

Tetra Tech International Development

CI-02 Project Fiche

Prevention of pollution by household and assimilated waste in the coastal zone of Côte d'Ivoire

March 2022



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Prepared by	Eva Röben 
Verified by	Klaus Buchholz 
Approved by	Charles Reeve 

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Tetra Tech International Development Europe Ltd (BV)

92C Jan Luijkenstraat, 1071 CT Amsterdam, The Netherlands
 T (+44) (0) 1189 566 066 F (+44) (0) 1189 576 066 www.tetratecheurope.com
 Registered at the Netherlands Chamber of Commerce Business Register under no: 68702132
 Vat Number: NL 85755546B01

Egis Eau

889, rue de la Vieille Poste 34965 Montpellier France
 T (+44) (0) 1189 566 066 F (+44) (0) 1189 576 066 www.egis-group.com
 Registered Office: 889, rue de la Vieille Poste – CS 89017 – 34965 Montpellier Cedex 2, France
 Registered in France No: 493 378 038 00266 (RCS Montpellier)

1 Introduction

Project Summary Information

Name of the project	Prevention of pollution by household and assimilated waste in the coastal zone of Côte d'Ivoire
Location	<ul style="list-style-type: none"> - Perimeter 1: Western coastal region of Côte d'Ivoire: Sassandra, San Pedro, Grand-Bereby, Jacqueville, Fresco, Grand-Lahou and Tabou. - Perimeter 2: Autonomous District of Abidjan (DAA)
Project promoter	National Waste Management Agency (ANAGED)
Sectors covered	Solid waste management
Scope of the project	<p>The scope of this project includes, among other things, the improvement of waste collection, the construction of a materials recovery facility, recycling facilities, an anaerobic digestion facility for bio-waste and other elements in the western coastal region of Abidjan, as well as support for the strengthening of the collection and recovery of plastic waste in Abidjan</p> <p>The project also aims to promote the involvement of the private sector and the creation of intermunicipal companies.</p>
Estimated budget	EUR 62 million

1.1 Name of the project

Prevention of pollution by household and assimilated waste in the coastal zone of Côte d'Ivoire.

1.2 Sectors concerned

It is an integrated project that includes the following components:

- Solid waste component:
 - Improved (pre-)collection and management of household waste (plastics, other recyclable materials and bio-waste);
- Water component (related to solid waste):
 - Management and treatment of household liquid waste (latrine sludge);
 - Optional: Cleaning of the Abidjan Lagoon.

1.3 Location

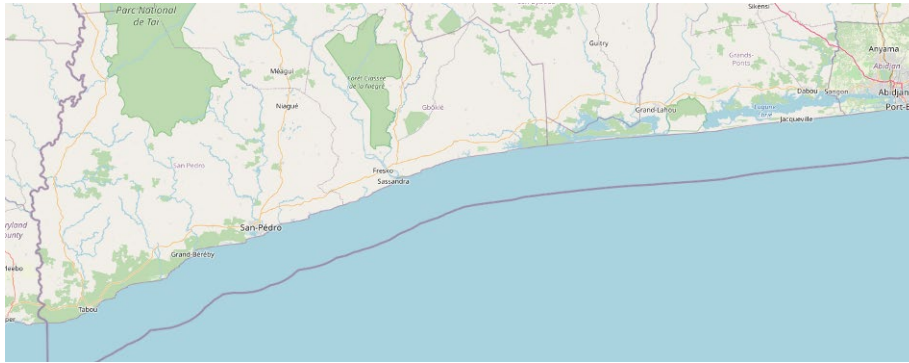
The project will be carried out in Côte d'Ivoire.

Scope 1 initially covers Sassandra and San Pedro, with a planned extension to Fresco, Jacqueville, Grand-Lahou, Grand-Béréby and Tabou.

Scope 2 covers the Autonomous District of Abidjan, with a focus on plastics and waste in the Abidjan Lagoon.

Data for the Western Coastal Region:

The map below shows the geographical location of these cities:



