories of waste considered as household waste and regulates the deposit and collection of waste by specifying the characteristics of the containers. The decree emphasizes the methods of waste disposal, namely controlled dumpsite, incineration and industrial treatment (article 10). The disposal method most elaborated is the controlled dumpsite being characterised by:

- its thickness: the waste is discharged in successive layers of moderate thickness (about 1.50 to 2.50 m), a new layer is only deposited when the temperature of the preceding layer equals the one of the natural soil;
- its compactness: the layers are levelled and limited by slopes;
- its soil cover: the deposit must be compact, not contain numerous or important voids or voids forming chimneys.
-

In some municipalities, regulatory texts have been adopted organizing waste management on the municipal territory. These texts complement this decree.

Rules on the deposit and disposal of solid waste in homes, public roads, beaches, industrial installations and the organisation of the Hygiene Policy is regulated by Law No. 83-71 (1983). This Hygiene Code particularly suffers from its low level of application despite the organisation of a hygiene police which lacks human and material resources to be implemented.

The Environment Code on the Waste Management and Recycling³² (Law No. 2001-01) regulates the disposal of household waste without addressing new waste treatment methods. It states that all kinds of wastes should be environmentally sound disposed of or recycled. Infringements to the Code are subjected to penalties, varying from fines to imprisonment. However, the code is not applied and enforced. Even though the ban on dumping garbage on public roads still prevails, individual waste conditioning characteristics are not executed in households and the conditions for a controlled garbage dump are not fulfilled by communities.

The management of biomedical waste including the waste generated by care activities (medical and veterinary), research activities as well as certain industrial activities related to biomedical products is specified by Decree No. 2008-1007. In accordance with the Environmental Code, the Ministerial order No. 9611 MCOM-IAAF (2008) on banning the import, distribution and sale of non-biodegradable plastic regulates the recycling and recovery of waste from biodegradable plastic products. The plastics included biodegrade within one year due to additives like starch.

³¹ Kimbi Yaah, Velma Beri. (2018).

https://www.researchgate.net/publication/328318942_Improvement_of_the_Waste_Management_System_in_Senegal

³² InforMEA (2015) [The Environment Code 2001 \(Law No. 2001-01 of 15 January 2001\)](#)

The General Code of Territorial Communities (Law No. 2013-10) offers the municipality the competence of waste management and hygiene. Revenues from the household waste collection and sweeping taxes are used for waste management (Art. 195).

Law No. 2015-09 on the prohibition of the production, import, holding, distribution and use of thin plastic bags and the rational management of plastic waste regulates plastic waste management. Especially relevant is article 6 which dedicates the responsibility to **the sector's operators**: *'plastic operators are required to provide households and other users with a system for collecting or recovering plastic waste for recovery, recycling or disposal'*.

The National Solid Waste Management Program (PNGD) (2016-2020)³³ combines all approaches for a clean Senegal through a more integrated waste management and envisions zero waste territories as a leverage for an emerging Senegal. Dealing with the overflow of waste produced by an increasingly urbanized population requires the consideration of both respect for the environment and the circular, social and solidarity economy. Thereby, local authorities are supposed to take the lead. The UCG divided Senegal into Waste Management Centres that can collaborate with regional administrations or be composed of several regions to be closer to the municipalities.

As one of the PNGD's achievements is the establishment of waste management infrastructures that aim to fill the gap in Senegal's waste treatment methods and may provide a starting point to change the common practice of disposing waste at (illegal) landfills in all municipalities that leads to human and environmental threats. Until now, in several municipalities (Dakar, Tivaouane, Touba, Kaolack) three Integrated Waste Recovery Centres (IWCs), 32 Standardized Aggregation Points (PRNs) and Sorting and Transfer Centers, especially in less served areas, have been constructed³⁴. Under the second phase of PNGD, called PROMOGED³⁵, these are planned to be expanded to 148 municipalities in the regions of Dakar, Saint Louis, Matam, Thiès, Ziguinchor, Sédhiou and Kolda.

The Single Use Plastics Prohibition Law (Law No. 2020-04 Single)³⁶ was developed by MEDD in 2020 and replaced the 2015 Act. This policy aims to prevent and reduce environmental impact of plastic products by prohibiting single-use plastic products like cups, lids, pipettes and all sachets intended to be used to condition water or any other drink. Furthermore, it introduces a tax on non-recyclable plastics and a minimum share of recycled materials in manufacturing.³⁷

The Single Use Plastics Prohibition Law also includes Extended Producer Responsibility on plastic producers of certain products. The producers are encouraged to collect and treat plastic waste or to join **eco-organisations to whom they can transfer the waste. The law's application is restricted by its underdeveloped support mechanism for manufacturers resulting in flexible application.** Additionally, the conditions for granting approvals to eco-bodies are not fixed.

³³ UCG (2020) [Ensemble pour un Sénégal Zéro Déchet](#)

³⁴ World Bank (2019). [Senegal Municipal Solid Waste Management Project](#)

³⁵ le projet Sénégal Déchets Solides aims to improve solid waste management in 4 regions - Dakar, Centre (Thiès, Mbour et Tivaouane), North (Saint-Louis et Matam) and South (Casamance: Ziguinchor, Kolda, Sedhiou) as well as to strengthen the governance of the sector in general in Senegal. Further elaboration under section 3.3.6.

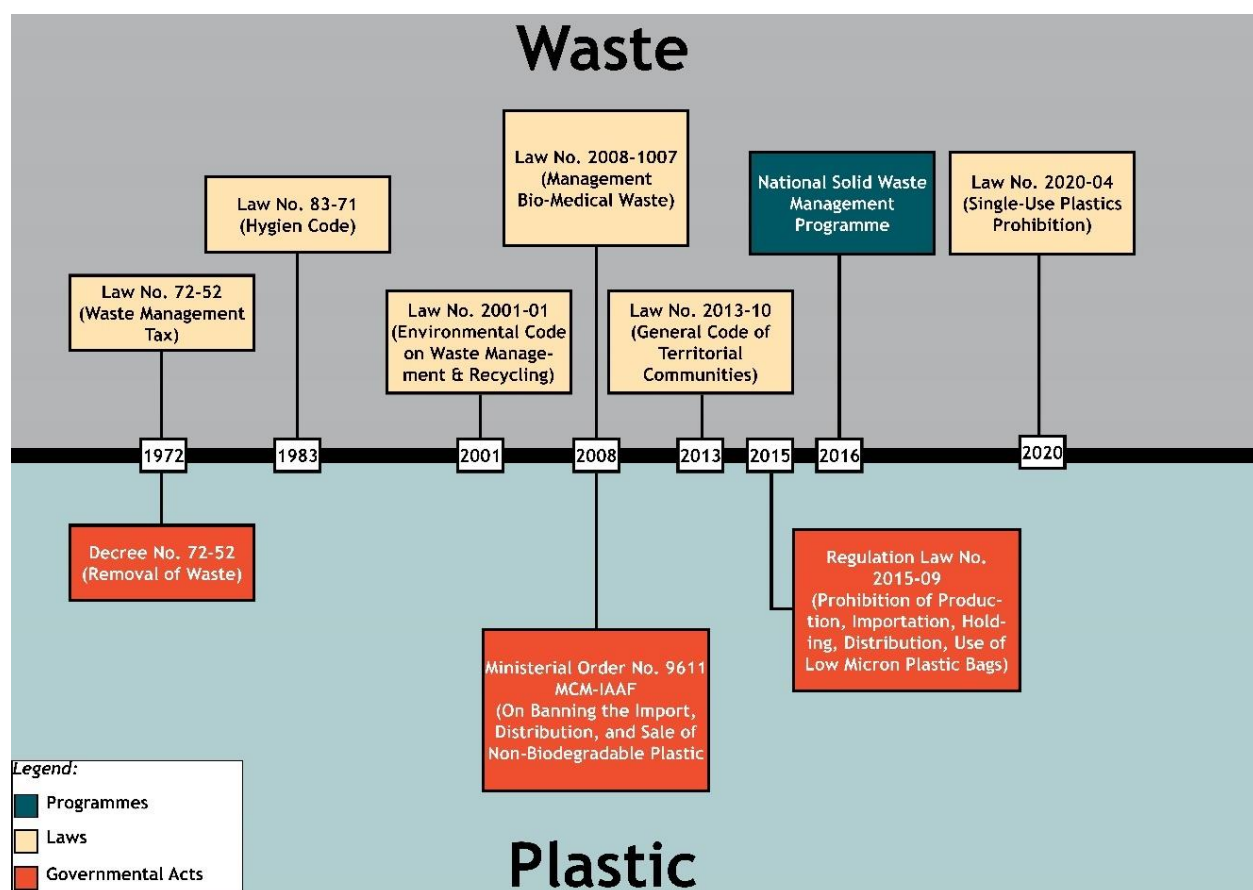
³⁶ **Ministere de l'environnement et du developpement durable (2020).** [Loi relative à la prevention et la réduction de L'incidence sur L'environnement de produits plastiques](#)

³⁷ TAARAL (2022) Presentation

An additional element under the Single Use Plastic Prohibition Law – yet under development – is a tax on plastics produced from non-recyclable material.

In summary, Senegal’s policy making acknowledges the challenge of waste management, and plastics in particular. As illustrated in Figure , the legal and regulatory framework has been updated. Nonetheless, it does not show strong commitment to a circular economy even though national strategies, like the PSE and its Zero Waste Programme, stress the importance of the concept. Overall, there is political will, for instance reflected by the [High-Level Conference on Circular Economy, Green Industry and Jobs](#) in 2019. However, the country lacks the implementation of functioning mechanisms³⁸ to support circularity and insufficient enforcement lead to a slow progress regarding the topic through companies and individuals disrespecting the legal framework. Furthermore, the policies miss a holistic approach that might risk a just development. Yet, the policy landscape appears incomplete in terms of providing complementary legislation and sufficient supportive regulation and guidelines to policies imposed. For instance, the Single-Use Plastic law would benefit from being accompanied with a product policy for plastic products and a guideline to help the private sector implementing the law.

Figure 4-2 Governance framework for plastics



Source: own table.

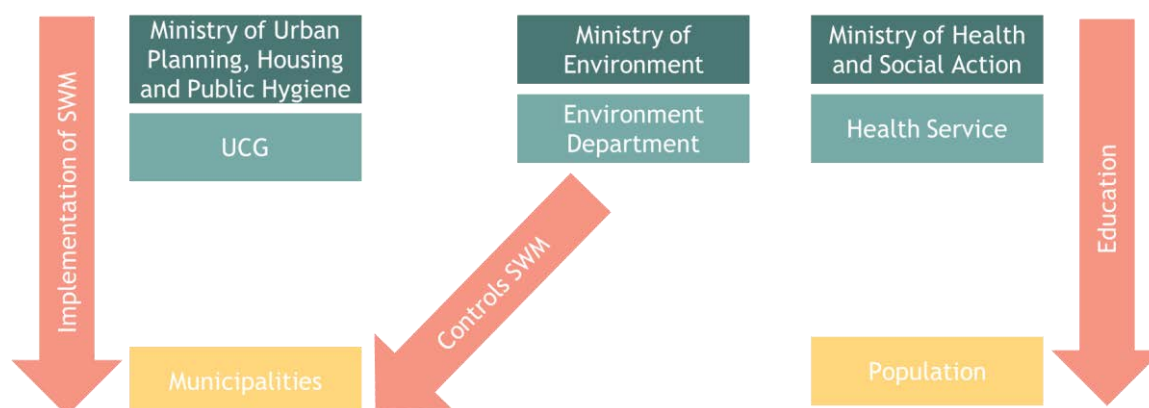
³⁸ According to UCG representatives.

4.3 Governance

In Senegal are currently three different bodies reporting to four different ministries to solve the same problems related to waste management. UCG reports to both the Ministry of Territorial Collectives, Development and local Arrangements and the Ministry of Urban Planning, Housing and Public Hygiene, which is responsible for supporting local authorities in their Solid Waste Management. The Health Service falls under the Ministry of Health and Social Action, responsible for educating the population in matters of hygiene and public health. The Environment Department reports to the Ministry of the Environment and Sustainable Development and is responsible for controlling SWM and preventing and reducing pollution.

The legal, institutional or governance aspects of plastic waste, and even circular economy, are included in the general framework for solid waste management. Formal frameworks tailored to the topics are **needed to improve the sector's organisation**. As illustrated in Figure , cross-ministerial collaboration is insufficient. While the Health Service executes its duty completely independently, the Environment Department controls the implementation successes of UCG regarding SMW in municipalities. It is key that awareness raising, and education goes hand in hand with the practical implementation of waste management to prepare a fertile ground for the changes. As a second improvement element, the information and feedback flow between the different responsible ministry departments should be enhanced to ensure aligned communications and actions which will prevent shortcomings and delays.

Figure 4-3 Illustration of current governance structure related to Solid Waste Management



Source: own figure.

4.4 Stakeholders and ongoing initiatives in waste management and the plastic sector, incl. financing

The World Bank found the Senegalese solid waste management sector to be underfunded. An annual **budget of €70 million (45 billion FCFA) is needed to enable proper local solid waste management whereas only €36.6 million were provided via domestic financial instruments (5 billion FCFA via taxes³⁹, 13 billion FCFA national government, 6 billion FCFA cross-subsidies).**⁴⁰ This leads to an annual financing

³⁹ To finance municipal solid waste management, the Senegalese government has established a land tax called TEOM (**Taxe d'Enlèvement des Ordures Ménagères**). However, a weak tax enforcement leads to the tax recovering barely 10% potential 20 billion FCFA ([Climate and Clear Air Coalition \(n.d.\)](#))

⁴⁰ World Bank (2017) [Senegal Municipal Solid Waste Management Project \(P161477\)](#)

gap of €34.4 million.⁴¹ To keep their important role in growth, innovation, long-term growth and employment, the Senegalese private sector depends on external finance.⁴²

The public sector tried to address the financial gap through measures, such as imposing a law (of 13 February 2004) demanding the inclusion of private partners in waste management infrastructure investments. Also, the law regulating Public Private Partnerships (currently under revision) is meant to address this issue, facilitating the cooperation and partnerships between the public and private sector.

However, this is only the start of closing the financial gap. Besides building financial partnerships, the country also must focus and streamline ongoing efforts. Yet, most circular economy-related initiatives in Senegal are included in overarching interventions, addressing topics like green economy and sustainable development. More direct circular economy related initiatives only engage in solid waste management, predominantly covering bio-, electronic and plastic waste. Accordingly, the landscape of **stakeholders and thus financing Senegal's circular economy** is divers and weakly connected, while entrepreneurs face significant challenges in building and scaling their businesses (Box 4-1). Roles and responsibilities are mostly undefined, leading to many individual interventions. Relevant actors are households and other waste producers, public institutions like ministries, agencies and local authorities having the jurisdiction over waste management in their territories, private service providers and concessionaires (who can sign service delivery contracts with communities), NGOs, research institutes and international corporations. The following chapter provides an overview of stakeholders and their initiatives. The complete overview of all stakeholders (including financial ecosystem) connected to the fields of circular economy, can be found in Annex B.

Box 4-1 Financial challenges of start-ups

Financial challenges of start-ups

Innovative businesses struggle to access start-up capital.⁴³ **Based on the World Bank's Enterprises Survey 2014**, less than 14% of Senegalese SMEs can access credits from a financial institution. The General Direction for Planning and Economic Policies (Direction Générale de la Planification et des Politiques Économiques), DGPPE) found in the same year that four out of five loan applications, addressed to both private and public banks, got rejected because of the low quality of loan applications submitted and lacking loan guarantees.⁴⁴ **SMEs' ability to access grants or loans increases with providing external auditing, being innovative, exporting products and generating high revenues.** Also, investment activities in fixed assets, such as machinery, equipment, vehicles, land and buildings, as well as the owner having long experiences in the sector and being female⁴⁵ have a beneficial impact.⁴⁶ Nonetheless, banks hesitate to invest in innovative businesses because of high opportunity costs compared to investing in high-turnover businesses and the inherent higher risk profile of innovative businesses, among others.⁴⁷

Thus, despite the progress acknowledged, Senegalese companies depend on alternative financial sources. So far, entrepreneurs of large private foreign companies, public and semi-public enterprises, SMEs and the informal sector mostly rely on personal savings as seed money. Because of the high collateral requirements of banks, they prefer mutual funds, providing money from many investors to a portfolio of stocks, bonds and other securities.⁴⁸ Moreover, micro-finance⁴⁹ institutions (MFIs), such as the Baobab Group, have become more popular, offering

⁴¹ Figures given in 2016 operation costs.

⁴² World Bank (2017) [Senegal Municipal Solid Waste Management Project \(P161477\)](#)

⁴³ Haselip et al. (2014) [Financing energy SMEs in Ghana and Senegal: Outcomes, barriers and prospects](#)

⁴⁴ Abdoulaye Seck (2021) [Access to credit for the small and medium-sized enterprises in Senegal](#)

⁴⁵ This is explained by the dynamism and reputation of female entrepreneurs in Senegal regarding repaying loans ([Abdoulaye Seck, 2021](#)).

⁴⁶ Abdoulaye Seck (2021) [Access to credit for the small and medium-sized enterprises in Senegal](#)

⁴⁷ Haselip et al. (2014) [Financing energy SMEs in Ghana and Senegal: Outcomes, barriers and prospects](#)

⁴⁸ Hayes (2022) [Mutual Funds](#)

⁴⁹ Microfinance is a banking service provided to people and micro-businesses that would normally not be able to access grant guarantees, loans or business advice. It is characterised by lower levels of interest, greater flexibility and better adaptation to rural conditions compared to commercial banks.

financial services to entrepreneurs that cannot access the traditional financial system.⁵⁰ Yet, the conditions for standard business loans offered by commercial banks are still more attractive. The development potential of microfinance is found to be limited due to rather small amounts of money lent and high interest rate ceilings of 24%, compared to 15% ceilings for banks.⁵¹ Leasing is another option in Senegal to access finance whereby the leasing company finances the purchase of tangible assets. The leasing company stays the legal owner of the goods while ownership is conveyed to the beneficiary incurring all benefits, costs and risks associated.⁵² This concept was offered by two institutions in 2011. Alios Finance and Locafrique are specialised in leasing in Senegal but the banks CBAO/Attijari and Société Général de Banques au Sénégal (SGBS) offer similar services.⁵³ However, the regulatory frameworks for leasing are immature and the interest of Senegalese entrepreneurs in it is low.⁵⁴

4.4.1 Foreign investors and institutions and their initiatives

To address the financial gap, both domestic and foreign financial institutions and organisations are crucial for enabling the transition towards a circular economy in Senegal. By providing liquidity to businesses, they can allow for innovation and technological progress. Yet, not enough banks and investors offer reasonable funding mechanisms to circular initiatives. They are also important for developing capacity in the waste and plastic sector. However, similar as for NGOs, their impact decreases once a project is finalised and thus funding is exploited. To take full advantage of their support, projects should be embedded into the local context and create long-lasting capacity and processes. Furthermore, the collaboration with and among international organisations should increase to enhance learning and development. In the following paragraphs, we provide an overview of the most important initiatives.

The European Investment Bank funded Clean Oceans Initiative that recently doubled its commitment to provide **€4 billion by 2025 for** solid waste management in Senegal. To maximize their impact, the work of NGOs could be better integrated into the political, commercial and social dynamics of the country.

The MAVA Foundation aims to develop replicable models for circular economy in cities. Together with Dalberg and wrap, the foundation finances a project to establish a Plastic Pact in Senegal, among others. However, MAVA Foundation plans to retire from the project in October 2022. The initiative will be taken over by Haske, the new Orange Corners implementation partner. Orange Corners is managed by RVO and collaborates with the Dutch embassy in Senegal.⁵⁵ Together with Dalberg and WRAP, the foundation finances a project to establish a Plastic Pact in Senegal, among others.⁵⁶ However, MAVA Foundation plans to retire from the project in October 2022. The initiative will be taken over by Haske, the new Orange Corners implementation partner. Orange Corners is managed by RVO and collaborates with the Dutch embassy in Senegal.⁵⁷

The City Resilience Program (CRP) is a partnership between the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR). Since 2017, it supports cities in increasing their resilience by providing expertise in city planning and project finance. As part of the thematic area

⁵⁰ EIB (2021) [Microfinance: Empowering the smallest businesses](#)

⁵¹ Ferrari et al. (2018) [Interest rate caps. The theory and the practice](#)

⁵² IMF (2000) [Monetary and financial statistics manual](#)

⁵³ NKAC (2021) [Buy or rent: Leasing in Senegal, accounting and tax aspects, pros and cons](#)

⁵⁴ Basse (2015) [The Role of the Informal Sector in the Development of Entrepreneurship in Senegal: Background and Justification](#)

⁵⁵ MAVA Foundation (2018) [Accelerating circular economy practice](#)

⁵⁶ MAVA Foundation (2018) [Advancing Circular Economy of Plastics in Senegal and Morocco - Partnership building phase 2](#)

⁵⁷ Orange Corners (2022) [Who we are](#)

'Finance for Resilience', CRP financed public-private-partnerships (PPPs) have been identified for improving MSW operations (management) in Greater Dakar.⁵⁸

The project Senegal (SN2) Green Secondary Cities of the Global Green Growth Institute (GGGI) aims to support Senegal in implementing guidelines for green city development in Dakar, Thies and Diourbel. Its interventions aim at increasing the efficiency of waste management, thereby focusing on plastic waste, WEEE and domestic wastewater. It will promote efficient and affordable waste recycling and valorisation business models. The project tries to support the policy planning, financing and institutional frameworks for green growth on a local and national level.⁵⁹ Its interventions aim at increasing the efficiency of waste management, thereby focusing on plastic waste, WEEE and domestic wastewater. It will promote efficient and affordable waste recycling and valorisation business models. The project tries to support the policy planning, financing and institutional frameworks for green growth on a local and national level.⁶⁰

The cooperation of GGGI and UCG on waste sorting developed a methodology to promote waste sorting practices in the Municipality of Touba. A special focus was set on plastic waste. By promoting the sorting, collection and valorising of plastic waste, GGGI aims to create an attractive environment and business model for the local private sector.⁶¹ A special focus was set on plastic waste. By promoting the sorting, collection and valorising of plastic waste, GGGI aims to create an attractive environment and business model for the local private sector.⁶²

In 2019, UNIDO, ECOWAS, the European Commission and the Senegalese Government organised a High-Level Regional Conference on Circular Economy, Green Industries and Jobs in West Africa in Dakar to develop strategies to promote circular economy and green industries in West African countries. The results are formalised as the 'Dakar Pathways to Advance Circular Economy, Green Industries and Jobs in West Africa'. **Besides reaffirming the commitment to international agreements, such as the SDGs, the Addis Ababa Action Agenda or the Paris Agreement, the participants acknowledged the need to progress with implementing the Third Industrial Development Decade for Africa 2016-2025 and Africa-EU Alliance for Sustainable Investment and Jobs. Thereby, the identified pathways seek to enhance green industries and a circular economy in Senegal via improving policy frameworks, investment flows and research. Additionally, the need for collaboration is emphasised to promote circular business practices in economic sectors, such as waste. While the participants of the conference identified important leverage points to accelerate Senegal's transition, they do not suggest strategies for contribution.**

Other foreign actors include the British Government **which funded the project "Vivre avec l'eau" in 2016**⁶³ and the Islamic Development Bank **that funded €26.67 million (XOF17.5 billion) to set up PGDSU** together with the Senegalese Government.⁶⁴ USAID and the impact investor I&P Acceleration in the Sahel programs fund SetTic **with €54,000 (35.5 million FCFA)**.⁶⁵ The French group General Society (Société Générale, SGBS) engages via its subsidiary the SGBS and in collaboration with the AFD since

⁵⁸ The World Bank et al. (2021) [City Resilience Program](#)

⁶⁰ Global Green Growth Institute (GGGI) (2022) [Project Reference Profiles - Senegal \(SN2\) Green Secondary Cities Wastewater, Plastic Waste and WEEE Management: Innovative Business Model](#)

⁶² GGGI (2021) [Piloting the waste sorting in Touba as a side of the world environmental day](#)

⁶³ PAGE (2021) [Évaluation du marché des déchets en vue de l'utilisation de l'avantage coopératif dans le secteur](#)

⁶⁴ World Bank (2019) [Combined project information documents / Integrated safeguards datasheet \(PID/ISDS\)](#)

⁶⁵ I&P (2020) [SetTIC](#)

2015 in the Depollution Facility (Facilité Dépollution) a credit line financing companies' environmental-related projects, such as waste recovery.⁶⁶ Furthermore, French Development Agency (AFD) and the Directorate for Cooperation with Africa and Asia (AECID) contributed to launching PROMOGED⁶⁷ and the Senegal Municipal Solid Waste Management Project.⁶⁸

By the end of 2021, the initiative Cooperative society of solid waste collectors of Mbeubeuss-Bokk Diom was created with the technical support of the International Labor Organisation (ILO) and with financial support from the Italian Development Cooperation Agency (AICS). The cooperative allows waste collectors to access markets, occupational safety and health, a stable income and social protection. This aims at economic formalisation and inclusivity.⁶⁹

4.4.2 Domestic financial and governmental stakeholders and initiatives

The Senegalese Government **intervenes and invests into Senegal's waste sector**. It has earmarked parts of its annual budget to solid waste management to support local authorities. Among others, it contributes to the Sustainable Solid Urban Solid Waste Management Project (PGDSU) and PROMOGED.⁷⁰

The Ministry of Environment and Sustainable Development of Senegal has undertaken efforts to improve waste and plastic management through the Green Finance and Partnerships Directorate. This includes the installation of Eco-Boutiques or RECUPLAST, aiming to strengthen the network of plastic waste recovery and sale of recycled products. Other initiatives include the support for SMEs active in plastic recycling and WEEE (ECOBAG, SetTIC, PROPLAST, etc.) or the establishment of integrated waste recovery centres in Touba, Kaolack and Tivaouane.

The Government also shows commitment on a policy level to advance the circular economy, mirrored by policies like the Zero Waste Programme. As an important first step, manifesting the will of the Government to spur the country on circular economy, is the development of a national roadmap for circular economy which currently under development. In 2020, the Green Finance and Partnerships Directorate of MEDD has undertaken the development of a national roadmap for the circular economy to provide a coherent framework for actions in favour of the circular economy. Following the **High-Level Conference on "Circular Economy, Green Industries and Employment in West Africa"**, UNIDO, ECOWAS and the Republic of Senegal recognise the need for regional, continental and multilateral frameworks through the promotion of quality infrastructure, norms and standards. The promotion of the circular economy is part of this dynamic and will aim to contribute to the greening of the PES for a transition to the Green PES and contribute to the achievement of the objectives set out in the National Determined Contribution (NDC). Innovation should be encouraged, a model able to remove the obstacles of financing found and new business models for experienced Micro, Small and Medium Enterprises (MSMEs). This new ambition therefore involves other actors, such as:

- Ministry of Industrial Development and Small and Medium size industries (Enterprise Upgrade Office) - Directorate of Industrial Redeployment -Agency for Development and Promotion of Industrial Sites (APROSI);

⁶⁶ Société Général Sénégal (n.d.) [Nos engagements](#)

⁶⁷ GIZ (2021) [Sector Brief Senegal: Solid waste management and recycling](#)

⁶⁸ World Bank (2019) [Combined project information documents / Integrated safeguards datasheet \(PID/ISDS\)](#)

⁶⁹ ILO (2021) [Cooperative society of solid waste collectors of Mbeubeuss-Bokk Diom is established](#)

⁷⁰ GIZ (2021) [Sector Brief Senegal: Solid waste management and recycling](#)

- Ministry of Economy, Planning and Cooperation (Directorate General for Economic Planning and Policy -Directorate for Financing and Public-Private Partnerships (DFPPP) - Directorate for Private Sector Development);
- Ministry of Trade and SMEs (ADEPME -ASEPEX -Directorate of External Commerce);
- Ministry of Finance and Budget (Directorate General of Taxes and Domains -Directorate General of the Financial Sector (DGSF).

Additionally, commitment is being shown by joining the United Nations Partnership for Action on Green Economy (PAGE) in 2014. This supported the implementation of the Plan Senegal Emergent Vert, aiming to shift Senegal towards a green economy. Among others, this collaboration shaped reforms related to waste management. As such projects focused on the plastic value chain, like the assessment of the plastic waste management market in 2020 conducted by the ILO and Women in Informal **Employment: Globalizing and Organizing (WIEGO)**. Thereby, UNIDO's strategy on circular economy was guiding.⁷¹

The implementation of the National Programme of Waste Management (PNGD) should help local authorities to overcome the difficulties associated with persistent public reluctance for a likely transformation of towns and villages towards improving life quality of the populations. Through this programme, the government undertakes the construction of infrastructure needed for the management of waste of the communities in a planned framework, partly subsidising operational expenses for three years. It also adapts laws and regulations and improves sector funding tools.

PGDSU marks the first phase of the materialization of the National Waste Management Programme (PNGD) with the financial support of the Islamic Development Bank (IDB) and the Government of Senegal (2014-2018). The implementation of PNGD under the national Waste Management Programme should help local authorities to overcome the difficulties associated with persistent public reluctance for a likely transformation of towns and villages towards improving life quality of the populations. Through this programme, the Government undertakes the construction of infrastructure needed for the management of waste of the communities in a planned framework, partly subsidizing operational expenses for three years. It also adapts laws and regulations and improves sector funding tools.

The project on solid waste in Senegal (PROMOGED) seeks to strengthening the institutional framework and establishing a sustainable financing mechanism for a competitive and profitable local waste economy. **Nearly €27 million** have been injected into the Dakar region, i.e., the communes of Tivaouane, Kaolack and Touba⁷². The investment served the construction of infrastructure for the solid waste management and the equipment of local authorities with waste collection materials. However, the work is not fully completed to allow this infrastructure to start operating.

4.4.3 Academic stakeholders and initiatives

Non-governmental initiatives also invest **in Senegal's waste sector**. Academic stakeholders and research institutions in Senegal engage mainly by developing and introducing new modules in the curriculum. They collaborate with the government and the private sector to help modelling practices and share the results of their findings. This might bring new opportunities of cross-sectoral collaboration and educational opportunities to enhance the environmental competence of graduates.

⁷¹ PAGE (2022) [Graduating country: Senegal](#)

⁷² Ministry of Environment (2020) [Plastic Prevention Law](#)

The most important initiatives are from the City College of New York (CCNY) and Cheikh Anta Diop University, and the Center des Oeuvres Universitaires de Dakar (COUD). In 2019, students from the Colin Powell School of Civic and Global Leadership and Bernard and Anne Spitzer School of Architecture travelled to Senegal to join a three-week course in sustainable development and the ecovillage movement. The course was designed by Prof. Marie Nazon of SEEK department of CCNY and the NGO Network for Ecovillage Emergence and Development (REDES). Within this programme, CCNY students teamed up with students from Cheikh Anta Diop University. Together they visited the village Bambey Serere close to Dakar and explored projects regarding greening local schools, organising a plastic waste clean-up and others.⁷³

The Center of University Works of Dakar (COUD)⁷⁴ is a public administrative institution supporting Senegalese students, for example in improving the living and working conditions. Through its Environmental Management and Protection Programme, COUD aims to minimise its environmental impact regarding the consumption of raw materials, energy, water and natural resources, its use of space as well as solid and liquid discharges into the environment. Furthermore, it shall promote the **institution's compliance with environmental laws and regulations. This aims to cover COUD's staff, students and partners.** The project started in 2021 and aims to be completed in 2024. The project is still searching for financial partners.⁷⁵

4.4.4 Civil society stakeholders and their initiatives

As civil society representatives and several NGOs address, among others, waste management, plastic and social issues. For example, Zero Waste focusses on both waste management and specific plastic-related topics through targeted campaigns and trainings. To maximize their impact, the work of NGOs could be better integrated into the political, commercial and social dynamics of the country.

Another well-known example is Enda ECOPOP, a Dakar-based NGO, set up the project PROMOVAL to support the valorisation of fishery resources, such as oysters, arks, cymbidium and murex, in the municipality of Joal Fadiouth. Thereby, it focuses on women's empowerment.⁷⁶

4.4.5 Private sector stakeholders and their initiatives

The involvement of the Senegalese private sector is rather recent. Before the internal restructuring of the governmental structures around 2015, Senegal has managed to improve its waste management services without relying on the common practice of PPPs. However, the stabilizing governmental structure increased the attractiveness of the waste management sector to investors and waste management companies.⁷⁷ Consequently, some private companies, such as PROPLAST Industry, have been becoming involved in managing a plastic waste processing industry. However, most of the domestic enterprises mostly engage in the lower part of the plastic value chain. In line with the revised public-private-partnership law (currently under development), it can be expected that the engagement of the private sector will increase while moving up the value chain and hopefully also consider other sector with high circularity potential, such as agriculture.

⁷³ CUNY (2019) [CCNY Faculty, Students Research, Promote sustainability in Hungary & Senegal](#)

⁷⁴ <https://coudsn.com/>

⁷⁵ Climate Chance (n.d.) [Programme de Gestion et de Protection de l'Environnement \(PGPE\) du COUD](#)

⁷⁶ Enda ECOPOP (n.d.) [Projet d'appui aux Modèles de Valorisation des produits halieutiques dans la commune de de Joal Fadiouth \(PROMOVAL\)](#)

⁷⁷ Kaza et al. (2018) [What a waste 2.0 - A global snapshot of solid waste management to 2050](#)

PROPLAST Industry is committed to the recovery of plastic waste collected from waste pickers and households. PROPLAST relies on voluntary contribution and recycles by a mechanical process that transforms plastic waste into aggregates, which are sold to processing industries. The industrial company was born from a project bringing together women and collectors. After more than a dozen of operations, PROPLAST employs hundreds of people and collaborates with a multitude of waste pickers. Moreover, PROPLAST established the collection network RECUPLAST. This initiative entails kiosks that buy plastic waste from society and sell products made from the recycled plastics.⁷⁸

Besides PPP structures, various businesses and small initiatives seek to solve **Senegal's** waste challenge by engaging in activities along the whole value chain. Thereby, most activities are informal, driven by the need to earn an additional living. By collecting and treating waste, the informal sector contributes to the circular economy, mostly without being aware of that. Despite the strong entrepreneurial spirit, their potential is restricted by the given policy, infrastructure, equipment, know-how and funding opportunities.

4.4.6 Other initiatives: Platforms, networking and incubator spaces

RVO organised the initiative #CoCreateDAKAR to connect Senegalese and Dutch students in workshops to enable knowledge sharing. It wants to increase their problem-solving capacity to successfully address waste challenges of Dakar.⁷⁹ Within the project, Dutch and Senegalese interdisciplinary students together develop circular interventions for real waste challenges of Dakar. It wants to overcome one-size-fits-all solutions and links students with problem owners, key experts as well as local incubators and accelerators. Additionally, the project aims to guide entrepreneurial education in a circular direction to increase the chances that students will address the waste challenge in the future and develop related start-up ideas.⁸⁰

Haske Conseil and WRAP, with technical and financial support from MAVA Foundation, created The Alliance for Advancing Recycling, Awareness and Livelihoods in Plastics (TAARAL) to translate governmental initiatives on circular economy in plastic into practice. Thereby, they rely on a multi-stakeholder alliance and platform.⁸¹

Makesense Africa is an incubator that aims at training, engaging and supporting citizens, entrepreneurs and large organisations to take actions for an inclusive and entrepreneurial Africa. Thereby, they promote the development of capacity related to circular economy and the SDGs.

Andano Bayyi Plastik was set up in 2020 with the support of Heinrich Böll Stiftung. It gathers different stakeholders that work on environmental issues in Senegal and have interest in working to address the plastic hazard. Several activities have been organised to raise awareness on the need to enforce the law that bans the use of plastic bags.

⁷⁸ Mbaye (2017) [Sénégal: RECUPLAST, un réseau de collecte de déchets, transforme des ordures en or dur](#)

⁷⁹ International Center for Frugal Innovation (2021) [Circular Economy & Entrepreneurship Education in Dakar and The Netherlands](#)

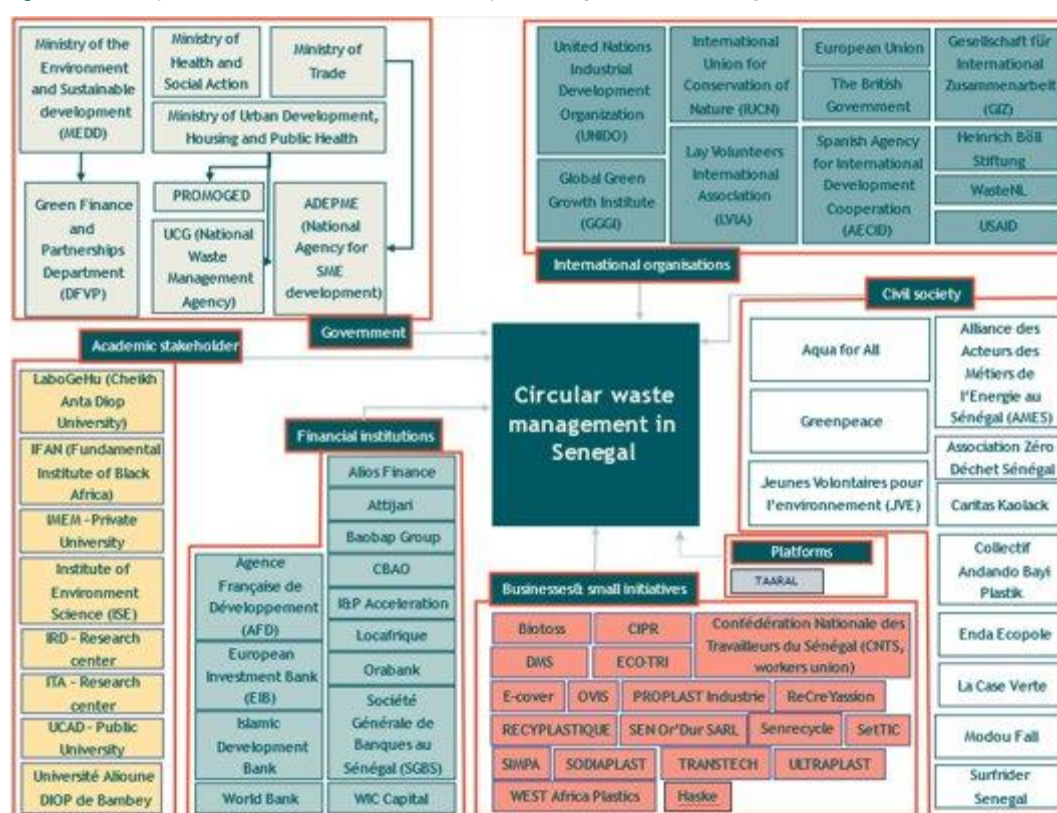
⁸⁰ International Centre for Frugal Innovation (n. d) [Circular economy & entrepreneurship education in Dakar and the Netherlands](#)

⁸¹ TAARAL (2022) Presentation

To summarise, various stakeholders are involved in financing and transforming Senegal's waste management. If properly coordinated, this can offer interesting investment opportunities that bring benefits in all aspects of sustainability for both Senegalese companies and the investors.

However, the current environment for investments and intervention is challenging and restricted by undefined roles and lacking collaboration. This results in silo working, with sometimes different actors running similar programmes that do not reach their maximised potential. Projects would benefit from better cooperation between different stakeholders and the uptake of already established initiatives instead of introducing new ones. Additionally, the matchmaking between donors and recipients as well as investment channels should be improved. Figure 4-4 summarises, while not claiming to be complete, the ecosystem in Senegal of relevant stakeholders relating to the circular economy.

Figure 4-4 Ecosystem related to circular economy in Senegal's waste management



Source: own figure.

The existing initiatives cover a broad range of topics which represents a good starting point and foundation for the circular economy being further developed and integrated into public, private, academic and civil society initiatives. They range from infrastructure and equipment provision projects, efforts to bring different stakeholders together, working on financing mechanisms and the institutional framework and supporting sorting, collection and recycling to campaigns, trainings and courses to raise awareness and to start building skills required.

However, there is room to improve and advance ongoing initiatives. While there are several infrastructure-related projects under way, more investments are needed to increase the coverage, proving access to as many urban, peri-urban and remote areas as possible. In addition to this, they should be complemented by a stronger focus on proper sorting at source and coupled with more

equipment and SME support (technical support and advisory) as well as skills and know-how building to enable communities and entrepreneurs. For the capacity building element, it becomes clear that curricula and vocational trainings have to be tailored more closely to the circular economy while at the same time they should be promoted well, showing the necessity and business opportunities under the circular economy. Although there are works undergoing related to the improvement of institutional frameworks and financial mechanisms, there is more room to complement. For instance, the institutional frameworks could profit from aligning regulation and legislation, tailoring them more to the circular economy while also making its regulation easier to implement for the stakeholders on the ground. In fact, many private sector stakeholders struggle to implement the Single-Use-Plastic Law. This could be supported by external expertise of European frontrunners that are far advanced on their circular economy journey. Financial mechanisms, on the other hand, should be worked out with banks directly. While most of the efforts focus on the governmental level, changing the decision and evaluation criteria as well as their loan portfolio would benefit especially small-scale initiatives.

A more detailed overview of more opportunities and their reflection with stakeholder inputs can be found in Annex G.

5 Dutch resources for exploring opportunities and mitigating barriers in Senegal

Relevant Dutch expertise for this study and addressing the identified opportunities and niches, is the strong Dutch expertise in waste management and treatment. Particularly, the Dutch are dominant in developing and improving (PET) recycling technologies, but also in the set-up and effective implementation of EPR schemes (for instance for e-waste).

Facing the transition towards circular economy, the Netherlands are found to have a better starting point than other European countries. In 2020, the Country Circularity Gap Report⁸² for The Netherlands indicated that **24.5% of its economy is circular. In comparison, Austria's circularity rate is 9.7% and Norway's circularity rate 2.4% in 2019.**⁸³

Among others, the Dutch's frontrunner position is caused by the density in population and infrastructure that allows material savings and enables approaches such as sharing economies⁸⁴. Furthermore, the Dutch waste policy has been promoting recycling for decades, resulting in the Netherlands reaching a recycling rate of plastic packaging waste of 50% in 2017, eight percentage points above EU average⁸⁵. For plastics, the recycling rates seems to be a bit lower; in 2017 1.650 kilotons of plastics waste were processed, of which around 40% was recycled and 58% incinerated⁸⁶. Generally, the attention towards circular economy in the Netherlands is high. Multiple national and regional initiatives on circular economy have been adopted, such as the Green Deal Circular Procurement 2.0 or the Circular Economy Implementation Programme 2019-2023.⁸⁷ More than 100,000 companies in the Netherlands apply one or more R-strategies to their practices and more than 100 conferences on circular economy were organised in 2019. Thereby, the manufacturing and textiles sectors have shown to be especially engaged.⁸⁸ Furthermore, Dutch education bodies began to include circular economy-related topics in their curricula⁸⁹. Interview data further reveals that the Netherlands is particularly active in the plastics sector and plastic upcycling. Dutch companies are experienced in fund raising and production inputs/processes. In the construction sector, circular economy is gaining attention and several interesting circular economy initiatives are implemented (stakeholder information). On the strategic level, some cities are making recognisable progress. For instance, the Amsterdam Circular 2020-2025⁹⁰. Concrete steps have been taken to implement such initiatives, so there is also an expertise in translating those plans/goals into actual practice (stakeholder information).

⁸² Since 2018, Circle Economy develops the annual [Circularity Gaps reports](#) containing global circularity metrics that **measures the state of the world's or a country's economy and identifies key levers to transition to global circularity.**

⁸³ <https://www.circularity-gap.world>

⁸⁴ Rood T and Hanemaaijer A, (2017). [Opportunities for a circular economy](#). PBL Netherlands Environmental Assessment Agency, The Hague.

⁸⁵ Eurostat (2019) [How much plastic packaging waste do we recycle?](#)

⁸⁶ CE Delft (2019) Plasticgebruik en verwerking van plastic afval in Nederland

⁸⁷ Ibid.

⁸⁸ Hanemaaijer, A. et al. (2021), Netherlands Integral Circular Economy Report 2021, English summary. PBL Netherlands Environmental Assessment Agency, The Hague

⁸⁹ RVO (2021). Monitoring circulaire economie. Provincies en onderwijs [Monitoring the circular economy. Provinces and education], Netherlands Enterprise Agency, Utrecht.

⁹⁰ See <https://www.amsterdam.nl/bestuur-organisatie/volg-beleid/coalitieakkoord-uitvoeringsagenda/gezonde-duurzame-stad/amsterdam-circulair-2020-2025/>

While the Netherlands seem to be a frontrunner in the EU, there remain sectors where hardwired linear conduct is embedded, and it is estimated the Netherlands can increase its circularity up to 70%.⁹¹ Circular economy is still far from being mainstream in the Netherlands. Only 4% of all local jobs are related to circular activities.⁹² Policy instruments dedicate only a small part of their budget to circular economy⁹³ and consumer behaviour does not reflect circularity. Furthermore, while resource efficiency constantly improved during the last decade, the total amount of materials used did not decrease.⁹⁴ That, for instance, the use of plastics in the Netherlands increasing⁹⁵ illustrates that decoupling resources from growth has not been successful yet. The Dutch material footprint is predicted to further increase due to increasing demands for materials related to the housing sector and the energy transition. Moreover, while most European targets on waste will be met, the Netherlands must consider strategies additional to recycling efforts. To accelerate the circular economy transition, the Netherlands must channel its efforts towards high-quality recycling, improve monitoring of material stocks and flows, as already embarked on by the Dutch Raw Materials Information System (GRIS), and adopt financial instruments in support of CE.⁹⁶ However, it overall showcases great examples of how the transition towards a circular economy can be kick-started.

5.1 Landscape of actors in circular economy in the Netherlands

In the Netherlands, there are many private sector initiatives contributing to the transition to a circular economy. Those are SMEs, investors, accelerators of start-ups, but also knowledge-sharing platforms (see Annex B). There are also many public private partnerships, like the [Holland Circular Hotspot](#), that aim to connect circular economy partners, share knowledge and stimulate entrepreneurship. There are many events organized to stimulate the circular economy transition, such as **the annual event 'Week of Circular Economy'**⁹⁷ to showcase best examples and to connect parties.

5.2 Potential of Dutch stakeholder to engage in Senegal

A survey was conducted among the Dutch private sector active in the waste management or plastics sector to gain a deeper understanding of the Dutch expertise in circular economy, as well as their presence in Africa and Senegal in particular, and/or their interest to engage in circular economy activities in Africa.

The majority of the Dutch companies consulted are active in Africa, but only a small group are active in Senegal. Companies active in Senegal and Africa are both active in the plastics and waste management sector, and company size varies from micro- to large enterprises. Interestingly, only one organisation considers expanding to Senegal. Other organisations are hesitant as they are, for instance, first awaiting the results of other projects running in Africa or indicate to focus on the EU. Another reason that was given is the lack of expertise in the African context. If they would engage in Africa/Senegal, it

⁹¹ <https://www.circularity-gap.world>

⁹² Root, T. and Kishna, M. (2019). Outline of the circular economy. Retrieved from <https://www.pbl.nl/en/publications/outline-of-the-circular-economy>

⁹³ RVO (2020). Monitoring Transitie naar een Circulaire Economie. Beschouwd vanuit de RVO instrumenten [Monitoring the Transition to a Circular Economy. A perspective from the RVO instruments], Netherlands Enterprise Agency, Utrecht.

⁹⁴ Hanemaaijer, A. et al. (2021), Netherlands Integral Circular Economy Report 2021, English summary. PBL Netherlands Environmental Assessment Agency, The Hague

⁹⁵ CE Delft (2019) Plasticgebruik en verwerking van plastic afval in Nederland

⁹⁶ Hanemaaijer, A. et al. (2021), Netherlands Integral Circular Economy Report 2021, English summary. PBL Netherlands Environmental Assessment Agency, The Hague

⁹⁷ <https://www.rvo.nl/actueel/evenementen/week-van-de-circulaire-economie-2022>

would be because there is a clear demand for their expertise/technology, sharing their knowledge and knowhow.

The organisation active in Senegal contributes to a circular economy in Senegal by knowledge sharing, technological & financial support and by providing educational training to Senegalese/African staff. The main reason **to participate in Senegal and/or Africa is that it is part of the organisation's mission and/or vision**. Another important reason to expand to Senegal/Africa is an existing demand for the **company's expertise/technology**. It is further specified by one respondent that there is often poor knowledge about plastic recycling in Senegal, i.e., materials, markets and machinery. The Dutch can support the Senegalese stakeholder in this aspect. In general, companies active in Africa do not indicate that it is financially attractive to expand to Africa. This was not the case for the recycling company active in Senegal.

Furthermore, the majority of the Dutch companies consulted is of the opinion that companies in Senegal can learn something from their business regarding circular economy. In particular, Dutch companies can teach Senegalese stakeholders the following:

1. how to convince consumers to participate in a circular economy;
2. reporting (as part of corporate governance to increase awareness in civil society about waste management);
3. changing existing production processes; and
4. re-designing certain products and services.

•
Other ways in which Dutch stakeholders can help Senegalese stakeholders are: 1) setting up a high-quality recycling facility and EPR schemes, 2) creating business models for the recycling of post-consumer plastics, and 3) market studies for sustainable solutions.

The challenges for Dutch companies to engage in Senegal are related to the financing of projects. Naturally, financial support is perceived as one of the most important conditions to start-up a business **in Africa/Senegal**. Other types of helpful (governmental) support are **'providing contacts to other Dutch business that are active in Senegal'** and **'provide contact to business in Senegal (i.e. Matchmaking)'**. Businesses not yet active in Africa or Senegal requested governmental support in understanding the Senegalese context, including the entrepreneurial ecosystem and the enabling environment.

6 Priority niches for Dutch stakeholders to engage in the circular economy in Senegal

This chapter presents recommendations for how those opportunities that have been identified as priority niches, can be tackled by (1) RVO and the Dutch Embassy and (2) Dutch private sector stakeholders. For the sake of solidifying opportunities and approaching the potentials in a comprehensive way, some of the opportunities and ranked niches have been merged to one. The number of the respective opportunity/-ies is/are indicated behind the title of the niche.

6.1 Business opportunities for Dutch stakeholders

The four thematic fields that have been identified as suitable and promising to collaborate with Senegalese stakeholders are related to finance, technology, scaling up and education.

Develop new finance mechanisms and business models

Tackled opportunity:

6a Develop new finance mechanisms and business models

Implementing partners: Taaral, Baobab Group, Orange Corners, ADEPME, Invest International (FMO), Directorate of Green Financing and Partnerships, Atradius, Dutch banks and companies

Beneficiaries: Senegalese banks and SMEs

The current financial framework to support waste and plastic initiatives is ineffective. On the one hand, financial needs of companies (in form of loans and grants) are not met while, on the other hand, requirements of banks and investors do not fit characteristics of innovative and circular businesses in the waste and plastics sector. This ultimately results in a low capital flow in the sectors. At the same time, for several reasons, difficulties exist in developing a viable business case for setting-up waste collection systems and waste management facilities in Senegal (and other African countries). These are: (1) an instable investment climate, e.g., permits may be withdrawn over time, and (2) difficulties in establishing a reliable stream of waste supply to keep such plants running in the long-term. The latter complicates long-term planning for business operations and thus revenue streams⁹⁸.

This requires the development of new finance mechanisms on the bank-financial institution level and business models bringing innovations and progress. The PROMOGED project already partially address this gap (however, focussing more on the governmental level), which is why addressing this niche should include making a link to it. In the end, finance mechanisms have to be well aligned with new business models and vice versa. For instance, criteria used to assess loan applications have to be revisited recognising the different nature of circular businesses and their performance. Such revisions could take place in a working group with the Dutch and Senegalese governments, banks and affected **businesses – strong interest to participate in the realization of this opportunity came from the Directorate of Green Financing and Partnerships**. Such sessions could take place at the space of The Alliance for Advancing Recycling, Awareness and Livelihoods in Plastics (Taaral).

⁹⁸ Based on survey results obtained from Dutch companies.

Another means to increase the chances of Senegalese businesses to obtain a loan would be that Dutch **companies cover Senegalese enterprise's collaterals at local banks. This, however, requires building** trust as a first step. Both Orange Corners and Taaral could be important conveyors between Dutch and Senegalese businesses. Another leverage could be companies that act as lenders for financing new business models, such as Atradius⁹⁹ or Invest International¹⁰⁰, aiming to contribute enough money to make projects feasible that would not have been bankable otherwise. A final mechanism to be mentioned here is related to avoiding investment costs by making Dutch companies purchase equipment and lease it to Senegalese enterprise.

When developing new business models, existing approaches should be considered as inspiration to learn **from. Closing the Loop – active in Africa, but not yet in Senegal – offering a service that allows any** organisation to make their IT device purchase waste neutral, by charging a Waste Compensation Fee. The fee is used to collect and recycle an equivalent amount of electronic waste from emerging countries that lack waste recycling infrastructure. As such, waste collection in emerging countries and recycling are turned into a profitable business¹⁰¹. Interested parties for building up such innovative business cases might be the Directorate of Green Financing and Partnerships. They could have to role channelling holistic information provision related to circular business activities and business models in Senegal.

Application of Dutch Government Support

The Business-to-Business Tool (introduced under Section 6.1.3) could be employed under this niche to further identify the financial gaps and/or explore a more concrete opportunities related to specific companies. In addition, the toolkit may support the private sector in Senegal to develop business plans in relation to e.g. EPR systems. The support in the development of business cases will enable the private sector to adequately response to legislative revisions/further implementation measures related to the Senegalese EPR as part of the Single Use Plastic Law. Lastly, to increase the engagement of the Dutch private sector in Senegal, the PDS tools that could be applied are for instance partnerships to co-create solutions (Partners for International Business (PIB), as well as Impact clusters for capacity building, knowledge sharing and demonstration).

Regarding new finance mechanisms, the Initiative for Circular Economy (I4CE) (see Annex F) offers **'circular financials sector development' to support financiers in investing and tracking circular economy** activities (as conventional investment-ready-business-plans are often difficult to develop for circular economy activities). Financial guidelines, developed by different banks in the Netherlands and in the EU, with support from the Ellen MacArthur Foundation (e.g. ANB-AMRO, ING, and Rabobank, European Investment Bank (EIB)), may help finance institutions to channel investments towards circular economy initiatives. As such, the Dutch Entrepreneurial Development Bank (FMO), but also the European Investment Bank may partner-up with Senegalese financial institutions to strengthen their capacity and to develop circular economy finance guidelines for the local financial sector.¹⁰²

⁹⁹ Atradius offers export credit insurance which makes it more attractive for other funding bodies to engage in financing the project.

¹⁰⁰ Invest International is a company that aims to overcome financial restrictions of sustainable projects by investing money provided by the RVO

¹⁰¹ See for more information this [showcase project in Nigeria](#)

¹⁰² Source: Bindels, E., von Knobloch, K., & van Ek, H. (2020)

Build capacity and know-how related to loan applications and financial intelligence

Tackled opportunities:

6b Build capacity and know-how related to loan applications and financial intelligence

Implementing partners: Taaral, Boabab Group, Orange Corner Incubator Programmes, Senegalese vocational training centers, RVO, Dutch businesses, Invest International

Beneficiaries: Ministry of Environment (Directorate of Green Finance and Partnerships), Senegalese and Dutch entrepreneurs

As one of the main reasons why Senegalese businesses do not obtain a loan is the insufficient quality of their applications, it is key to improve this skill and increase the knowledge on financial aspects. The most effective way of doing so is to set up trainings on the procedure of loan/grant application processes and how to prepare the application with its required documentation, such as a business plan. Dutch businesses are frontrunners in Europe in terms of business model innovation and scaling their businesses through succeeding in convincing funders and finding loans and intelligent financing solutions. Thus, passing on their experience and knowledge to Senegalese businesses will directly support them in increasing their financial intelligence and chances of obtaining funding from national or international banks.

Platforms for knowledge sharing between Dutch and Senegalese actors are already in place, such as in the CoCreate Dakar programme. These concepts are likely to be easily adaptable to various topics, such as know-how on business operations of which financing, and acquisition is one essential element.

Trainings or the actual knowledge exchange could take place at Taaral, Boabab Group, Orange Corner Incubator Programmes and/or through vocational training centers, run by experienced professionals. Courses and sessions can be offered both online and in person, connections between the different Dutch and Senegalese businesses can be facilitated by RVO and Orange Corners. Finally, the training materials capturing key facts and an overview of different financing opportunities should be accessible to everyone. This could be developed by the Ministry of Education and/or the Ministry of Employment and Vocational Training in collaboration with banks as well as Dutch and Senegalese businesses that can share learning from their journey related to obtaining funding.

Application of Dutch Government Support

The Dutch government may support the Senegalese and Dutch entrepreneurs in capacity building for business plans and accessing finance, e.g., by the set-up of platforms and trainings as discussed above.

Increase access to recycling technologies

Tackled opportunities:

8 Increase access to recycling technologies

16 Access private sector CSR budget to support CE projects and initiatives at the community level

Implementing partners: RVO, Dutch businesses, Holland Circular Hotspot, Taaral

Beneficiaries: Senegalese businesses

In Senegal, recycling activities are limited by the access to technologies. Equipping small initiatives with technologies and know-how to recycle plastic waste would enhance more local recycling activities

and address socio-economic stability. On the one hand, this can be leveraged through new financing mechanisms. On the other hand, as the Netherlands is a frontrunner in recycling technologies (for instance the Dutch PET recycling technologies as a solution to manage plastic waste), direct technical support from Dutch recycling companies can help small initiatives to go beyond pre-treatment activities. Besides plastics, leveraging knowledge and technologies for safe recycling of hazardous waste is relevant too. Additionally, the survey results (section D) revealed that several recycling organisations would be interested in expanding their business to Africa/Senegal, in particular if there is a clear demand for **the company's expertise/technology**. While it carries huge economical potential, it is also likely to bring environmental and social improvements, provided related activities are better regulated.

Taalal and RVO can serve as vehicles to connect Dutch companies with small waste recycling initiatives. Engaging in this activity could be encouraged by promoting this as CSR measure, providing technical know-how and technologies with a local business. This could potentially be linked to a new financing mechanism that allows the Dutch company investing or providing the technology, avoiding high up-front investments, while the Senegalese beneficiary pays back reasonable rates.

Application of Dutch Government Support

For this niche, the Partners for International Business (PIB) programme could be interesting to further explore in the context of Circular Economy in Senegal. PIB supports Dutch companies in setting up companies or public-private partnerships in e.g. developing countries.¹⁰³ Based on this Sector Report, a more detailed market study should be conducted to further identify opportunities related to waste treatment or recycling technologies for the Dutch private sector to engage in Senegal. Based on this more concrete market study, interested Dutch parties may express interested in starting or expanding their businesses to Senegal, and join a consortium as part of the PIB programme. See for instance the PIB programme in Indonesia ([NL-Indonesia Ecopark](#) partnership).

Business Matchmaking¹⁰⁴ as part of PIB programme or as an individual (series of) events (see also B2match platform mission) are also important PSD tools to enable collaboration between Senegalese and Dutch private sector stakeholders. The RVO may act as the facilitator

RVO can play role of facilitation (potentially connected to a mission)

Scale-up circular economy initiatives, e.g. reuse and repair

Tackled opportunities:	
10 Scale-up circular economy initiatives, e.g. reuse and repair initiatives	16 Access private sector CSR budget to support CE projects and initiatives at the community level
Implementing partners: Institute for African Management, Orange Corners Incubator Programmes, Taalal, RVO, Dutch companies, Dutch Initiative for Circular Economy, CBI	
Beneficiaries: Senegalese businesses	

¹⁰³ See <https://www.rvo.nl/subsidies-regelingen/partners-international-business-pib>

¹⁰⁴ Matchmaking can be realised in different ways and aims to establish structural, long-term business relationships between local and Dutch entrepreneurs and organizations

As for recycling initiatives, small initiatives practicing reuse and repair have difficulties scaling-up due to limitations in funding and awareness. While a lot of attention goes to recycling initiatives, more focus could be given to loops higher in the R-ladder, such as repair and reuse, recognizing that, informally, these activities are applied broadly in Senegal, simply out of necessity.

The same approach is recommended as for the previous niche, while complementing it with educational and awareness campaigns for changing behaviours and with tailored incubator programmes, such as from Orange Corners, empowering small-scale initiatives in the fields. The Institute for African Management expressed interest to take part in tackling this niche.

Application of Dutch Government Support

Government tools may support local SMEs identifying market opportunities and create market access. Centre for the Promotion of Imports from developing countries (CBI) could play an important role in the latter, as well connecting small enterprises to larger producers and processors (idem) or to European importers.

Business Matchmaking (see also B2match platform mission) is also a useful tool under this niche. Dutch expertise and finance may circular SMEs to scale-up their business.

Investment Readiness Support for SMEs is another tool mentioned under the Dutch Initiative for Circular Economy (I4CE) and may help local circular SMEs in finding the required investments to scale-up their businesses¹⁰⁵. As part of this tool, interested Dutch and European investors are invited to join several meetings to better understand their what type of investments they are looking for. The requests feedback into a local call for Senegalese applicants followed by the selection of candidates for a training program (and subsequent matchmaking). The training covers elements such as 1) circular business model support, 2 support in organisation of financial records and better administration, and 3) gaining familiarity with (foreign) investors and requirements in pursuing them. At the end of the project, the investment readiness of all participants is assessed, and a portfolio is built which will be distributed amongst potential investors. This is followed by matchmaking between investors and local circular SMEs. The training and matchmaking could be organised by the embassy, or by an external **consultant together with the embassy's support**.¹⁰⁶

Develop and build capacity through academic and vocational training

Tackled opportunities:	
17 Develop and expand the curricula for universities and vocational training centres	17b Develop and expand the curricular framework for circular economy taught at vocational training centres
17a Develop and expand the curricular framework for circular economy education at universities	18 Educate population on proper sorting and its relevance

Implementing partners: Taaral, University of Bambey, Institute of Environmental Sciences, UCAD, RVO, Dutch Embassy, Dutch universities and businesses, 3FPT
Beneficiaries: Ministry of Employment and Vocational Training (Senegal)

¹⁰⁵ Source: Bindels, E., von Knobloch, K., & van Ek, H. (2020)

¹⁰⁶ Source: Bindels, E., von Knobloch, K., & van Ek, H. (2020)

In order to build urgently needed capacity related to circular economy in the country, the principles, strategies and approaches of the circular economy have to be passed on to pupils, students, households and working professionals through education and vocational training.

For the educational part, there is a need to expand and align the offer of academic institutions through:

- Development and alignment of circular economy curricula and modules in basic education and universities;
- Establish internship programmes to provide practical experiences related to circular economy and connections between students and their future employers;
- Collaboration with other universities from other African countries or Europe, e.g. through conferences or student exchanges and the promotion of innovative solutions produced by students;
- Train the trainer;
- Scholarships for students specialising in science related to circular economy.

Certain bodies, such as the University of Bambey or the Institute of Environmental Sciences, already have taken some initiatives related to circular economy curricula. These efforts can be further advanced and promoted across all academic bodies in the country while making sure listed activities are well aligned with each other. This can be coordinated by the Ministry of High Education together with Dutch academic stakeholders, recognising and embracing cultural differences in educational approaches and the understanding of circular economy. RVO and the Dutch Embassy can recruit and connect relevant Dutch universities that may be able to share their knowledge and experiences when it comes to the content development, educational tools as well as procedural arrangements.

Beyond educational and academic institutions, capacity can be built through vocational training centers. Tailored training programmes for the waste management and plastic sector can transfer knowledge, skills and know-how to enable the workforce for the circular economy. At the same time, vocational centers can offer an introductory course for those people that would like to start developing skills in circular economy. This can be based on a curriculum developed for universities but complemented with practical training sessions.

A key local implementing partner is the Ministry of Employment and Vocational Training or the Institute of Environmental Sciences that can take over a coordination role to integrate circular economy training courses into every vocational training center in the country.

As Taaral also engages in educational measures, the multi-stakeholder platform can become a partner for practicalities, e.g. to make connections between different educational bodies and between students and businesses through facilitating networking, workshops and conferences.

Application Dutch Government Support

This niche could be supported by RVO's Knowledge-to-Knowledge (K2K) Tool by working with one knowledge institute in Senegal on *Curriculum Development*. As the University of Bambey already has made some effort in this direction already and has expressed interest in collaboration, it may qualify as the perfect candidate. The initiative can be supported by the Ministry of Education and Vocational Training that also expressed openness to get involved in addressing this niche. The project would start

with mapping the different needs and ambitions of the institute, and potentially the broader educational sector. In this exercise, the private sector should be included too as it may inform on important knowledge and skills necessary to have in practice. Once captures in the Terms of Reference, the PSD coach and the Embassy will determine the implementing partner.

In order to maximise the effect, the developed curriculum needs to be streamlined throughout the different universities. It should also serve as a foundation for primary and secondary school curriculum as well as vocational training courses. This could be done as a follow-up activity conveyed through the multi-stakeholder platform or a separate *Knowledge Sharing Platform* set up by RVO. The Embassy, the PDS coach and contracted implementor would meet with stakeholders of relevant institutions to (1) present and promote the developed curriculum with the aim to align this to the offer of national universities and (2) adjust the developed curriculum to primary and secondary schools as well as vocational training centers. This will require a few working sessions or workshops as well as the elaboration and dissemination of the results. Beyond this assignment, the educational institutions should keep up their exchange of experiences and collaborations, also with the private sector (related to internships and optimization of content taught) to maximise the long-term effect of circular economy specific education and apprenticeship in Senegal. This could be initiatives through a *Networking Event* under the MindsetTool.

Finally, in order to ensure that the materials are correctly taught and transmitted, the teachers should undergo a *Train the Trainer* course which can be a separate but connected project under the K2K Tool.

As a complement to the mentioned, the elements of *Student Challenge* and *Free Online Training* under the K2K Tool could also be explored to enhance innovation and motivation as well as expand the reach of dissemination, respectively.

6.2 Recommendations for RVO and the Dutch Embassy

The three key thematic areas that have been identified for the Dutch public sector to come in are related to the Senegalese policy framework, infrastructure investments as well as collaboration.

Making existing policy framework more effective and expanding it

Tackled opportunities:	
1 Making existing policy framework more effective	11 Provide support in the application of EPR systems
2 Complement existing policy landscape	
2a Develop Ecodesign regulation	
2b Revisit EPR in Single Use Plastic Law	

Implementing partners: UNIDO, RVO, Dutch Embassy, Taaral, Invest International
Beneficiaries: Ministry of Environment (Department on Pollution Control and Prevention and Green Finance Department, Senegal), Ministry of Employment and Vocational Training (Senegal), Ministry of Higher Education, Research and Innovation

The current regulatory framework for waste management is fragmented, outdated, poorly enforced and **only has a weak direct connection to circular economy – for instance**, the most pressing gap related to circular economy, is the fact that the treatment and processing of solid waste is not regulated at all¹⁰⁷.

¹⁰⁷ GIZ (2021) [Sector brief Senegal: Solid Waste Management and Recycling](#)

This requires revision and updating in a way that regulation sufficiently support the circular economy. This especially concerns:

- Environment Code (Law No. 2001-01) recognises that environmental conservation must be integrated in national policies addressing socio-economic development and cultural issues. It outlines key instruments for biodiversity; desertification; forest management; air pollution; urban planning; and hazardous waste disposal. Besides hazardous waste, the management and treatment of important waste streams should be added that are yet missing, such as MSW and industrial waste should be added.
- Regulation on deposit of solid waste (Decree No. 74-388) should be updated and supported with standards and enforcement mechanisms.

In terms of regulation related to plastics, there have been significant efforts being made on the policy level that aim to support the reduction of plastic consumption and safe circulation of the material. However, it has been observed that difficulties impeding proper implementation occur from the private sector side. This calls for a revision based on public consultation to adjust legal requirements, develop sufficient supporting tools/instruments/mechanisms and enhance the understanding of this recent regulation. This relates to the Single Use Plastic Law, specifically its elements on EPR and the tax on products made from non-recyclable material. For both elements, the private sector is challenged to find a cost-efficient way to implement and comply with the legal requirements. Accordingly, short-term priority have: (1) setting the terms and conditions for implementing Extended Producer Responsibility (EPR), (2) definition of the procedures for applying the specifications, (3) consumer information, (4) integration of control by the administration.

In the last 30 years, the Dutch have been working on solidifying their waste management regulatory framework. Nowadays, it stands on the following five pillars: (1) order of preference for waste management, (2) stringent waste treatment standards, (3) planning on national level, (4) producer responsibility and (5) use of various (economic) instruments to stimulate prevention and recycling¹⁰⁸. Thus, Dutch experience and know-how sourced through this transformation is considered as very useful **to access on Senegal's journey towards circular economy. During the development of the plastic law**, the Government was already looking for advisory, though unsuccessfully. However, the Ministry of Environment still highly welcomes external advisory support for revision as well as the development of the decree for effective application and other potentially supporting instruments¹⁰⁹. For this, 2-3 Dutch experts that ideally have played a role in the relevant Dutch policy developments (as part of the PSD tool i.e. PUM¹¹⁰) can be recruited through an official call for tender by RVO or directly through the vast network of experts of RVO. For the EPR of plastics specifically, the advisory could be broadened to Dutch companies that can share their experiences of how they adjusted to legislation and how the embedded producer responsibility into their daily business operations and supply chain activities. More detailed feedback of how to best apply an EPR scheme, based on a conversation with Stichting Open, can be found in Annex F.

The last element of this niche recommends expanding the current legislation to the development of a national Ecodesign policy for plastic products, thereby becoming one of the front-runners among African countries. This policy would demand and regulate the production of environmentally friendly

¹⁰⁸ Ministry of Infrastructure and Water Management (n.d.) [Elements of Dutch waste management](#)

¹⁰⁹ Based on an interview with the Ministry of Environment on the 30/07/2022.

¹¹⁰ In Dutch: Programma Uitzending Managers

products in the country, by e.g. requiring a minimum share of recycled content to be used in new **products. While Europe, as one of Senegal's trade partners, regulate its internal market and imports in** accordance with it, developing alike for Senegal seems inevitable. As the development process of such comprehensive product policy can be lengthy, it is reasonable to start with one product group and later expand it to other products. Acquiring external advice from experts having taken part in the development and the revision of the EU Ecodesign Directive, conveyed through RVO and the Dutch Embassy, would be a valuable asset.

A first step forward, recommended by the Ministry of Environment, would be a meeting between the Ministry and RVO as well as the Dutch Embassy and other interested parties, such as UNIDO and the Ministry of Employment and Vocational Training, to explore more concrete collaboration potentials and define what is possible in the given framework.

Application of Dutch Government support

This niche would fit under the coverage of the Government-to-Government Tool, specifically the *Government Capacity Building*. This would ideally go hand in hand with the current developments of the national circular economy roadmap. The capacity building activities under the PSD Tool would be well aligned with the policy interventions planned under the roadmap and under this niche. As a first step, RVO and the Embassy can steer the mapping and analysis of all relevant stakeholders, including the Ministry of Environment, that already has expressed openness and interest to collaborate, as well as relevant Dutch stakeholders qualified to support the revision and extension of the existing policy landscape in Senegal related to waste and plastics. Within a subsequent meeting, the stakeholders would meet and align expectations; based on a conversation with the Ministry of Environment, this could be hold face-to-face hosted by the Ministry. Further steps would be to prepare a project plan and a project mission based on the needs and necessary but realistic changes to be made, before the actual capacity development can start.

Enhance multi-stakeholder collaboration and stakeholder support

Tackled opportunities:	
4 Establish a multi-stakeholder national framework between Government, private sector, academia and civil society	14 Establish one-stop-shop for recovery activities and actors
11 Provide support in the application of EPR systems	18 Educate population on proper sorting and its relevance

Implementing partners: Taaral, RVO, Holland Circular Hotspot

Beneficiaries: Ministry of Environment (Department on Pollution Control and Prevention, Senegal)

Currently stakeholder's interaction is rather low in Senegal in the fields of circular economy which results in poor interconnectedness of the different initiatives. In order to improve the collaboration across different stakeholder groups¹¹¹, a platform dedicated to advance development towards circular economy steering coherence among different initiatives could lead to reaching common goals faster and more effectively. At the same time, this platform could also serve as a one-stop-shop where **stakeholders – especially from the private sector – can access ad-hoc support** for their daily operations and transformational processes which represents a facilitating element. Taaral that, amongst other

¹¹¹ There is a plurality of actors involved in waste and plastics management at local or national level, including not only waste producers, but also ministries and agencies, local authorities, private service providers and concessionaires, non-governmental organisations, research institutes and international cooperation.

functions operates as a platform for stakeholders in the plastic sector, has expressed openness to this advancement. This should be developed in line with the Eco-organism to be developed under the Single Use Plastic Law.

Instead of establishing this platform from scratch, it could be built upon the structures of Taaral, The Alliance for Advancing Recycling, Awareness and Livelihoods in Plastics¹¹², which was meant to connect public and private stakeholders in the plastic sector. With the support of RVO, their services could be broadened to other ecosystem actors, such as civil society and academia. Thus, they could represent the central platform where plastic related issues are discussed, solutions are developed, and support is offered. This could include to:

- host frequent multi-stakeholder round table policy dialogues and public consultations on policy proposals (together with USAID) related to plastics in collaboration with the Ministry of Environment and Sustainable Development, e.g. consultation of the plastic tax or the revision of the public-private-partnership law;
- establish a one-stop-shop for businesses to access technical support and advisory together with Haskè Conseil and Ventures, e.g. related to the implementation of the EPR scheme or plastic tax;
- matchmaking;
- **connect foreign investors with ‘approved’ circular** economy initiatives and potentially facilitate CSR investments for Dutch businesses;
- facilitate networking, e.g. convey students to circular businesses for internships;
- hold workshops on proper waste separation for households;
- empower waste pickers and small initiatives.

Dutch stakeholders can, on the one hand, be involved in the expansion of the platform while, on the other hand, Dutch businesses, investors, experts, initiatives and platforms¹¹³ can become part of the platform as a means to transfer knowledge and experience, become a mentor for certain Senegalese businesses or find business partners (matchmaking). This could be in form of an online format and occasional exchanges on a project basis. Another opportunity for RVO and its members to come in is to offer financial support to Taaral as MAVA Foundation, the main financial contributor, will stop its support in October this year. Until now, they have contributed up to EUR 400 000, plus partial support of circular initiatives based on the conditional contribution of the local private sector. Operational costs of Taaral amount up to EUR 300 000 per annum. If RVO decides to support the running costs of the platform, it should be coupled to an exercise working on a draw-back strategy that supports working towards self-sufficiency and independency from external parties to an extent possible. This may include incrementally increasing the private sector contributions to an extent possible or working with membership fees (potentially partially subsidized by the Government).

Application of Dutch Government support

Aiming to build upon the structures of the Taaral platform and expanding their services, the niche could be supported by the Circular Platform and the Government-to-Government (G2G) Tools.

¹¹² Founded under the Plastic Pact in support of MAVA Foundation, Ellen MacArthur Foundation and WRAP. On a daily basis it is run and supported by Haskè Conseil and Ventures.

¹¹³ For instance, the *National platform plastics recycling*.

The *platform* to be developed under this niche does not only intent to link Senegalese stakeholders, but also to connect with Dutch frontrunners. Thus, RVO and the Embassy can play a facilitating role in this process by identifying important stakeholders and facilitating actors, both from Senegal and the Netherlands. The next step would be a round table discussion on stakeholder expectations and the way forward with, among others Taaral, Holland Circular Hotspot, Ministry of Environment and selected frontrunning stakeholders representing all stakeholder groups (i.e. civil society, private sector, educational institutions, investors and public sector). Together with Taaral, the Embassy can stimulate the follow-up process to the implementing stage.

Another approach could be the application of the G2G Tool through cooperation with multilateral organisations as a means to leverage large investments and structural changes. Alignment and collaboration with multi-lateral initiatives may create synergies amongst the different stakeholder groups. Common events can include joint conferences, missions or workshops to expand the offer and promote services of the multi-stakeholder platform.

Channel investments into waste infrastructure (public and private sector)

Tackled opportunities:

5 Channel investments into waste infrastructure

7 Update waste collection equipment, techniques and storage sites

Implementing partners: RVO, Taaral, Invest International

Beneficiaries: Ministry of Environment (Department on Pollution Control and Prevention, Senegal)

Senegal lacks fundamental structural elements in its waste management to enable a circular economy on a large scale. This includes waste collection (including insufficient or non-existence of roads that limit the coverage of waste management services, as well as transport and collection equipment¹¹⁴) and **treatment facilities – the Ministry of Environment has stressed the need for hazardous waste treatment facilities¹¹⁵**. This situation is mainly due to difficulties related to weak financial investments covering high investment costs for technology and infrastructure projects as well as increasing waste treatment costs.

Even though not enough, there are several initiatives underway that support this gap. These include projects under PROMOGED, AfDB large-scale financing for governments of green bonds, efforts of BOS PSE collaborating with the Ministry of Environment to mobilise funds through Green PSE, the project by CARITAS Kaolack implementing waste systems in municipalities and cooperatives or Invest International being involved in a large-scale sewer construction in Baie de Hahn. An important part of addressing these niches is to estimate the financial gap related to waste collection and treatment in the country, to compile an overview of the waste infrastructure and treatment projects as well as their investment volume. This will help identifying remaining needs that RVO, the Dutch Embassy and other Dutch companies or investors can contribute to. The initial study could be publicly tendered through RVO or directly assigned to an expert team within RVO working in close collaboration with local experts and the Ministry of Environment. Once done, public and private investments into Senegalese waste infrastructure and treatment can be promoted internationally through RVO networks. Beneficiaries of the funds can be both public and private initiatives. For private sector initiatives specifically, Taaral

¹¹⁴ Such as trucks, tractors, wagons, tricycles, bins, containers, individual bins, etc.

¹¹⁵ According to a conversation with the Ministry of Environment on the 30/06/2022.

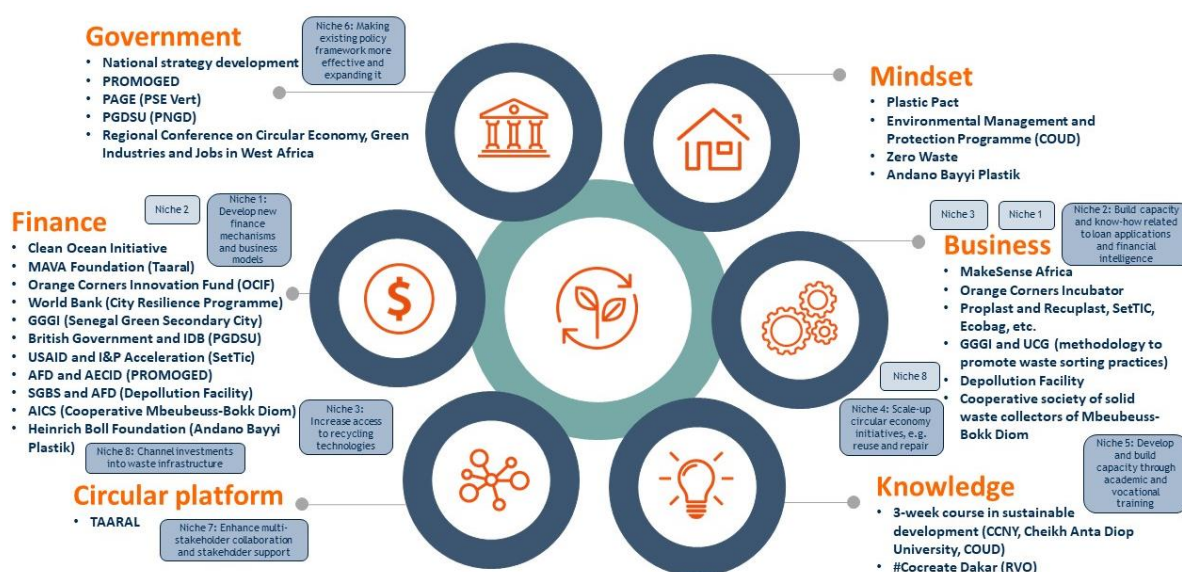
has expressed openness to support the distributions of funds to initiatives they are connected to. Either way, it is important to build and connect this niche - rather representing an enhancement of existing initiatives - with the project PROMOGED to make sure learning are shared and potential bottlenecks are identified before-hand. Additionally, this niche should be linked to the revised PPP Law, once amended.

Application of Dutch Government Support

Despite the fact that this niche is targeting the public sector, an economic mission clustered under the Business-to-Business Tool could be conducted to identify either the financial gap or to define and explore a more concrete opportunity related to one specific company. The missions with relevant Dutch stakeholders, preferably from the private and public sector (that should have a clear picture of the investments and trade opportunities in Senegal), will be organised by RVO’s mission team in close collaboration with the Embassy. The Embassy’s role can be to steer for a relevant program, finding the right (local) participants and supporting with (especially local) logistics.

To summarise the different niches introduced, the figure below provides an overview how they fit into the landscape of existing initiatives.

Figure 6-1 How niches fit into existing initiatives



Source: own figure, based on RVO PSD Tools slide.

7 Conclusion

Identified niches

The study showed that Senegal is making progress towards the circular economy, but it also concludes that there are still many barriers preventing the country from doing so as well as opportunities to further advance circular economy in the country. In total, out of 19 opportunities, 8 were identified for **the Dutch stakeholders to engage in Senegal's circular economy, showing that there is (unlocked) potential for collaboration**. Support from the Dutch may focus on strengthening the governance system (revision of regulations, strengthening of its effective implementation), improving the waste infrastructure (and channel investments), as well as supporting (local) SMEs in setting- and scaling-up businesses, accessing financing and technologies. Additionally, capacity building is another identified niche, with a focus on academic and vocational trainings.

Dutch expertise

The Dutch are dominant in developing and improving (PET) recycling technologies, but also in the set-up and effective implementation of EPR schemes (for instance for e-waste). Based on the interviews and a survey with Dutch stakeholders it can be concluded that there is an interest from some companies to engage in Senegal, in particular **if it is part of the organisation's mission and/or vision** work in African countries. Another important reason for Dutch companies to expand to Senegal/Africa is **an existing demand for the company's expertise (e.g. setting up a EPR system)/technology and/or expertise in waste management and treatment**. However, the Dutch private sector stakeholders identify several challenges when engaging in African countries (including Senegal). Those challenges relate to the financing of projects, lack of knowledge about the local context, including the entrepreneurial ecosystem and the enabling environment.

Dutch Government Support

Several Dutch Government Support tools could be utilised to ensure effective cooperation between Dutch and Senegal stakeholders on the prioritised niches. So are Government-to-Government Tools, specifically the *Government Capacity Building*, important tools for RVO and the Embassy to discuss with e.g. Ministry of Environment existing and proposed legislation in relation EPR in the Single Use Plastics Law, sharing best practices and inviting experts provide technical assistance. An economic mission (Business-to-Business Tool) could be conducted to identify either the financial gaps in relation to investments in waste infrastructure or to define and explore more concrete opportunities related to one specific company.

Regarding business opportunities, tools can support local SMEs identifying market opportunities and create market access. The Dutch government may support the Senegalese and Dutch entrepreneurs in capacity building for business plan development and accessing finance, e.g., by the set-up of platforms and trainings. Partners for International Business programme and Business Matchmaking (see also B2match platform mission) are also useful tools to connect Dutch- and Senegal private sector stakeholders, and to establish public-private partnerships. Tools could further enable the matchmaking between Dutch investors and local circular SMEs to find the right investors to scale-up their business.

Regarding the last niche on education, the RVO's Knowledge-to-Knowledge (K2K) Tool could be relevant by working with one of the Senegalese knowledge institutes on Curriculum Development. As a complement to the mentioned, the elements of Student Challenge and Free Online Training under the

K2K Tool could also be explored to enhance innovation and motivation as well as expand the reach of dissemination, respectively.

Reflection on potential risks

As the identification process of the opportunities and niches is rather elaborate, the risk of not finding enough stakeholders interested in the themes to engage in their implementation can be assessed as rather low. Through thorough consultation of Senegalese stakeholders, it is ensured that each niche has one to two interested parties. This, however, needs to be extended by, first, promoting the niches that RVO finally decides to go for to both Senegalese and especially Dutch stakeholders – this especially applies to the niches related to the reuse and repair as well as the development of new financing mechanisms as the rate and concreteness of responses for these two niches has been the lowest. This will still try to be mitigated through a dedicated working session with Dutch stakeholders. Second, clear roles, responsibility and a code of collaboration have to be defined to ensure a structured and aligned way forward.

Another potential risk that is worth reflecting upon is the risk of not finding not enough funding which is required to realise the niches. It is not uncommon, especially not in the context of developing economies, such as in Africa, that investments are highly depended on external funding sources, e.g. FDI or grants from international organisations. Depending on the scale of application, some of the niches may require significant investment. Therefore, foreign investment represents a necessary and inevitable element. However, the goal should be to build systems that are self-sufficient in the long-run. Respectively, it is reasonable to access external funding for the capital investment costs (CAPEX), while aiming for establishing promising and resilient (business) models that can at least cover the operation costs (OPEX) in order to ensure independency and self-sufficiency.

At the same time, as several niches addressing the private sector, an opportunity to mitigate the finance risk is to tap into private sector resources, both from Senegalese and Dutch businesses. The revised Public-Private-Partnership Law (Senegal) promises to facilitate and guide the partnership between the public and private sector.

Role of Dutch Government and businesses

Pursuing collaboration between Senegalese and Dutch stakeholder is considered as very appropriate and timely. As a front-runner in circular economy, both on the technical and institutional level, there is large potential for sharing learnings and lessons-learned as well as directly contributing to the implementation of the proposed niches.

On the Government side, this may include the provision of targeted advisory services through a **government official or a consultant having taken part in the Government's work, i.e. the development** of national policies and strategies supporting the circular economy (overarchingly and sector-specific). In addition to this, the niches can be promoted through the well-developed foreign policy endeavors and network. At the same time, the Government may play a key facilitating role in the building bridges between Dutch and Senegalese stakeholders, initiating and motivating for the exchange. Besides advancing the circular economy in Senegal, the collaboration is likely to further strengthen the Dutch-Senegalese friendship and cooperation that has been developed in the last years.

On the business and academia side, the support opportunities relate, first, to provide advisory and knowledge to enable Senegalese stakeholders with important know-how and skills to successfully pursue the niches and their activities. More specifically this support may be on circular business models, financing mechanisms or financial intelligence. Second, Dutch businesses are best placed to provide technical support and share technological know-how if not even their technologies. Third, the Dutch private sector can support in leveraging financial resources in different forms (e.g. loan with low interest rates or leasing of equipment) that entrepreneurs and start-ups struggle with. The main motivation for Dutch businesses in doing so is the exploration of business opportunities in Senegal or investing under their CSR portfolio. Both ways require a foundation of trust. RVO and the Dutch foreign policy endeavors represent an optimal ground for this.

Timeline

When it comes to planning the implementation of the proposed niches, it is recommended to categorise them into the following short-, medium-, and long-term steps. For the short-term, priority should lay on those niches addressing the biggest and most urgent need, potential in terms of interest of stakeholders and areas where the least initiatives are ongoing. This applies to the niches relating to repair and reuse, the development of circular economy education and training as well as financial intelligence. At the same time, as there is good momentum of collaboration and cooperation between Haske and Orange Corners, this should be followed up immediately and be grown throughout the medium- and long-term. For the medium-term, the niches on policy and recycling should be realized, which however already needs action and plans being made in the short-term. Finally, for the long-term – **considering the time it can take** –, financial mechanisms should be developed both on the Governmental and financial institution level. Similar as for the medium-term niches, it already requires preparation and actions in the short- and medium-term.

8 Annex A - Scope of the circular economy

The concept of circular economy is broad and overarches a range of related topics, including resource efficiency, waste hierarchy, shift to renewable resources both for material and energy purposes, and more. This breadth is one of the strengths of the circular economy.

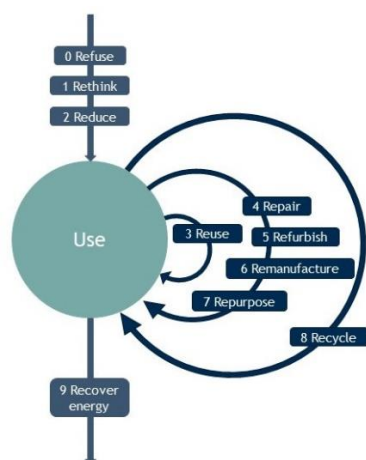
Circular economy provides an alternative model to the currently linear economy and can support the transformation of consumption patterns to meet the Sustainable Development Goals (SDGs). The ultimately desired system produces neither waste nor pollution due to circulating materials and products at their highest quality within the production system. The understanding of this study considers energy as a component and/or a by-product of closing loops. Thus, a circular economy prioritises renewable energy sources and promotes the efficient use of energy. **At materials' end of life**, the circular approach seeks to reintroduce them into the biosphere to restore natural capital, including biodiversity and ecosystems. A circular economy minimises the use of natural resources and the generation of environmental impacts, replaces hazardous chemicals with less dangerous ones and contributes to improvements in human well-being.

In short, moving toward a circular economy is based on three overarching principles:

- Designing out waste and pollution;
- Maintaining the value of materials and products and keeping them in use as long as possible;
- Regenerating natural systems.¹¹⁶

The transition towards a circular economy demands governments, businesses and consumers to rethink **production and consumption patterns and redefine the concept of “growth” into one that is decoupled** from consuming natural resources. This complex challenge demands a holistic approach and lifecycle thinking addressing the whole value chain of products: raw material extraction and processing, design and manufacturing, use and consumption, as well as end-of-use management (Figure 2-1). Moreover, collaboration and cooperation among all stakeholders are key for the transition towards a circular economy.¹¹⁷

Figure 8A-1 Circular economy and R-strategies



Source: own figure based on PBL.

¹¹⁶ Ellen MacArthur Foundation (2021) [What is the circular economy](#)

¹¹⁷ UNDP (2020) [A 1.5°C world requires a circular and low carbon economy](#)

With its comprehensive approach and regenerative intention, circular economy has a positive impact on all types of capital: financial, human, social, and natural. Besides phasing out waste and reducing pollution, a circular economy can also be linked to GDP growth and job creation at local and national levels by linking production more closely with consumption.

To achieve the transformation from a linear to a circular system while reaping these benefits, a circular economy touches upon practices and solutions covering a wide range of strategies across different stages of the value chain. Those strategies vary from design solutions aiming to reduce the use of raw materials, to the use of less wasteful and renewable materials (**‘reduce’ principle in circular economy**), to refurbishment or repairing practices to extend or repurpose products’ life (**‘reuse’ principle**), to the treatment for obtaining secondary materials to be used in other applications (**‘recycle’ principle**).

Complementing and expanding on the figure above, Table 2-1 explains each R-strategy. The higher the R-strategy in the table below, the higher the environmental benefits and cost savings. Even though circular economy policies are often related to waste topics, it is important to realise that only two of the nine R-strategies apply to products’ end-of-life phase. The circular economy actions with the most economic and environmental potential affect earlier stages of the lifecycle of products and are focused on waste prevention and the extension of product lifetime.

Applying the concept of a circular economy to the African and Senegalese context requires an **understanding of the continent’s needs and dynamics. This includes embracing the prevalent ‘make-do culture’ and resulting circular economy practices** with respect to the planet and its ecosystems which have been developed and successfully applied over the last decades.

Table A-1 Explanation of R-strategies



Smarter product use and manufacture	0 Refuse	Make product redundant by abandoning its function or by offering the same function with a radically different product
	1 Rethink	Make product use more intensive (e.g. through sharing products, or by putting multi-functional products on the market)
	2 Reduce	Increase efficiency in product manufacture or use by consuming fewer natural resources and materials
Extend lifespan of product and its parts	3 Reuse	Reuse by another consumer of discarded product which is still in good condition and fulfills its original function
	4 Repair	Repair and maintenance of defective product so it can be used with its original function
	5 Refurbish	Restore an old product and bring it up to date
	6 Remanufacture	Use parts of discarded product in a new product with the same function
	7 Repurpose	Use discarded product or its parts in a new product with a different function
Useful application of materials	8 Recycle	Process materials to obtain the same (high grade) or lower (low grade) quality
	9 Recover	Incineration of materials with energy recovery

Source: own table.

9 Annex B - Detailed description of the status quo

B-1 Key stakeholders

The table below summarises the roles and challenges of each stakeholder group in Senegal.

Table B-1 Overview of stakeholder groups, their roles and challenges

Stakeholder	Actors	Activities (CE-related)	Gaps
Government	<ul style="list-style-type: none"> • Municipalities; • Ministries (Environment and Sustainable Development; Health and Social Action; Urban Planning, Housing and Public Hygiene); • UCG 	<ul style="list-style-type: none"> • Prevent and reduce pollution; • Production of legal and regulatory standards, rules and regulations complementary to the Environmental Code (decrees) to promote environmentally sound waste management; • Develop national waste management strategies; • Implementation of a waste management system; • Implementation of recovery and treatment programs; • Implement equipment and infrastructure for waste collection, sorting, recovery and storage; • Support and strengthen the capacities of local authorities 	<ul style="list-style-type: none"> • Technical capability gaps; • Lack of financial resources, i.e. for infrastructure and equipment financing; • Difficulties in tracking and controlling environmentally classified facilities; • Certain provisions relating to the reduction of pollution are not respected; • Slow progress on institutional reforms
Businesses and small initiatives	<ul style="list-style-type: none"> • Domestic formal and informal companies • Individuals 	<ul style="list-style-type: none"> • Waste (pre)collection, transportation, separation; • Resale from wholesalers or craft upgraders; • Sometimes, activities under service contract 	<ul style="list-style-type: none"> • Lack of financial resources; • Difficult waste recovery conditions that restrict the recovery • Inappropriate or lacking equipment; • Informality; • Difficulties in upscaling despite broad experiences; • Difficulties related to marketing • Life-time of recycled products
Academic stakeholders and research institutions	<ul style="list-style-type: none"> • Universities; • Research institutions 	<ul style="list-style-type: none"> • Research, i.e. on applicability of governmental and private initiatives to society; • Promoting exchange among global researchers; • Advancement of curricular, i.e. in universities 	<ul style="list-style-type: none"> • Lack of cross-cutting research • No or little link between research and CBO or industry; • Research funding challenges
Civil society	<ul style="list-style-type: none"> • NGOs 	<ul style="list-style-type: none"> • Research • Capacity building • Public awareness • Waste recovery 	<ul style="list-style-type: none"> • Insufficient sustainability of recycling projects by beneficiaries; • Insufficient consideration of

Stakeholder	Actors	Activities (CE-related)	Gaps
			their role by institutional actors; <ul style="list-style-type: none"> • Inability to create long-term sustainable and self-sufficient projects
Financial institutions	<ul style="list-style-type: none"> • Domestic and foreign financial institutions 	<ul style="list-style-type: none"> • Financing and funding private businesses 	<ul style="list-style-type: none"> • Insufficient knowledge to mainstream CE-principles into their decision-making; • Lack of appropriate financial instruments; • Lack of sufficient liquidity to support businesses
International organisations	<ul style="list-style-type: none"> • International development banks; • International NGOs; • International political unions • International economical unions 	<ul style="list-style-type: none"> • Capacity building; • Providing funding; • Research; • Awareness rising 	<ul style="list-style-type: none"> • Insufficient cooperation with organisations on the ground; • Inability to create long-term sustainable and self-sufficient projects

B-2 Circular economy initiatives and programmes

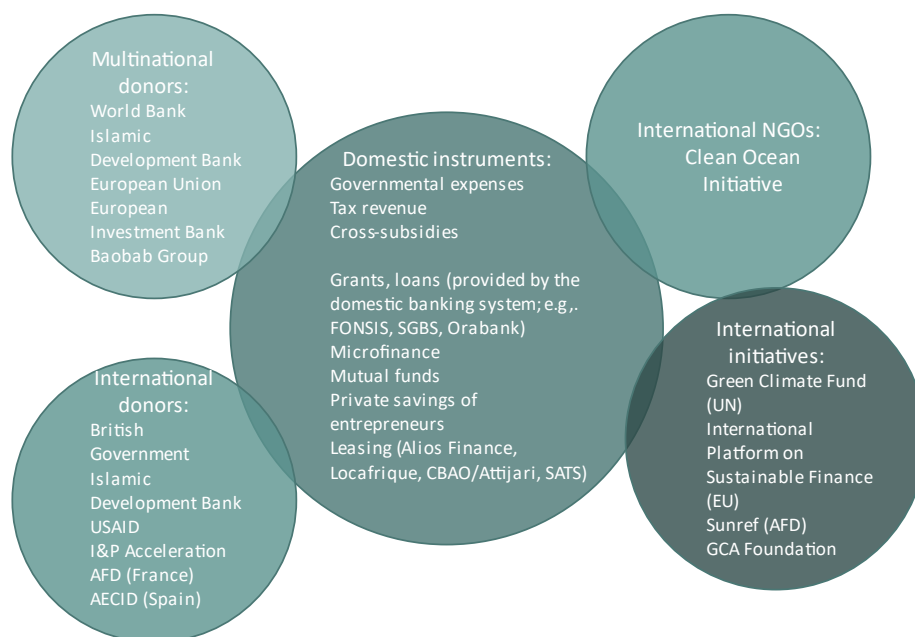
Table B-2 Overview of circular economy initiatives in Senegal

Government initiatives	Private sector initiatives	Academic/research initiatives	Financial mechanisms/support	Civil society initiatives	Platforms, networking, incubation
ADIE WEEE Dismantling Centre (Waste (WEEE dismantling))	DELVIC (Sanitation (Electricity production from faecal sludge))	Institut des Métiers de l'Environnement et de la Métrologie (IMEM) (Production of Bio Charcoal)	MAVA Foundation pour la nature (Plastics (Plastic pact))	Sangalkam Farmers' Federation	makesense Africa (Incubator (Sustainable entrepreneurship))
PROMOGED (Installation of waste recycling infrastructure)	BIOTOSS (Agriculture (Organic fertilizers))		City Resilience Program (MSW management)	Toos Ma (Mboro)	#CoCreateDAKAR
Senegal (SN2) Green Secondary Cities (Waste, (Wastewater, plastic and WEEE management))	PROPLAST			PROMOVAL of enda ECOPOP (Biodiversity (Valorisation of fishery products in Joal-Fadiouth))	Andando Bayyi Plastik
Developing a national circular economy roadmap	SOGAS			Cooperative society of solid waste collectors of Mbeubeuss-Bokk Diom	
PNGD	TAARAL				
PAGE					

Source: own table.

B-3 Financial ecosystem

Figure B-1 Overview of financing instrument relevant for the waste management sector in Senegal



Source: own figure.

10 Annex C - Overview of efforts done by the Dutch public and private sector

C-1 Overview of efforts done by the Dutch Government and other parties relevant to Senegal and CE

EU policies and action plans are important factors in shaping the Member States' policies and their foreign affairs. Thus, the European policy background will be introduced before discussing the Dutch efforts to move towards a Circular Economy.

C-1-1 European circular economy policies

At the EU level, the European Green Deal (EGD) fosters the transition towards a circular economy. As a major pillar of the EGD, the European Commission has adopted the Circular Economy Action Plan (CEAP) in March 2020. CEAP combines several legislative and non-legislative measures, addressing the whole life cycle of products from their design over consumption to End of Life treatment. The action plan promotes resource consumption within planetary boundaries and minimized waste generation.¹¹⁸ Plastics is one of its priority sectors. To tackle challenges related to this sector, the Commission will propose mandatory requirements for recycled content and waste reduction measures, covering products such as packaging, construction materials and vehicles. For example, the Directive 94/62/EC on packaging and packaging waste sets a new target for collected plastic packaging waste for recycling. For plastic, the rate should reach 50% by 2025 and 55% by 2030.¹¹⁹ Those goals also are included in the **EU Action Plan 'Towards a Zero Pollution for Air, Water and Soil'**.¹²⁰

Of particular interest are single-use plastic products, plastic bags i.e., and fishing gears containing plastics.¹²¹ The Directive on Single-Use Plastics (SUP) asks Member States to take measures to achieve reduced consumption of SUP products for which sustainable alternatives are still lacking.¹²² Additionally, the Directive on SUP enforces EPR, making producers pay for awareness-raising, waste collection and further costs for clean-ups of lightweight plastic carrier bags.¹²³ In 2021, the EU enforced bans on exporting hazardous or difficult to recycle plastic waste from the EU to non-OECD countries, aiming to reduce inappropriate waste treatment.¹²⁴ Furthermore, the Commission considers improved standardization in monitoring and labelling as essential.¹²⁵ In the future, the Commission wants to tackle challenges related to micro, bio-based and biodegradable plastics.

Box C-1 Relevant strategies and Directives related to plastics

Relevant strategies and Directives are:

- Plastics Strategy ([Link](#))
- The Plastic Bags Directive ([Directive \(EU\) 2015/720](#))
- Directive on single-use plastics ([Directive \(EU\) 2019/904](#))

¹¹⁸ European Commission (n.d.) [Circular economy action plan](#)

¹¹⁹ European Commission (n.d.) [Packaging waste](#)

¹²⁰ European Commission (n.d.) [Zero pollution action plan](#)

¹²¹ Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 [on the reduction of the impact of certain plastic products on the environment](#) (Text with EEA relevance), EP, CONSIL, 904, 155 OJ L (2019)g

¹²² Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 [on the reduction of the impact of certain plastic products on the environment](#) (Text with EEA relevance), EP, CONSIL, 904, 155 OJ L (2019)

¹²³ European Commission (n.d.) [Plastic bags](#)

¹²⁴ European Commission (n.d.-b) [Plastic waste shipments](#)

¹²⁵ European Commission (2020) [A new Circular Economy Action Plan](#): For a cleaner and more competitive Europe, no. 98 final (2020)

- Packaging and Packaging Waste Directive ([Directive 94/62/EC of 20 December 1994](#))
- Plastic Waste shipments ([Delegated Regulation \(EU\) 2020/2174](#); amending the [Waste Shipments Regulation](#))
- Initiative on microplastics ([Upcoming](#))
- Policy framework on bio-based, biodegradable and compostable plastics ([Upcoming](#))

The initiatives of the EU are guiding for its Member States. However, individual action will become even more important in the light of the UN Environment Assembly (UNEA-5) held in Nairobi in March 2022. The UN Member States agreed to implement a legally binding agreement by 2024 to tackle plastic pollution. This resolution demands increased recyclability of plastic products and emphasizes the need to protect marine areas.¹²⁶ This further underpins the role of coastal areas, such as Senegal and the Netherlands.

C-1-2 Dutch circular economy policies

The Government-wide Programme for a circular economy, launched in 2016 aims to develop a circular economy in the Netherlands by 2050.¹²⁷ The interim objective is to achieve 50% reduction in the use of primary raw materials (minerals, fossil and metals) by 2030. In 2017, the government, together with 180 Dutch parties, signed the National Raw Materials Agreement in 2017¹²⁸, containing agreements on how to accelerate the circular economy transition.

In the subsequent year, the parties to this agreement developed so-called Transition Agendas for the five sectors economically most valuable and impactful, and at the same time environmentally the most damaging: biomass and food, plastics, manufacturing, construction and consumer goods. The national CE programme and the agenda is followed-up by a Circular Economy Implementation Programme 2021-2023¹²⁹ under the responsibility of the Ministry of Infrastructure and Water management, which was last updated in October 2021. This annual update provides an overview of circular economy developments and new activities that are being launched in the Netherlands, as well reports on the progress of activities that were already under way as part of the Circular Economy Implementation Programme.

Extended Producer Responsibility (EPR) is a widely used policy in the Netherlands and the EU in general (in line with EU Directives as described in the section above). EPR schemes are applied e.g. on batteries, end-of-life vehicles, EEE, and packaging. In the Netherlands in particular, there are EPR schemes on car tyres and single used plastics.¹³⁰¹³¹

¹²⁶ UNEP (2022) Draft resolution. [End plastic pollution: Towards an international legally binding instrument](#)

¹²⁷ A Circular Economy in the Netherlands by 2050

¹²⁸ <https://www.government.nl/documents/discussion-documents/2017/01/24/national-agreement-on-the-circular-economy>

¹²⁹ See <https://www.rijksoverheid.nl/documenten/rapporten/2021/09/30/uitvoeringsprogramma-circulaire-economie-2021-2023>

¹³⁰ Zie <https://www.pbl.nl/sites/default/files/downloads/pbl-cpb-2021-extended-producer-responsibility-design-functioning-effects-4511.pdf>

¹³¹ See <https://www.afvalcirculair.nl/onderwerpen/afvalregelgeving/producentenverantwoordelijkheid/>

Since July 2021, products such as plastic plates, cutlery, straws or plastic shopping bags are prohibited in the Netherlands, in line with the EU SUP Directive 2019.¹³² Small plastic bottles up to 1 litre can be deposited through the EPR Scheme.

C-1-3 Landscape of actors in circular economy in the Netherlands

In the Netherlands, there are many private sector initiatives contributing to the transition to a circular economy. Those are SMEs, investors, accelerators of start-ups, but also knowledge-sharing platforms (Table C-1). There are also many public private partnerships, like the [Holland Circular Hotspot](#), that aim to connect circular economy partners, share knowledge and stimulate entrepreneurship. As mentioned above, there are many events organized to stimulate the circular economy transition, such as the annual event ‘Week of Circular Economy’¹³³ to showcase best examples and to connect parties.

Table C-1 Non-exhaustive list of Dutch stakeholders relevant the Sector Report

Stakeholder type	Organisation	Sector
Public sector/government	Ministry of Foreign Affairs directorate International Entrepreneurship (DIO)	Cross-sector
	Development Agency (RVO Netherlands Enterprise agency)	
	Ministry of Foreign Affairs - DDE	
	Ministry of Foreign Affairs - IGG	
	Ministry of Infrastructure & Water Management	
Knowledge centres	Plan Bureau voor Leefomgeving PBL	
	CE Delft	
	Ellen MacArthur Foundation (international)	
Universities	Utrecht University	
	TU Delft	
	Leiden University	
	TU Eindhoven	
	Vrije Universiteit Amsterdam	
Knowledge sharing & network platforms/organisations to support SMEs	Circle Economy	
	Holland Circular Hotspot (HCH)	
	Circular Stories	
	Het Groene Brein	
	NLinBusiness	
	Sustainable Inclusive Business, Nairobi	
Nederland Circulair Versnellingshuis		
Private sector	KIVO Recycling B.V.	Plastics
	KRAS Recycling B.V.	
	4PET Recycling B.V.	
	Attero Hoofdkantoor	
	Broeckx Plastic Recycling B.V.	

¹³² See <https://www.rijksoverheid.nl/onderwerpen/afval/regels-voor-wegwerpplastic#:~:text=Het%20verbod%20geldt%20sinds%203,mogen%20nog%20wel%20worden%20verkocht.&text=Ook%20moeten%20producenten%20minimaal%2090,gelden%20sinds%201%20juli%202021>.

¹³³ <https://www.rvo.nl/actueel/evenementen/week-van-de-circulaire-economie-2022>

Stakeholder type	Organisation	Sector
	CeDo Recycling B.V.	
	Coolrec Plastics	
	Cumapol Emmen B.V.	
	Daly Plastics B.V.	
	Gebr. Hummel Recycling B.V.	
	Kunststof Recycling Van Werven B.V.	
	Lankhorst Engineered Products B.V.	
	Morein B.V.	
	Ovimo Plastics	
	Peute Plasticrecycling B.V.	
	Rodepa - De Paauw Plastic Recycling BV	
	SUEZ Recycling and Recovery Netherlands BV	
	Van der Vleuten Kunststofindustrie B.V.	
	Recyclebedrijf Stiphout Plastics	
	Veolia Polymers NL B.V.	
	Viol B.V.	
	Wellman Recycling	
	Wessem Port Services Group B.V.	
	UPP	
	Waste2wear	
	Black Bear	Waste management
	Searious Business for Plastics	Plastics
	Plastic Pact NL	Plastics
	Sweep Smart	Waste management
	Colubris Clean Tech	Waste management
	A4Waste	E-waste
	Stichting Open	E-waste
	Closing The Loop	E-waste
	SNEW	E-waste
	Indorama	Plastics
	Dutch Pet Recycling	Plastics
	The Waste Transformers	Waste management
Ocean Cleanup	Plastics	
MetaSus	Waste management	
Blackwood	Waste management	
Financial institutes relevant for funding projects in Senegal	FMO - The Dutch Development Bank	Cross-sector
	EIB - European Investment Bank	
	AFD - Agence Française de Développement	
	EBRD - European Bank for Reconstruction and Development	
	AFDB - African Development Bank	
	Invest International	

C-2 Survey questions and results sent to Dutch stakeholders

10.1.1 C-2-1 Survey results

General analysis

The survey aims to gain an overview of the status quo of the engagement and interest of Dutch **companies in circular waste management and plastic in Senegal. The online survey “Niches in Circular Economy in Senegal for Dutch Businesses and Government” was launched on 22 March 2022 and has** been open for answers until 07 April 2022. In total, 54 Dutch businesses active in circular waste management and plastics have been identified via desk research and snowball sampling (see Annex F). All companies have been contacted, using personalised emails explaining the survey content and the value of their contribution and sharing the link to the survey. Two reminders were sent: on 28 March 2022 and 04 April 2022. The survey was conducted via CheckMarket and included both open and closed questions (see Annex D for questionnaire). In total, there were 12 completed responses, and three incomplete responses. The incomplete responses are not included in the analysis below. One respondent indicated to be not able to answer the questions as the person felt that the survey assumed that there is an interest in working in a circular economy in Africa.

Out of twelve respondents, four are categorised as being active in waste management, six respondents are active in the plastic sector, and two respondents are both active in waste management and plastic sector (e.g., recycling of both bio-waste and plastics). The survey was answered by 5 micro-enterprises (41%), 2 small enterprises (16%), 2 medium-sized enterprises (16%) and 3 large enterprises (25%) (see Table C-2).

Table C-2 Company size of respondents

The size of your company	Total	%
Micro enterprises: 1 to 9 employees.	5	41
Small enterprises: 10 to 49 employees.	2	16
Medium-sized enterprises: 50 to 249 employees.	2	16
Large enterprises: 250 employees or more.	3	25
Total	12	100

Regarding the question of how circular **economy is incorporated in the respondent’s business activities**, seven respondents (58%) said it is included in the production process, 6 respondents (50%) include CE in the post-consumer phase of the product and 4 respondents (33%) stated it is part of the core product or service (see Error! Reference source not found.).

Table C-3 Incorporation of the circular economy in own business activities

How is circular economy incorporated in your (business) activities? (multiple options possible)	Total	%
In the production process, e.g. the share of recycled input materials	7	58
In the post-consumer phase of the product, e.g. biodegradable products, recycling, deposit systems to increase returns	6	50
It is part of our core product/service, e.g. reusable cups or car sharing	4	33

Qualitative answers show that various R-strategies are addressed, including rethink, reuse, refurbish, recover and recycle. In total, seven organisations are active in up/recycling practices. The other five organisations provide other type of services/products:

- One organisation offers a service to become waste neutral as a company/person;
- One organisation is a manufacturer of plastics;
- One organisation offers supply systems for sorting recycle-materials;
- One organisation implements EPR procedures for e-waste;
- One organisation offers advice on circular economy practices;

Seven respondents are active in Africa. Out of this, three are active in Senegal¹³⁴. Four out of five micro enterprises are active in Africa, with two of them being active in Senegal. One out of two medium-sized enterprises engage in Africa, more precisely in Senegal. And two out of three large enterprises are active in Africa, out of which one engages in Senegal. None of the small enterprises operates in Africa (see Error! Reference source not found.).

Table C-4 Dutch companies active in Africa/Senegal

Company size	Active in Africa				Out of which active in Senegal			
	Yes		No		Yes		No	
	Total	%	Total	%	Total	%	Total	%
Micro enterprises	4	80	1	20	2	50	2	50
Small enterprises	0	0	2	100	-	-	-	-
Medium-sized enterprises	1	50	1	50	1	100	0	0
Large enterprises	2	66	1	33	0	50	2	50
Total	7	58	5	41	3	57	4	43

Respondents with a presence in Africa and Senegal

Of the twelve completed responses, seven respondents are active in Africa. To the **question ‘is your organisation active in Senegal?’**, **one respondent answered yes, indicating that the company helped setting-up plastics recycling practices in Senegal.** This includes the delivery of the technical infrastructure, like grinders and providing overall support in the organisation of those processes. **Two other respondents answered ‘other’ to this question and one respondent specified that its company organises Africa Road trips¹³⁵, of which one will be planned in Senegal in 2022/2023. The other company that responded ‘other’ indicated to work on a project basis in Senegal.**

The organisation active in Senegal indicated to contribute to circular economy in Africa and Senegal specifically, by knowledge sharing, technological & financial support, and by providing educational training of Senegalese/African staff. As reason for its participation, it selected the following options:

1. **It is part of the organisation’s mission and/or vision (e.g. contribute to a more circular economy in the World/Africa/Senegal)**
2. **In Africa/Senegal, there is demand for my company’s expertise/technology**
3. It is financially attractive (attract new customers, low employment costs, etc.)

The organisation further stated that the knowledge of plastic recycling in Senegal, i.e., materials, markets and machinery is poor, and that it is just a matter of time when European customers will recognize the marketing value of African Plastics.

¹³⁴ Note that only one respondent indicated to be active in Senegal. Two other respondents answered ‘other’ and based on their qualitative inputs, we believe they can be categorised as being active in Senegal. See subsequent section for more information

¹³⁵ The road trips consist of educational and cleaning operations

To the questions about challenges related to engaging in Africa/Senegal, the organisation active in Senegal indicated that financial support from the (Dutch) government is imperative as there is a high risk that at a certain point there will be no financial means (e.g./ because a customer didn't pay), leading to a stop of the project as there are little financial reserves. This mainly applies to new projects as more mature projects may be able to survive. Naturally, the organisation indicated the need for further support in funding. Interestingly, the organisation also emphasized the need for the Dutch government to get in contact with relevant high-level Senegalese government officials. With support from the Senegalese government, it will be easier to start and maintain recycling facilities, ultimately benefiting the Senegalese people. It was also mentioned that it helps to give recycling companies some exposure, like in Gambia where recycling and recycling companies are on TV every three months.

Of the five respondents¹³⁶ that are active in Africa, but not yet active in Senegal, one respondent **indicated to be interested to expand its business to Senegal. Three respondents answered 'other' and one respondent did not answer the question.** The one company interested explained that they are constantly expanding and looking for new opportunities to expand to other countries and Senegal is certainly on their list. Moreover, the organisation collects waste in countries where waste management is not yet up to standard, making Senegal a logical choice.

Of those that clicked on 'other', the following written answered appeared:

- Unknown depends on proceeding of insights
- Not momentarily, as we are currently finishing a pilot project in Ghana. Depending on the results we decide our way forward
- **We don't have any plans yet, momentarily we prioritize the EU countries.**

Three respondents that are only active in Africa answered the questions 'What would be the reason to participate in circular economy in Senegal?'. All three believed that it is part of the organisation's mission and/or vision to contribute to a more circular economy in Africa/Senegal. In addition, two respondents indicated that there is a demand for their company's expertise/technology. Options *not* selected were:

- It is financially attractive (attract new customers, low employment costs, etc.)
- It increases the product value (marketing)
- Because our competitors do that as well (competitional advantages)
- Because the company gains legal advantages (beneficial policies)

Respondents not yet active in Africa/Senegal

Five of the twelve respondents are not active in Africa. This includes one micro-, two small-, one medium-sized- and one large company. All of these companies indicated that they are not interested in engaging in circular waste management/plastics in Senegal. However, one micro enterprise could imagine supporting another company starting a similar business in Senegal. One small enterprise explains the lack of interest by being focused on the Netherlands at the moment, but this might change if they expand their business. Additionally, the large enterprise indicated that they are solely focused on the Netherlands. This company further states that while they trade waste and recycling flows with other European countries, they have no experience in trading with Africa, making it too risky to open a

¹³⁶ Here we include the respondent that plans to be active in Senegal in 2022/2023

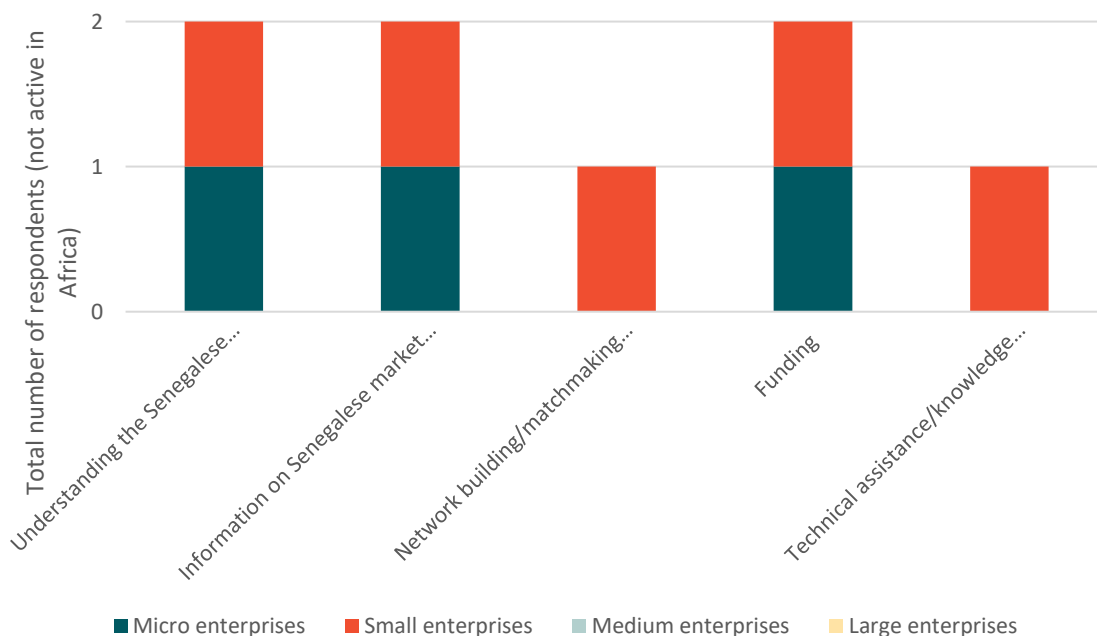
business there. However, the same company acknowledges that “experience from the Netherlands could be useful to apply in Senegal.”

To the question ‘What would be the reason to participate in circular economy in Africa/Senegal? (multiple options possible)’ two of the companies responded that they would participate in the circular economy in Africa/Senegal if there would be a demand for the company’s expertise/technology. Two companies would participate if it would be part of the company’s mission and/or vision to contribute to a more circular economy in the world, Africa or Senegal.

All the companies not active in Africa think that they could contribute to a circular economy in Senegal/Africa by sharing knowledge. One of the small companies elaborates that they do not own facilities but would be able to share knowledge on EPR schemes. The second small company declares to be able to contribute via technological support and educational training of local staff. The latter is also applicable to the micro enterprise.

Regarding the question ‘In which areas would you need further support to start engaging in Senegal? (Multiple answers possible)’ the micro- and small enterprises indicated that if they would start business in Senegal, they would need governmental support in understanding the Senegalese context, including the entrepreneurial ecosystem and the enabling environment (40% of all 5 non-active companies), information on the Senegalese market and resources, for example, due to a feasibility study (40%), and funding (40%). Furthermore, small companies indicate the need for support in network-building and matchmaking with the Senegalese private sector (20%) as well as technical assistance and knowledge sharing (20%), respectively.

Figure C-1 Indicated need for support to engage in Senegal












C-2-2 Contribution of Dutch companies

Furthermore, all companies, besides the micro enterprise, which is not sure yet, think that companies in Senegal can learn something from their business regarding circular economy.

Five of the eleven respondents indicated that they could teach the Senegalese stakeholders how to convince consumers to participate in a circular economy. Figure C-2 further illustrates that Dutch companies indicated that they could help with 1) reporting, 2) changing existing production processes and 3) re-designing certain products and services (N=4). In addition, three ‘other’ options were added:

- To set up a high-quality recycling facility and EPR schemes
- Creating of business models for the recycling of post-consumer plastics
- Market studies for sustainable solutions.

Figure C-2 Expertise that Dutch stakeholders can use to support the Senegalese stakeholders

	Count	% of responses	%
How to convince customers	5		45%
Reporting	4		36%
How to change already existing production processes	4		36%
How to re-design a product/service	4		36%
If others, please specify:	3		27%
Marketing	2		18%
How to increase the return rate of products	2		18%
How to attract investors	1		9%
I don't know yet	1		9%

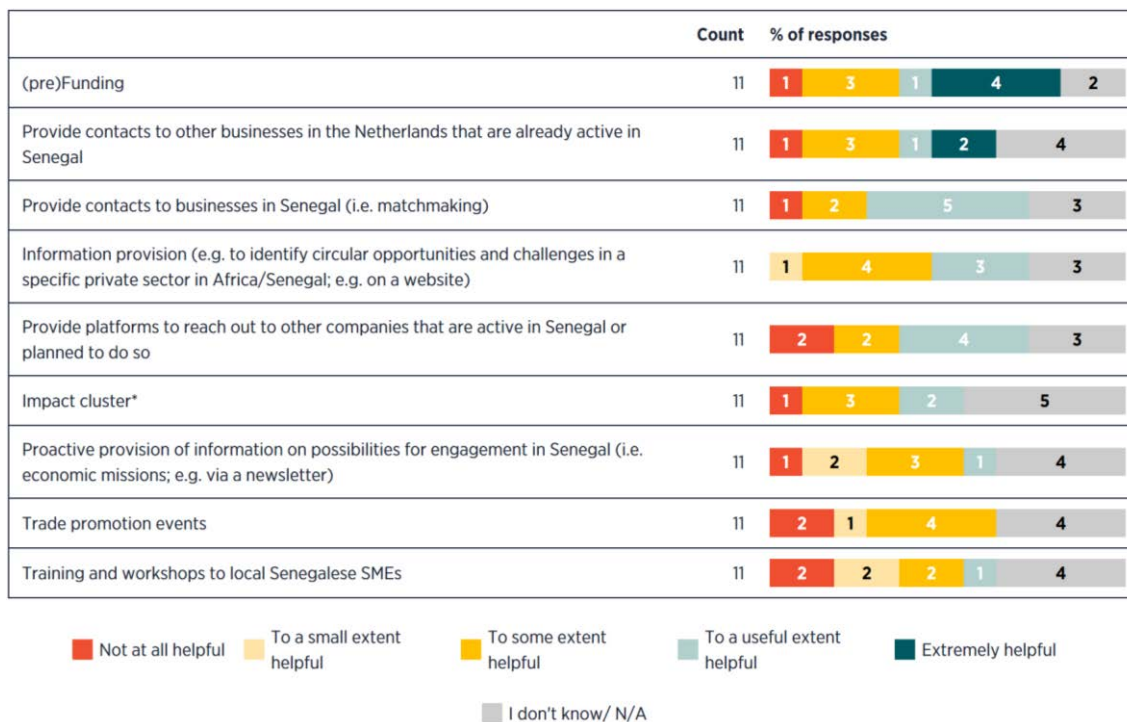
N 11

Additionally, a large company (not active yet in Africa) mentioned they could teach Senegalese companies to “Set up a good waste collection system, set up extended producer responsibility schemes for more recycling, set up good recycling facilities, proper landfill operations with biogas extraction, etc.” A large enterprise active in Africa indicated that it could teach about “reporting as part of corporate governance to increase awareness in civil society of waste management”.

C-2-3 Type/level of support required

Eleven respondents answer the questions regarding required support by the Dutch Government. As presented below, most **required support is ‘(pre)-funding’, followed by ‘providing contacts to other Dutch business that are active in Senegal’ and ‘provide contact to business in Senegal (i.e. Matchmaking)’**. In particular, **‘matchmaking between Dutch and Senegalese businesses’** is considered as useful by the non-active in Africa micro enterprises. The non-active in Africa micro enterprises would find it **‘some extent helpful’ if the Dutch Government would provide information, e.g., to identify circular opportunities and challenges in a specific private sector in Africa/Senegal e.g., on a website**. Most respondents do not have a strong opinion on 1) an impact cluster, 2) the provision of training and workshops to local Senegalese SMEs, and 3) information provided via a newsletter (see Figure 6-2).

Figure C-3 Perceived helpfulness of different support tools of the Dutch Government?



11 Annex D - Dutch Interview and survey questions

D-1 Interview questions

The questions below aim to guide the discussion and will be further tailored according to the **interviewee's role and experience in the Dutch circular economy landscape:**

Date	<i>dd-mm-yyyy</i>
Location	<i>online / offline - where</i>
Time	<i>HH:hh</i>
Interviewees	<i>name surname (Trinomics)</i>
Participants & organisation	<i>name surname (organisation)</i>
	<i>name surname (organisation)</i>
	<i>name surname (organisation)</i>

Introduction

This interview is part of a service contract to produce a Sector Report on circular economy in Senegal, identifying niches within the waste management and plastic sector for the Dutch government and private to engage with Senegal. Trinomics B.V., ACEN Foundation, and GIGA Initiatives are implementing the service contract commissioned by The Netherlands Enterprise & Development Agency (RVO) and the Netherlands Embassy in Senegal.

The report will ultimately inform how the Netherlands can support Senegal in their ambition to become a more circular economy. As such, this interview serves to better understand:

- 1) the Dutch expertise in circular economy (in particular the plastics sector);
- 2) how the Dutch expertise can support Senegal in their transition towards a more circular economy;
- 3) the interest of the Dutch private sector to engage in circular economy activities in Senegal;
- 4) the required level and type of support from the e.g. the Dutch Government to enable this.

The interview will take around 60 minutes. The interview notes will be shared shortly after the interview to ensure that we have accurately reflected your views. Below we specify how we will treat the interview results.

Table D-1 Anonymity options

Anonymity options	Agreed treatment
The final version of the interview notes (including your personal details) will be shared with the project teams.	Record agreement
Your views (sometimes quoted) will be treated as anonymous and assigned not to you, but to your organisation. However, if you prefer, the views can be assigned to a generic organisation type (instead of to your organisation). Please express your preferred option.	Record agreement

Anonymity options	Agreed treatment
<p>With your permission, we will record and take notes during the interview. The recording is only for internal purposes, to help ensure that the notes capture accurately the information you provide. If you agree to being recorded but feel uncomfortable at any time during the interview, we can turn off the recorder at your request.</p>	<p>Record agreement</p>

Interview questionnaire

Introductions

1. Could you please introduce yourself by stating your background, position within your organisation and your role in the transition towards a more circular economy.

Expertise in the Netherlands

2. The scope of this study includes waste management (waste generation, collection, treatment and disposal), with a particular focus on plastics. To start with a broad and open question: in what field(s) related to the above-mentioned scope is the Netherlands a front-runner (e.g., in terms of policies, strategies, research, business development etc.)?
3. What would you say that the Dutch parties can offer to other countries in terms of expertise, capacities, tools related to circular economy/plastics?

Opportunities and challenges in Africa and Senegal in particular

4. What are according to you the biggest challenges in the transition towards a more circular Africa/Senegal, focussing on plastics?
5. To what extent can Dutch public authorities, companies or knowledge centre support Senegal to tackle those challenges?

Transferable expertise

6. To what extent is there interest from Dutch companies to engage in CE activities in Senegal?
7. Are there any inspiring (local/international) circular economy entrepreneurs in the Netherlands that already collaborate with Senegalese stakeholders?
 - a. How did those collaborations started?
 - b. How are they supported (e.g. public funding, technical assistance etc.)?
 - c. What are the challenges they face?
 - d. Are those initiatives ready to be scaled-up?
8. What could help the Dutch companies in their efforts to engage in CE activities in Senegal?
9. What is the role of the Dutch Government here (enabling environment)?
10. Are you familiar with the Private Sector Development tools developed by the Dutch Government (RVO) and the Initiatives for a Circular Economy (I4CE) in particular?
 - If yes, what is your experience working with the Private Sector Development tools?
 - If no, what tools/measures are found most relevant when addressing African/Senegalese circular economy challenges/supporting Dutch private sector to engage with Senegal?

Closing questions

11. Do you want to add something to the interview that has not been discussed before?

12. Are there any companies/stakeholders with relevant skills/technologies and/or those that are already looking into Africa that you would recommend that we reach out to?

D-2 Survey questions

Introduction

This survey is part of a service contract to produce a Sector Report on circular economy in Senegal, identifying niches within the waste management and plastic sector for the Dutch government and private sector to engage in Senegal. Trinomics B.V., ACEN Foundation, and GIGA Initiatives are implementing the service contract commissioned by The Netherlands Enterprise & Development Agency (RVO) and the Netherlands Embassy in Senegal.

The report will ultimately inform how the Netherlands can support Senegal in its ambition to become a more circular economy. As such, this online survey serves to better understand:

1. the Dutch expertise in circular economy (in particular the plastics sector)
2. how the Dutch expertise can support Senegal in its transition towards a more circular economy;
3. the interest of the Dutch private sector to engage in circular economy activities in Senegal;
4. the required level and type of support from the e.g. the Dutch Government to enable this.

By participating in this survey, you allow us to make the findings as applicable to reality as possible. Your input would be highly appreciated and allows us to gain further insights into the Dutch circular economy expertise and the interest of Dutch companies to engage in African or Senegalese circular economy activities. Your input will be helpful to draft our recommendations to the RVO. We will share the final report with you, which may provide you with important insight into opportunities to engage **in Senegal's circular economy.**

The survey will take around 10 minutes.

Please answer all questions that you can. If you are not able to answer a question, there is no need to respond.

Your answers and/or additional information sent will be treated strictly confidentially! The RVO will not receive the individual responses or any data that will allow individual respondents to be identified. Data will be provided in an aggregated and anonymized format.

Note that at the end of the survey, there is an option to upload supporting documents (e.g., figures supporting any of the options considered) and additional information. You can also email the documents to the contact address below. Please feel free to do so.

Any questions?

Please submit your response by 7 April 2022. Responses after this day will not be taken into account. If you have any questions, please send an email to maja.biemann@trinomics.eu.

If you do not have time to complete all questions, please just complete what you can and select 'finish' at the end of the survey. We have tried to minimize the time required to complete the survey.

We very much appreciate your input!

Thank you in advance!

Survey questions

Please indicate:

1. The name of your organisation or company*
2. Your name
3. Company size
 - a. Microenterprises: 1 to 9 employees.
 - b. Small enterprises: 10 to 49 employees.
 - c. Medium-sized enterprises: 50 to 249 employees.
 - d. Large enterprises: 250 employees or more.
4. How is circular economy incorporated into your (business) activities (multiple options possible)?*
 - a. In the production process, e.g. the share of recycled input materials.
 - b. It is part of our core product/service, e.g. reusable cups or car sharing.
 - c. In the post-consumer phase of the product, e.g. biodegradable products, recycling, deposit systems to increase returns.
 - d. Others.

Please explain your answer [open answer textbox]

5. Is your organisation active in Africa?*
6. Is your organisation active in Senegal?*

In-depth questions

If the answer to questions 5 or 6 is **'yes'**:

7. How does your company contribute to a circular economy in Africa/Senegal (multiple answers possible)?
 - a. Knowledge-sharing
 - b. Technological support
 - c. Financial support
 - d. Educational training of local staff
 - e. **I don't know.**
 - f. Others
8. Please describe your activities
[open answer textbox]
9. What is/was the reason to participate in CE in Africa/Senegal (multiple options possible)?

- a. **It is part of the organisation's mission and/or vision (e.g. contribute to a more circular economy in the World/Africa/Senegal)**
- b. **In Africa/Senegal, there is demand for my company's expertise/technology**
- c. It is financially attractive (attract new customers, low employment costs, etc.)
- d. It increases the product value (marketing)
- e. Because our competitors do that as well (competitive advantages)
- f. Because the company gains legal advantages (beneficial policies)
- g. Others:

Please explain your answer [open answer textbox]

10. What are the challenges that your organisation faces in starting/expanding your activities in Africa/Senegal?

[Open answer]

11. In which areas would you need further support to expand your activities in Senegal (multiple answers possible)?

- b. Understanding the Senegalese context (entrepreneurial ecosystem and the enabling environment)
- c. Information on Senegalese market and resources (e.g. feasibility study)
- d. Network building/matchmaking with Senegalese private sector
- e. Funding
- f. Technical assistance/knowledge sharing

Please explain your answer [open answer textbox]

If the answer to question 5 or 6 is 'no':

12. Are you interested in expanding your business to Africa/Senegal?*

- a. Yes
- b. No

Please explain your answer [Open answer textbox]

13. What would be the reason to participate in CE in Africa/Senegal (multiple options possible)?

- h. **It is part of the organisation's mission and/or vision (e.g. contribute to a more circular economy in the World/Africa/Senegal)**
- i. **In Africa/Senegal, there is demand for my company's expertise/technology**
- j. It is financially attractive (attract new customers, low employment costs, etc.)
- k. It increases the product value (marketing)
- l. Because our competitors do that as well (competitive advantages)
- m. Because the company gains legal advantages (beneficial policies)
- n. Others:

Please explain your answer [open answer textbox]

14. How can your company contribute to CE in Senegal?

- a. Knowledge-sharing
- b. Technological support
- c. Financial support
- d. Educational training of local staff
- e. **I don't know yet.**
- f. Others

Please explain your answer [open answer textbox]

Please explain your answer [open textbox]

15. What, in your opinion, can companies in Senegal learn from your enterprise regarding the circular economy?

- a. How to attract investors
- b. How to convince customers
- c. Marketing
- d. Reporting
- e. How to change already existing production processes
- f. How to re-design a product/service
- g. How to increase the return rate of products
- h. Others

Please explain your answer [open answer textbox]

16. In which areas would you need further support to start engaging in Senegal?

- a. Understanding the Senegalese context (entrepreneurial ecosystem and the enabling environment)
- b. Information on the Senegalese market and resources (e.g. feasibility study)
- c. Network building/matchmaking with Senegalese private sector
- d. Funding
- e. Technical assistance/knowledge sharing

17. How helpful do you think would the following aspects provided by the Dutch Government be to your company?

Table D-1 Survey table

	Not helpful at all	to a small extent helpful	To some extent helpful	To a moderate extent helpful	To a large extent helpful	I don't know/N/A
Information provision (e.g. to identify circular opportunities and challenges in a specific private sector in Africa/Senegal)						

	Not helpful at all	to a small extent helpful	To some extent helpful	To a moderate extent helpful	To a large extent helpful	I don't know/ N/A
Proactive provision of information on possibilities for engagement in Senegal (i.e. economic missions)						
Provide contacts to businesses in Senegal (i.e. matchmaking)						
Provide contacts to other businesses in the Netherlands that are already active in Senegal						
Provide platforms to reach out to other companies that are active in Senega or planned to do so						
(pre)funding						
Trade promotion events						
Impact cluster*						
Training and workshops for local Senegalese SMEs						

* a cluster of Dutch companies and knowledge institutes (preferably together with a local partner) can position themselves in a promising market, forming a so-called Impact Cluster (IC). This IC will simultaneously contribute to local private sector development and capacity building. The central objective is to jointly enter a new market and to exchange knowledge for the benefit of local development

Closing questions

1. Are there any documents that you would like to upload to support your answers?
2. Can we contact you to participate in a short interview to follow up on your responses?

12 Annex E - Overview of Dutch companies selected as survey participants

Table E-1 Overview of Dutch companies invited to the survey

Organisation
4PET Recycling B.V.
AgroFair
Attero Hoofdkantoor
Avantium
Black Bear
Blackwood
Broeckx Plastic Recycling B.V.
CeDo Recycling B.V.
Clear Rivers
Closing The Loop
Colubris Clean Tech
Coolrec Plastics
Cumapol Emmen B.V.
Daly Plastics B.V.
Dutch Pet Recycling
Eosta
Gebr. Hummel Recycling B.V.
Green Wave Plastics
Greentom
Indorama
Interface (Carpets)
KIVO Recycling B.V.
KRAS Recycling B.V.
Kunststof Recycling Van Werven B.V.
Lankhorst Engineered Products B.V.
MetaSus
Morein B.V.
Ocean Cleanup
Ovimo Plastics
Peute Plasticrecycling B.V.
Plastic Fantastic
Plastic Pact NL
PlasticWhale
PreZero (former Virol B.V.)
River Cleanup
Rodepa - De Paauw Plastic Recycling BV
Save Plastics
Searious Business for Plastics
SNEW
Stichting Open
Stiphout Plastics
SUEZ Recycling and Recovery Netherlands BV
Sweep Smart
The Great Bubble Barrier
The Waste Transformers
Trash Connect (Active in Ghana)
Umincorp
UPP
Van der Vleuten Kunststofindustrie B.V.
Van Plestic
Veolia Polymers NL B.V.
Waste2wear
Wellman Recycling
Wessem Port Services Group B.V.

13 Annex F - Summary of consultation of Senegalese stakeholders

Table F-1 Overview of stakeholder consulted

Organisation	Name
Ministry of the Environment and Sustainable development (responsible for controlling SWM and preventing and reducing pollution)	Baba Drame
	Assane Diop
	Yaya Barry
	Adrienne Diam
ADEPME, the governmental executive agency that provides services to SMEs	Rokhaya Ndiaye FALL
	Mbaye Diouf
ANPEJ (L'Agence Nationale pour la promotion de l'emploi des jeunes)	Maixent KABOU
	Boucar FAYE
	Gana CISSE
PNGD (Programme national de Gestion des Déchets)	
Ministère de l'Emploi et de la Formation Professionnelle	M Abdou Fall (Dir.FPT)
Ministry of Health and Social Welfare, is responsible for educating the population in matters of hygiene and public health	
Global Green Growth Institute	José Ramon Carbajosa
Ministry of Urban Planning, Housing and Public Health, which is responsible for supporting local authorities in their Solid Waste Management (SWM)	
UGG (national waste management agency)	Estelle Pod Ndour
	Mbicine Khady Sarr
	Al Assane Samb
	Abdoulaye Mbaye
	Idrissa Diatta
Presidence	Boubacar Mbodji
City of Dakar	Salimate Seck Wone
DER (Délégation générale à l'Entrepreneuriat Rapide des femmes et des jeunes)	
Conseil National du Patroato (Le Conseil National du Patronat du Sénégal (CNP) est une confédération de groupements professionnels d'employeurs)	
GANESHA	
Haaskè Conseil	Diadji Niang
	Madji Sock
Institut Africain de Management (IAM)	Tamsir Amadou SECK
SOMETA	
FABRIMETAL	
SIPLAST (Société Industrielle des Plastiques Sénégal)	
PROPLAST Industrie	Macoumba Diagne
Rufisac (Société Rufisqueoise de Sacs)	Sophie Tamin
SIAGRO/Groupe Kirene, uses plastic bottles to condition water for 0.5L, 1.5L and 10L	
SOBOA, uses plastic bottles to condition soft drinks for 33 cL and 1.5L	
Total Sénégal, aims at helping address the plastic pollution through its ESR	
Fumoa, specialist of plastic packaging	
Sodiaplast, plastic recycling	
GIE Kouta, local recycling solution	
3000 Ecomen, local recycling solution	

Ecobag, local recycling solution	Amy MBENGUE
Simpa	Khalil Hawili
DMS and representatives Holland Green Tech in Senegal	Mamadou Diaw
Senordur	Abacacar Thiam
SEN Services Plus Or-Dur, waste management and recovery	
E- Cover	Yaye Souadou Fall
SetTIC	Julie Repeti
Senrecycle	Mohamed Ndiaye
	Ndèye Yacine faye
From Dakar Fabrics	Mochtar Ba
Organic Fertilization	Jean Denis Faye
AMES (Alliance des Acteurs des Métiers de l'Energie au Sn)	Ibrahima MBAYE
Caritas - Kaolack	Paulette Thiaw
Collectif des Acteurs et Actrices contre le péril plastic	
Collectif Andando Bayi Plastik (Zéro déchets, JVE, Case verte...)	Kalfa BA
Enda Ecopop	Bachir Kanouté
Institut Supérieur de Développement Local	Dr Jeru ACHYL
Institut Supérieur de Management ISM / Meet Africa -AFD-UE	M. Mandiaye NDAO
JVE (Ecological benches for public spaces),	Djibril Niang
La Case Verte (Biodegradable packaging and kraft paper	Kalfa F. BA
Taaral (The Alliance for Advancing Recycling, Awareness and Livelihoods in Plastics)	
IMEM	Pr Adams Tidjani
Université Cheikh Anta Diop de Dakar (UCAD)	
ISE - Institute of Environment Science	Dr Jean Birane Gning
ITA (Institut Technologie Alimentaire)	
RSE Senegal (CSR among Senegalese orgs)	
University of Thies/ Bambey	Issa Samb
IRD (Institut de Recherche et Développement).	
3FTP (Fonds de Financement de la Formation Professionele)	
BAOBAB Group	
IUCN	Ibrahima Diop
ONUDI/FEM	Lhyxzas TCHIMBOUNGOU
SGBS (Société Générale de Banques au Sénégal)	
GGI	Alé Badara SY
Greenpeace	Awa TRAORE
Heinrich Böll Stiftung	Usha et Fatma Sylla

14 Annex G - Methodology and results of ranking the niches

G-1 Approach

As presented in the table below, the results of the ranking are the following: 14 niches rank high and very high (colored in dark and light green respectively). Those have scored with a rank between 13-15 and 16-18. All niches ranking lower (colored in yellow and red, ranking 9-12 and 6-8 respectively) have been dismissed for further consideration.

Box G-1 Disclaimer

We would like to stress that our assessment does only partially represent the willingness and openness of Senegalese and Dutch stakeholders to collaborate on specific niches. Once prioritised and agreed upon with the client, this will be investigated to the extent possible.

Table G-1 Results: Niches' ranking matrix

Criteria	Policy interventions						Business interventions															
	1	2a	2b	3	4	5	6a	6b	7	8	9	10	11	12	13	14	15	16	17a	17b	18	19
Dutch input (match)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓
Maturity of need	3	3	2	3	3	3	3	3	2	2	1	3	3	3	2	3	2	2	3	3	3	2
Economic opportunity	3	3	2	1	1	1	2	1	2	3	2	3	3	1	2	1	1	2	2	3	1	1
Positive impact	3	3	2	1	1	3	3	3	2	3	1	3	3	3	2	3	2	3	3	3	3	2
CSR risk	1	2	1	1	2	2	1	3	0	1	2	3	1	3	2	3	3	3	2	2	3	2
Competition	2	1	2	1	3	1	2	2	1	3	1	2	1	2	1	3	2	1	2	2	1	3
Potential donors	3	2	2	1	1	3	2	3	3	2	1	2	2	1	2	1	2	3	3	2	3	2
Total	15	14	11	8	11	13	13	15	10	14	8	16	13	13	11	14	13	14	15	15	14	12

Table G-2 Legend 1: niche names

Legend 1			
No.	Niche name	No.	Niche name
1	Making existing policy framework more effective	9	Explore potential synergies between e-waste and plastics
2	Complement existing policy landscape	10	Scale-up circular economy initiatives, e.g. reuse and repair initiatives
2a.	Develop Ecodesign regulation	11	Provide support in the application of EPR systems
2b.	Revisit EPR in Single-used Plastic Law	12	Increase involvement of informal sector and protective measure
3	Improve governance structure and cross-ministerial collaboration	13	Enhance digitalisation and flow of information
4	Establish a multi-stakeholder national framework between Government, private sector, academia and civil society	14	Establish one-stop-shop for recovery activities and actors
5	Channel investments into waste infrastructure	15	Establish plastic manufacturing association
6	Improve access to finance for private sectors, in particular MSMEs	16	Access private sector CSR budget to support CE projects and initiatives at the community level
6a	Develop new finance mechanisms and business models	17a	Develop and expand the curricular framework for circular economy education at universities
6b.	Build capacity and know-how related to loan applications and financial intelligence	17b	Develop and expand the curricular framework for circular economy taught at vocational training centres
7	Update waste collection equipment, techniques and storage sites	18	Educate population on proper sorting and its relevance
8	Increase access to recycling technologies	19	Offer support to NGO to become independent and integrate into the system

Table G-3 Legend 2: description of criteria

Criteria	Criteria description
Maturity of need	Relates to the 'urgency' of the need.
Economic opportunity	Concerns the viability of the business model / for policy interventions; it implies the potential economic effect on business models being affected by the policy instrument.
Positive impact	Includes the creation of impacts, such as job creation, gender equality, and environmental impact (e.g. reduced water and soil pollutions).
CSR risk	Includes the niche's impact on aspects of the triple bottom line, risk for negative media attention and aspects of transparent reporting
Competition	Defines the competition through other businesses or initiatives.
Potential donors	The likelihood that the niche will attract public/private finance or the fact that the niche falls into a finance profile of investors/banks.

Table G-4 Legend 3: maturity of need

Rank score	Implication
0	The niche's topic has no priority/need in Senegal.
1	The niche's topic is of low priority/need in Senegal.
2	The niche is of medium relevance; it is relevant to the local context, but there are more urgent topics to address.
3	The niche provides solution to a high priority/urgent demand.

Table G-5 Legend 4: economic opportunity

Rank score	Implication
0	The niche offers no economic opportunities.
1	The niche offers only low economic opportunities.
2	The niche may lead to medium economic potentials.
3	The niche has the potential to unlock significant economic opportunities.

Table G-6 Legend 5: Positive impact

Rank score	Implication
0	No impact expected.
1	Low impact on local societies and the environment expected.
2	Medium impact on local societies and the environment expected.
3	High impact on local societies and the environment expected.

Table G-7 Legend 6: CSR risk

Rank score	Implication
0	High attention in critical media, negative impact on multiple aspects of the triple-bottom line, reporting not possible
1	Medium attention in critical media, negative impact on one aspects of the triple-bottom line possible, reporting rather not possible
2	Low attention in critical media, no negative aspect on the triple-bottom line, reporting possible
3	No to low attention in critical media, improvements in multiple aspects of the triple-bottom line, reporting in place

Table G-8 Legend 7: competition

Rank score	Implication for policy interventions	Implication for businesses
0	Not applicable: the initiative is not ready to compete (yet)	Not applicable: the business is not ready to compete (yet)
1	High competition: the niche competes with interventions of various topics of interests that are perceived as important in a global context	High competition: all sizes of companies engage in an international competition
2	Medium competition: the niche competes with interventions of various topics of interests that are perceived as important, especially in the Senegalese context	Medium competition: medium-sized and large companies compete, especially in the Senegalese context
3	No competition or low competition: the niche competes with no interventions or with interventions that are also beneficial for the niche itself	No competition or low competition: small enterprises and start-ups compete, especially in the Senegalese context

Table G-9 Legend 8: potential donors

Rank score	Implication
0	Highly unlikely to be funded/financed
1	Interest in financing/funding announced but no attempts undertaken yet
2	Financing/funding for projects in Senegal that are similar to the niche/projects in another country
3	Financing/funding for projects directly addressing the niche are in place in Senegal

In the following, we provide an overview and reflection of opportunities identified within the status quo analysis. Needs, related gaps and areas of improvement of the Senegalese ecosystem on its path towards circular economy are pointed out in the current supply of solutions. At the same time, a summary of stakeholder feedback is presented under those niches that actors provided feedback for.

G-2 Policy and regulation

Opportunity 1: Making the existing policy framework more effective

As presented in sub-chapter 4.2, the current Senegalese policy framework for waste management is outdated and fragmented and, thus, needs to be updated and strengthened to align with circular economy principles (e.g., avoid the usage of landfills and illegal dumping). This requires, the following two actions:

- 1) Revisiting and examining existing legislation in terms of how circular economy principles and concrete targets can be embedded, such as in Law No. 2001-01 (Environment Code) which does not yet tackle the treatments of important waste streams; missing ones should be added and aligned with circular economy treatment priorities;
- 2) Effective implementation and enforcement of legislation, as well as creation of effective support mechanisms. This especially applies to Decree No. 74-338 (Regulation on deposit of solid waste) and Law No. 83-71 (Hygiene Code). To tackle this gap, both documents should be revisited and updated, considering that they date back to 1974 and 1983. A similar issue applies for the Single Use Plastic Law that prohibits single-use plastic products and imposes a mandatory EPR system for plastic products. For both aspects, implementation is lacking and not taken up neither by society nor producers (see also opportunities 2a and b).

An additional gap has been identified related to the waste collection taxes (Law No. 72-52 and Law No. 2013-10). The financial gains are meant to feed back into infrastructure investments to improve waste collection. However, two barriers limit the success of the taxes. First, the taxes are insufficiently collected and therefore weak in financing waste management, including infrastructure development. Second, the structures of the taxes allow for exceptions, restricting their efficiency. This especially applies for low-income areas. The low collection rate results in low financial resources generated through the tax.

Lastly, waste activities like sorting, recovery and sale of recovered products – in most cases informal – frequently operate on land for which they do not have a permit for (so called “Paaks”). This might be caused by the bureaucracy-heavy procedure or the necessity to formalise before being able to apply for the permit. This can lead to conflicts, for example with the Government, when land is claimed back for a different use. However, regardless of formal or informal activity, more dedicated spaces where waste activities can be realized need to be provided and approved by the Government.

Stakeholder feedback

The Dutch and Senegalese stakeholders agree on the importance of a solid policy framework, as well as its effective implementation and enforcement. Additionally, Senegalese stakeholders add the importance of considering already existing strategies that address this issue, especially emphasizing the need for alignment with PROMOGED, the plastic law and outcomes from the first International Meeting on Plastic waste management¹³⁷.

¹³⁷ Andersen (2022) [Moving ahead: A global deal to end plastic pollution](#)

Opportunity 2: Complement existing policy landscape

To complement the existing policy landscape, two actions are proposed:

- 2a - Develop Ecodesign regulations: A policy regulating the production with environmentally and socially friendly materials accessible in Senegal could be developed. This could improve shortcomings hindering the circular economy related to consumption and production, such as the production with low-quality and/or unrecyclable materials or the consumption of single-used **products – reinforcing each other (supply/demand). For high impact product groups, this could be mandatory where possible. Furthermore, this could be combined with a labelling system that communicates a product’s level of circularity to guide consumer choices. To enable this, the Government must ensure that sustainable materials are not more expensive than unsustainable ones. This could be achieved via VAT exemptions or reductions. Inspiration can be sourced from the European Sustainable Product Policy Initiative which was launched in 2022. A study analysing how this could be contextualised and applied in Senegal would be necessary.**
- 2b - Revisit EPR in the Single-used Plastic Law: The Single Use Plastic Prohibition Law (No. 2020-04) includes a mandatory EPR for plastic producers. However, it lacks implementation (see also 4.2). This is mainly caused by the insufficiently developed supporting mechanisms for producers. These mechanisms intend to encourage plastic producers to collect and process plastic waste or partner with organisations to transfer further management. Thus, revisiting this regulation, consulting producers and fixing the conditions for granting accreditation to eco-bodies should be a short-term priority. Ideally, this would be supported by international public and private stakeholders experienced in this field to embed learnings from best practices and counteract potential shortcomings in practice. Special attention should be paid to the following elements: (1) setting the terms and conditions for implementing EPR, (2) definition of the procedures for applying the specifications, (3) consumer information, (4) integration of control by the administration¹³⁸.

Stakeholder feedback

Dutch stakeholders stress that EPR systems should be seen as *one of the tools* to improve waste collection and its treatment in Senegal. In the Netherlands, one of the frontrunners in **implementing EPR schemes, ‘only’ 60% of the e-waste** is collected and treated via this scheme. The Dutch Organisation for Producer Responsibility for e-waste (Stichting Open¹³⁹) provided advice on the creation and implementation of an effective EPR scheme for e-waste in Senegal (see Annex I). Additionally, Senegalese stakeholders add gas production and urban agriculture as topics that should be considered in cross-cutting policymaking. However, the latter preliminary relates to the management of organic waste.

G-3 Governance and coordination

Opportunity 3: Improve governance structure and cross-ministerial collaboration

¹³⁸ Ibid.

¹³⁹ <https://www.stichting-open.org/en/>

In Senegal is a need for improved coordination and alignment between local and national actors involved in decision-making, especially in complex matters, such as waste management. The roles, responsibilities and related processes are often not integrated enough to well align efforts on different fronts. This may relate to the dissemination of regulation and legislation from the national to the local governments or the enforcement and control of implementation.

The example of the coordination of solid waste management from the ministerial level to its implementation on the ground shows that improvement potential exists for enhancing feedback loops and stronger collaboration. Yet, the responsibilities of the three responsible Ministries (Health and Prevention, Urban Planning and Environment) are not integrated enough which might be one of the reasons why the majority of waste is still mismanaged. One potential solution to this issue could be the development of an independent body that conveys between the parties, keeps actors accountable to meet targets and responsibilities and represents the go-to-point for different stakeholder groups when it comes to waste management and circular economy-related concerns.

Stakeholder feedback

The above presented issue is verified by one of the interviewed Dutch stakeholders. The diffusion of responsibilities over different ministries increases the administrative burden for the private sector, which is seen as a barrier for investments. Senegalese stakeholders also demand transferring decision-power to local authorities when it comes to waste management. For this, regional authorities should be trained to enable an appropriate collection, processing, valuation and sanction system.

Opportunity 4: Establish a multi-stakeholder framework between Government, private sector, academia and civil society

In addition to opportunity 3, there is the need to enhance collaboration across different stakeholder groups, i.e. government, private sector and civil society. Strengthening the interactions between these groups that are not formally working together would help aligning efforts and initiatives. This can ultimately lead to improved waste collection and treatment. The vehicle of collaboration could be a multi-actors platform that provides space for interaction, exchanges, sharing of experiences, collaboration and sharing working culture. The platform would gather stakeholders, such as members of national and local governments, associations of plastic producers, recyclers and consumers, trade unions, NGOs as well as university and research centers. On a frequent basis (e.g. three times per year), round tables could be initiated through the platform, led by a rotating chair part of the stakeholder groups under the supervision and guidance of MEDD in charge of implementing the Green PSE. Besides strengthening collaboration, the platform can be a means to hold stakeholders accountable for contributing to the progress-making of the national agenda towards a circular economy. **The stakeholder's inputs can contribute to the development of the national circular economy action plan and its implementation and monitoring, being currently under development.**

Stakeholder feedback

The Senegalese stakeholders suggest establishing not a national but a regional framework to increase its efficiency at the regional level. Furthermore, some initiatives are already taken up. For example, the Minister of Environment issued a decree in 2020 for the creation of a national platform on the green economy (PNEV), directed by the Directorate of Green Financing and Partnership (DFVP). Its constitutive General Assembly will be organised in October 2022.

Dutch stakeholders support this opportunity, as a platform may be useful for the Dutch private sector to identify the right stakeholders/contact persons when engaging in Senegal. Interviews with Dutch stakeholders revealed the importance of having reliable contacts on the ground to kick-off their businesses, both in the formal, but particularly in the informal sector.

G-4 Funding and finance

Opportunity 5: Channel investments into waste infrastructure

The country lacks both public and collective solid waste treatment facilities and has difficulties in identifying suitable technology at a reasonable cost. Another cost-related restriction is that municipalities struggle to cover solid waste treatment costs and financial investments are weak. Those needs can be addressed by, e.g., channelling investments into the provision of infrastructure as the foundation of effectively functioning waste management, its broad geographic coverage and collection equipment¹⁴⁰. This can empower waste pickers and small initiatives to take action and to ensure that the system functions properly. As the waste management sector faces a significant financial gap, large investments are necessary. These may come partially from international donors or investors, the development of public-private-partnerships (PPPs) or national funds.

Stakeholder Feedback

Senegalese stakeholders emphasise the need to consider infrastructure-related projects that will be implemented under PROMOGED. Efforts supporting the mobilisation of investments should be aligned with existing initiatives to avoid duplication, such as AfDB large-scale financing for governments of green bonds. This should also consider the attempts of BOS PSE which collaborates with the Ministry of the Environment to mobilise funds through the Green Plan Senegal Emergent. Additionally, it is important to learn from already existing projects, like the project by CARITAS Kaolack to implement waste systems in Senegalese municipalities, and experiences of bigger municipalities and large cooperatives¹⁴¹.

Opportunity 6: Improve access to finance for MSMEs

MSMEs in Senegal and the Dutch private companies that seek to expand their business to Senegal, experience difficulties in financing their waste management/plastic-related projects and business ideas. It is difficult to develop a viable business case and, hence, to get access to loans from banks. Therefore, two identified opportunities are:

- 6a - Develop new finance mechanisms and business models. For SMEs, it is important to access the traditional banking system as micro-loans are often too little in amount and entail too high interest rates of up to 27%. Yet, it is difficult for them to obtain loans as banks face high opportunity costs and rate them as high-risk profiles. Thus, an adjustment of the criteria catalogue for providing loans to circular business initiatives is required. For example, businesses could be ranked by the qualitative value they add instead of a fast return on investment. Additionally, the conditions should be adjusted, e.g., by capping the interest rates at 18% or increasing the length of the pay-back period. This can be financially supported by the state. However, such steps might face reluctance by the banks due to a trust issue that has been observed between banks and start-ups in Senegal. Generally, reliability, and thus chances to receive a loan, increases if SMEs are externally monitored by for instance external

¹⁴⁰ Such as trucks, tractors, wagons, tricycles, bins, containers, individual bins, etc.

¹⁴¹ AFD et al. (2019) [Termes de référence pour le recrutement d'un consultant chargé de l'évaluation finale](#)

audits/reviews and creditors, have co-funders or are exporting their products. External actors can easily act as creditors and auditors for SMEs when applying for bank loans to increase the **SMEs' eligibility**.

Stakeholder feedback

Interviews with Dutch stakeholders revealed that it is difficult to develop a viable business case for setting up waste collection systems and waste management facilities in Senegal (and other African countries). Two reasons mentioned in the interviews are: 1) the investment climate is unstable, e.g. permits may be withdrawn over time, and 2) it is difficult to establish a reliable stream of waste supply to keep such plants running in the long term. As such, Dutch businesses **have been inventing new ways 'to close' the business case, e.g. Closing the Loop or Colubris Cleantech**. The latter is a company that provides separation techniques in the field of sustainability. In an interview, the company indicated that selling its technology to local concession holders is not always enough to obtain a sufficient profit margin. Besides delivering the technology, they are, in a few cases¹⁴², involved in arranging the financing which can be helpful to improve the business model.

Senegalese stakeholders think that they can support this opportunity but **suggest – as an indirect link – the greater enforcement of already existing instruments, such as a green taxation** that is consistent across polluters.

6b - Build capacity and know-how related to loan applications and financial intelligence. Another reason why MSMEs fail to obtain bank loans or grants from international donors is the insufficient quality of their loan application. Most entrepreneurs lack both knowledge about and skills for the development of good applications as well as the materials they have to provide for it, such as business and investment plans. Thus, there is the need to build capacity through workshops and trainings conducted by experienced professionals in this field. On the side of the bank, the application process would be facilitated by making simpler, less bureaucracy-heavy and faster.

G-5 Support of businesses and informal sector

Opportunity 7: Update waste collection equipment, techniques and storage sites

Proper waste collection is essential for determining the quality and quantity of waste that can be recycled and the spatial coverage with waste-related services. Thus, it is important to support businesses active in this field. Common practices and equipment in Senegal are outdated, e.g. the waste pick up is still done via donkey or horse wagons. Complementing traditional practices with more advanced operational equipment, like a cart with different containers, could enhance efficiency and improve collection rates. Additionally, it could increase the profit margin of waste collectors due to higher amounts of sellable waste. Moreover, worksites are often absent, making actors face a spatial **precariousness. Waste pickers' shelters and storages are often organised in "paaks"** for which they do

¹⁴² Please note that Colubris Cleantech's main business is selling equipment, lines and projects for waste-sorting, water-treatment, and bio-resources. In 95% of the projects, Colubris is not involved in system integration or financing of the project.

not have property rights.¹⁴³ These elements must be addressed to increase the efficiency of waste collection.

Stakeholder feedback

As part of PNGD, the Senegalese government tried to improve the waste management by identifying optimal locations for collection points, marketing and advertisement and waste recovery centres. Based on feedback from Senegalese stakeholders, those already initiated initiatives should be considered when planning new investments. Interest in being involved in the implementation of the niches has been expressed by Enda Ecopop, the University of Bambey and UNIDO.

Opportunity 8: Increase access to recycling technologies

The recycling of plastic waste is done through professional recyclers. Small and/or informal initiatives do not go beyond the pre-treatment, which includes the sorting, cleaning and shredding of materials before it is sold to recyclers. This is mainly due to the limited access to technologies and related know-how that would allow them to recycle themselves¹⁴⁴. By selling recyclable plastics to the recyclers, their financial security highly depends on the prices that are set by the global market or the liquidity of other actors along the value chain. Thus, equipping MSMEs with technologies and know-how to recycle plastic waste would enhance more local recycling activities and address socio-economic stability. Access to equipment and technologies could be provided by externals via leasing contracts. Machinery could be leased to MSMEs until they can pay the fees by themselves.

Stakeholder feedback

This opportunity was validated by one of the Dutch interviewees, as there is a limited supply of recycling equipment and materials in Senegal. This is partly caused by high import taxes charged on those goods, reducing the access to recycling technologies in African countries. As such, there is more demand than supply for recycled materials, in particular for plastics.

Opportunity 9: Explore potential synergies between e-waste and plastics

Plastic and e-waste represent waste streams with the highest negative impact on societies and the environment. Besides tackling the different waste streams separately, their synergetic treatment favouring the circular economy could be further explored. The successful project of SetTIC¹⁴⁵ on developing an e-waste collection and treatment centre could be a suitable place to explore this opportunity. Electrical and Electronic Equipment (EEE) usually includes a relevant amount of plastic that covers the hardware. When separating unusable EEE, the plastic elements could be sorted by material and be recycled on-site. This opportunity could contribute to more circular product life cycles.

Stakeholder feedback

The importance of this opportunity was validated in one of the interviews with the Dutch stakeholders and acknowledged by Senegalese stakeholders. However, the latter stressed its restrictions due to international conventions, like the Bale and Bamako Conventions which categorise plastics contained in WEEE as dangerous and, thus, not eligible for recycling.

¹⁴³ Interview data

¹⁴⁴ According to the interview panel hold on the 03/03/2022.

¹⁴⁵ Prevent (n.d.) [SetTIC](#)

Opportunity 10: Scale-up circular economy initiatives, e.g., reuse and repair initiatives

Many small initiatives in Senegal contribute to the circular economy but struggle with scaling-up their business due to, e.g., limited possibilities to access loans (see also opportunity 6). However, most of the officially known initiatives in waste treatment are related to recycling. More attention could be given to strategies higher on the R-ladder, such as repair and reuse, recognizing that, informally, these activities are applied broadly in Senegal, simply out of necessity. Thus, further exploiting the benefits and economic imperative behind the reuse of waste and plastic products and their repair carries significant potential.

Stakeholder feedback

Senegalese stakeholders say that this opportunity can only be successful if the separation is improved to increase the quantity and quality of treated plastic waste. Nonetheless, Senegalese stakeholders, such as the Institute for African Management, are interested in supporting this niche, e.g., via communication strategies for behavioural change and capacity building of involved actors.

Opportunity 11: Provide support in the application of EPR systems

EPR is often still voluntary and accompanied by insufficient implementation and monitoring. This is caused by lacking knowledge of the plastic producers of how to implement EPR systems in their business model and operations. Alongside the revision of the legislation, which should include specification and complementation of effective supportive mechanisms for the producers, local businesses need support by experienced professionals in this field. Through workshops, the implementation could be exemplified, simulated and tailored to different businesses.

Opportunity 12: Increased involvement of the informal sector and protective measures

The combination of inappropriate disposal/treatment infrastructure, limited know-how on material recovery and lacking access to technical and financial means results in the accumulation of waste in illegal landfills. This stresses the importance of a greater inclusion of the informal sector. A first step could be to build capacity through trainings for informal actors active in waste collection and supply of recyclable material. This may also include workshops on their rights and options as well as their benefits to become part of the formal economy.

Waste pickers face financial insecurity what emphasises the need for protective measures covering the informal economy (of which women and children make a large part). An option to address financial insecurity is an insurance concept based on the Energy Savings Insurance (ESI)¹⁴⁶. ESI can be used to replace outdated equipment and greenfield projects. It covers the losses that arise when the projected value of energy saving is not met. It could be explored if this can be translated to the recycling sector (covering costs that arise when products cannot be delivered as expected or similar) to increase the financial security for actors further down in the value chain.

Stakeholder feedback

Dutch interviewees indicated that involving the informal sector should be seen as an opportunity to set up waste collection systems. The formalization of the waste sector (e.g., by providing reliable income) may empower the local actors and create greater transparency. However, formalization of this

¹⁴⁶ Chaparro et al. (2020) [Advances and opportunities for funding small- and medium-sized energy efficiency and distributed generation projects in Chile](#)

sector should not be seen as an exclusion criterion. One should look for collaboration and make use of this strong informal sector, in particular for waste collection.

Opportunity 13: Enhance digitalisation and flow of information

Keeping up with the digital transformation is important for supporting the establishment of new communities of users using digital platforms for circular activities. This can enable business models, such as the sale of second-hand products or car sharing.¹⁴⁷ Digitalisation could potentially increase the availability and completeness of data important for decision-making or scoping solutions. Lastly, digitalised stakeholder platforms can also increase the collaboration and coordination across different industries and value chain actors when the proximity or road infrastructure is not sufficiently provided to physically meet, which would ultimately reduce working in silos.

Stakeholder feedback

Dutch interviewed stakeholders noted that one should not be too optimistic about the potential of digital platforms, as there are already many initiatives. From the consulted Senegalese stakeholders, the Ministry of Employment and Vocational Training would be open to explore opportunities for collaboration.

Opportunity 14: Establish a one stop-shop for recovery activities and actors

In Senegal, entrepreneurs, but also established businesses, have a need for a dedicated facility and go-to-point where they can find answers to various concerns related to their business operations. This can address topics like the registration of a recycling business, applications for financial support, finding business partners for collaboration or finding educational material to a specific material stream and how to best deal with it from a circular economy perspective. Establishing such a body will allow businesses to become more active in the fields of circular economy. It can be taken up by a newly founded public-private-partnership, PROPLAST or the Institute of Environmental Sciences (ISE).

Opportunity 15: Establish a plastic manufacturing association

Yet, there is no professional organisation for plastic manufacturers in Senegal. Nevertheless, some manufacturers are already specialised in processing recycled plastic. In order to enhance and facilitate their efforts, work and transition to the integration of EPR, the establishment of a plastic manufacturer association with a strong focus on recycling would be a relevant next step. This could be taken further through an already existing body engaging in the field, such as PROPLAST.

Stakeholder feedback:

One Senegalese stakeholder would prefer supporting and strengthening already existing waste picker associations.

G-6 Awareness and capacity building, education & support of NGOs

Opportunity 16: Access private sector CSR budget to support CE projects and initiatives on the community level.

¹⁴⁷ European Commission (2021) [Circular economy in the Africa-EU cooperation - Continental report. Continental report](#)

¹⁴⁷ Background doc „From Stakeholder consultation“

While some circular economy practices are already applied out of necessity by Senegalese communities, especially those in remote areas, there is large potential to further transmit and enhance circular economy through trainings, awareness rising or small-scale waste collection and sorting activities. However, the success and scale of projects and initiatives on the community level is highly determined by financial means available. As the private sector is becoming increasingly the driver for sustainability and circular economy, funds could be generated through promoting the project idea to private companies that have a corporate social responsibility (CSR) budget available (both Senegalese and Dutch companies would qualify). Thereby, more businesses would get involved to invest and contribute to the circular economy transition related to community work done by NGOs.

Opportunity 17: Develop and expand the curricula for universities and vocational training centres

A fundamental element to strengthen the transition towards circular economy in Senegal is education. The country urgently needs professionals with strong knowledge and skills related to circular economy. This can be tackled in two ways:

17a - Expand and align the offer of academic institutions: First through the development and alignment of circular economy-related curricula in basic education and university programmes. Some universities, such as the University of Bambey or the Institute of Environmental Sciences, already have CE related subjects, courses or even whole curricula. However, they are not aligned across the countries. Instead of educational institutions working separately on such matters, they would collaborate and use existing efforts to build upon and align to. This would accelerate the development phase and solidify the outcomes. Ideally internships should be part of the CE curricula and modules. This initiative could also be expanded to other African countries and draw important learnings from each country to be taught in the programmes. Additionally, such cross-country collaboration (among African countries and European and African countries) could be the basis for educational exchanges to enable students to be exposed to a different environment. An additional potential element to be developed under this niche are tailored scholarships for students specialising in sciences related to circular economy.

17b - Expand and align the offer of vocational training centres: The second element is the development of tailored vocational training programmes in which knowledge, skills and know-how is passed on to people/workers that would like to transition into the field of CE. Embedding CE in different sectors has immense potential to create jobs which is why the workforce as to be equipped and qualified. The programmes can be based on the CE curricula taught at universities but complemented by practical training sessions. Thereby, the training of the trainers should a focus area as well.

Stakeholder feedback on 17a and b

Senegalese stakeholders stress the relevance for updating curricular taught on all levels, from elementary school to university-level to vocational training. For example, this could focus on improvements of living environments due to improving waste management. Additionally, Senegalese stakeholders suggest that the curriculum should also cover information on new technologies for a circular economy. Thereby, the support could also be channelled by directly sponsoring scholarships for students specialising in technological science for a circular economy or innovative approaches to sustainable waste management.

Opportunity 18: Educate the population on proper sorting and its relevance.

In the circular economy, separation at source is the key element ensuring high quality input material streams for the production of secondary raw materials. This requires awareness and know-how of the local population. Even though the awareness about the plastic challenge is already high among Senegalese population, the management of plastic waste is still insufficient and unstructured¹⁴⁸. Often, plastic is mixed with organic waste or other resins which impurifies the plastic making high-value recycling impossible¹⁴⁹. Therefore, further awareness campaigns and trainings should educate on the proper separation and the relevance of waste separation. These may also involve actors, such as local authorities and the private sector, who are already convinced of the problem. Such campaigns could also be a vehicle to success stories, innovations and experiences, such as from the Ngor project or the zero-waste island.¹⁵⁰ A qualified stakeholder to coordinate efforts is Zero Waste Senegal.

Stakeholder feedback

Senegalese stakeholders emphasized the need to increase sorting practices on the community and household-level. Communities should be educated and sensitized on environmental issues and sustainable consumption. To train households, the stakeholders suggest the provision of pilot projects, such as waste-specific bins for each household to practice the waste separation.

Opportunity 19: Offer support to NGO to become independent and integrate into the system.

In Senegal strong action is taken by NGOs which are normally funded through limited grants by international donors. From the very start, they focus on action instead of developing a sustainable business model which may function once the funding is used. To make their work impactful in the long-term, they require collaboration with other actors on the ground to strengthen their activities and to prevent working in silos. This will ultimately lead to a better integration into the local system which represents a win-win – **on the one hand, NGOs will gain stability and confidence while on the other hand, their activities may be better integrated and developed meeting local needs.** The effort **should be aligned with the ‘Change the Game Academy’ that provides fundraising and mobilising support for local stakeholders.**

Stakeholder feedback

Interview results support the criticism mentioned above. Initiatives set up by NGOs are often not based on viable business cases to sustain the initiatives in the long-term, when the funding period is ended.

¹⁴⁸ Netherlands Enterprise Agency (2021) [DHI subsidy scheme](#)

¹⁴⁹ CCMC_ DakerEvaluation (2020)

¹⁵⁰ Background doc „From Stakeholder consultation“

15 Annex H - Detailed description of Dutch Private Sector Development Tools

The Private Sector Development (PSD) tools consist of several instruments to promote enterprise in emerging markets and developing countries. The instruments are embedded in the Aid for Trade Agenda¹⁵¹ and provide (economic) opportunities to Dutch governments, embassies, private sector and other initiatives to engage in developing countries, achieving mutual growth and contributing to meeting the Sustainable Development Goals.

An extension of the PSD tools is the Initiatives for a Circular Economy (I4CE). The I4CE was established in 2020 and aims to support Dutch embassies in their contribution to a more circular economy and thereby sustainable economic growth in developing countries. The Ministry of Foreign Affairs, through the Netherlands Enterprise and Development Agency (RVO), contributes to this through initiatives that deploy (Dutch) expertise for unlocking the potential of the circular economy. The I4CE consists of tools to create a basis for the Dutch government to collaborate with governments around the world to develop waste management plans, policies for extended producer responsibility systems and roadmaps for a circular economy. The I4CE aims to make Dutch knowledge and experience available beyond national borders, hence involving Dutch companies, knowledge institutes and NGOs to collaborate with local partners to develop and implement innovative technologies and identify circular opportunities.¹⁵² ¹⁵³ The I4CE offers a wide variety of PSD tools that embassies can use to stimulate circular economy. Importantly, the local needs and opportunities are always the starting point for the development of any I4CE approach.

As presented in the Figure below, the PSD tools that could fall under the I4CE tools consist of several overarching themes, each consisting of several tools. Those themes are: government (e.g. visitor delegation), mindset (e.g. awareness raising campaigns), business (e.g. impact clusters), circular platforms, knowledge (e.g. free online trainings) and finance.¹⁵⁴

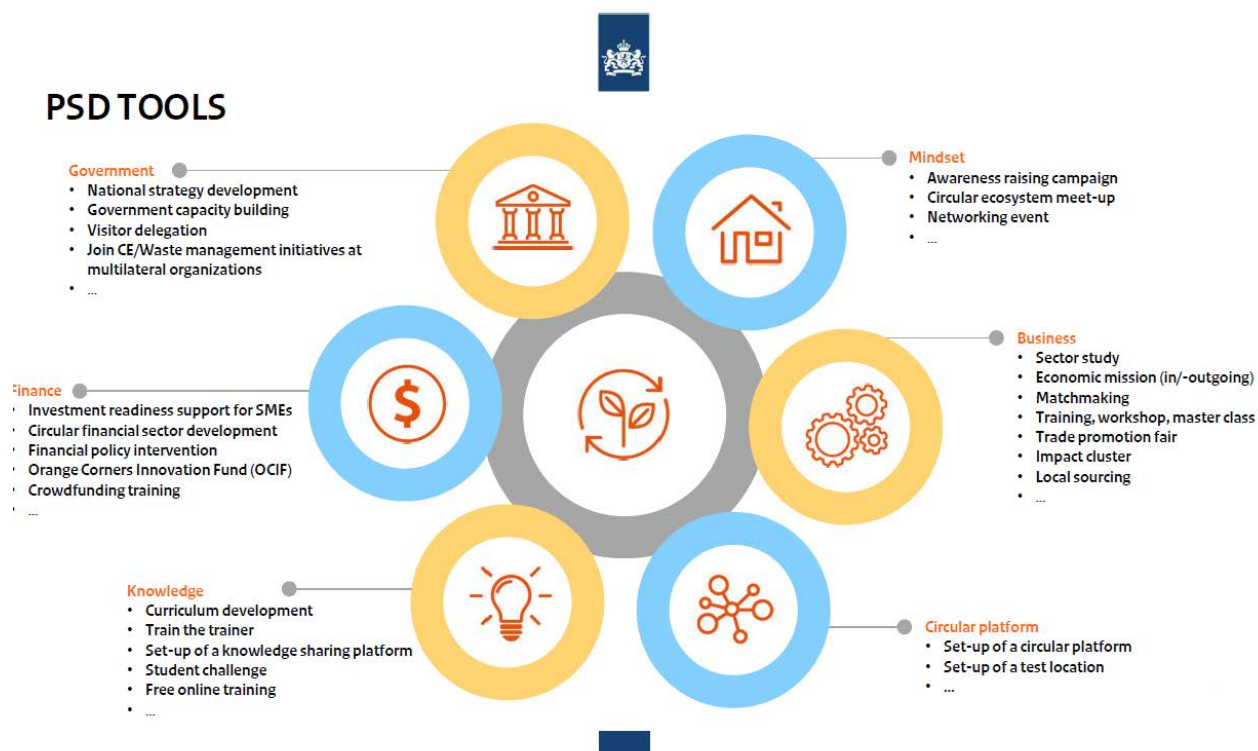
¹⁵¹ <https://www.tweedekamer.nl/kamerstukken/detail?id=2013Z06915&did=2013D14362>

¹⁵² I4CE theme document

¹⁵³ Bindels, E., von Knobloch, K., & van Ek, H. (2020). Initiatives for a circular economy: Dutch private sector development (PSD) tools for a context conscious approach. Unpublished study

¹⁵⁴ Bindels, E., von Knobloch, K., & van Ek, H. (2020). Initiatives for a circular economy: Dutch private sector development (PSD) tools for a context conscious approach. Unpublished study

Figure H-1 Overview of PSD tools



Source: Bindels, E., von Knobloch, K., & van Ek, H. (2020)

The following private sector development programmes are (partly) run by the RVO:

- The Private Sector Development (PSD) toolkit are several programmes to enhance business opportunities for both local and Dutch entrepreneurs, funded by the Ministry of Foreign Affairs and Ministry of Economic Affairs, and (partly) run by the RVO. PSD Toolkit consists of various Apps that can assist embassies in their efforts to create a business-enabling environment, remove trade barriers and in matching local and Dutch business partners. At the time of writing, there are 22 projects in Senegal under this programme.¹⁵⁵
- Similar to the DRIVE programme (see below), Develop 2 Build (D2B)¹⁵⁶ promotes development-related public infrastructure in emerging markets. It is a Government-to-Government programme, with an available budget of 75 million euros between 2015 and 2021, so around 10 million euros per year. Note that as of October 2021, Invest International runs this programme instead of RVO.
- Impact Clusters is a cluster Dutch companies and knowledge institutes (preferably together with a local partner) that position themselves in promising, but rather new markets. The central objective is to jointly enter a new market and to exchange knowledge for the benefit of local development. The Dutch Government can offer multi-annual support to clusters of Dutch companies on interesting market-sector combinations.¹⁵⁷

¹⁵⁵ See <https://projects.rvo.nl/programme/nl-kvk-27378529-26067?view=list&countries=1409>

¹⁵⁶ For details see: <https://english.rvo.nl/subsidies-programmes/develop2build-d2b>

¹⁵⁷ Technopolis (2019) Mid-term Review of PSD Apps programme

- Partners for International Business (PIB) is a programme that supports Dutch companies in setting up public-private partnerships in e.g. developing countries.¹⁵⁸
- PUM¹⁵⁹ Netherlands senior experts are volunteers with a certain expertise that travel with one of the Dutch missions to help identify what is needed to strengthen business in e.g. waste management sectors.¹⁶⁰

Next to PSD tools, there are also Business Development tools that aim to support Dutch *private sector* expanding their activities to developing countries like Senegal. Business Development tools consist of:

- Dutch Good Growth Fund (DGGF)¹⁶¹ supports entrepreneurs in their business in emerging and **developing markets, with an investment of up to €15 million; DGGF supplements private** investments by means of guarantees and direct financing with a repayment obligation, such as loans and equity investments in projects.
- IDH¹⁶² provides subsidies to Dutch SME that are exploring one of the following activities in developing countries: 1) Demonstration projects (presentation of technology, capital goods or service), 2) Feasibility studies (assessment of the profitability of a foreign investment in a product or services), 4) Investment preparation projects (assessment of the technical and commercial profitability of an investment in a company in one of the DHI countries).¹⁶³
- Development Related Infrastructure Investment Vehicle (DRIVE)¹⁶⁴ supports companies/entrepreneurs by facilitating investments in infrastructural projects that contribute towards a good business climate and entrepreneurship in the priority sectors: water, climate, food security, and sexual and reproductive health and rights (SRHR). Projects are sized **between €5 million and €60 million, including financing costs.**

¹⁵⁸ See <https://www.rvo.nl/subsidies-regelingen/partners-international-business-pib>

¹⁵⁹ In Dutch: Programma Uitzending Managers

¹⁶⁰ See <https://www.pum.nl/en>

¹⁶¹ For details see: <https://english.dggf.nl/>

¹⁶² In Dutch: Demonstratieprojecten haalbaarheidsstudies en investeringsvoorbereidingsprojecten (DHI)

¹⁶³ See <https://english.rvo.nl/subsidies-programmes/dhi>

¹⁶⁴ For details see: <https://english.rvo.nl/subsidies-programmes/development-related-infrastructure-investment-vehicle-drive>

16 Annex I - Recommendations on setting up a EPR system for E-waste

This annex presents the findings of the interview with Stichting Open¹⁶⁵. Since 2021, Stichting Open is responsible for the collection and recycling of e-waste in the Netherlands, implementing the legal producer responsibility for e-waste on behalf of all producers of electrical appliances. The interview results reflect on the possibilities of setting up an e-waste EPR system in Senegal, and the following is advised:

For setting up an EPR system for e-waste in Senegal, it is important to first identify *where and/or when* to best charge the EPR fee, to generate a reliable income stream. In Senegal, most products are **imported, which makes the Port of Dakar the suitable location for this ‘point of cash’**. The Custom Services could be responsible for charging and collecting the fees, and at the start, the national Government should be responsible for the management of the EPR scheme, including controlling the finances and spending it for its intended purposes. Both new and second-hand products should be included to obtain a financial base for the collection and treatment of appliances once they become obsolete.

It is advised to start working with contractors, to collect and recycle the e-waste. However, it will be a long process to get all contractors in place, as in the Netherlands Stichting Open has contracts with over 3500 organisations that take part in the EPR scheme.

It is recommended that in the starting-up phase, the Senegalese national government is closely involved (as mentioned above) to create this market for waste. An important condition is that the Senegalese Government creates the right enabling environment, and further implements the existing EPR legislation, and uses the collected fees for the intended purposes. In the implementation of the EPR schemes in Senegal, it is recommended to start with products containing hazardous components and/or financially attractive products. Fridges may be a good product to start with, as it is a widely used product in Senegal, hence there is a potential market. Moreover, the recycling of fridges might be eligible for carbon credits.

Importantly, the Dutch government has appointed one organisation (Stichting Open) to be legally responsible for the effective implementation of the EPR scheme for e-waste. Through this special status, the organisation is the only organisation that can charge and collect a fee for the collection and treatment of E-waste on behalf of the producers in the Netherlands. The same can be done in Senegal, to avoid that there are multiple organizations acting on the Producer Responsibility for E-waste, which can make it difficult for the Senegalese Government to monitor the work and prevent cases of freeriding. The special status should be given to an organisation that already have a large network and has proven to be reliable to avoid green washing.

Moreover, interview results indicate that EPR systems should be seen as *one of the tools* to improve waste collection and its treatment in Senegal. In the Netherlands, one of the frontrunners in

¹⁶⁵ <https://www.stichting-open.org/en/>

implementing EPR schemes, 'only' 60% of the e-waste is collected and treated via the scheme. As such, there is need for other tools to further bridge the gap.

Senegalese stakeholders expressed their interest to collaborate in these niches (UNIDO and the Ministry of Employment and Vocational Training). Additionally, they add gas production and urban agriculture as topics that should be considered in cross-cutting policymaking. However, the latter preliminary relates to the management of organic waste.

Trinomics B.V.
Westersingel 34
3014 GS Rotterdam
The Netherlands

T +31 (0) 10 3414 592
<http://www.trinomics.eu>

KvK n°: 56028016
VAT n°: NL8519.48.662.B01



This is a publication of
Netherlands Enterprise Agency
Prinses Beatrixlaan 2
PO Box 93144 | 2509 AC The Hague
T +31 (0) 88 042 42 42
[Contact us](#)
www.rvo.nl

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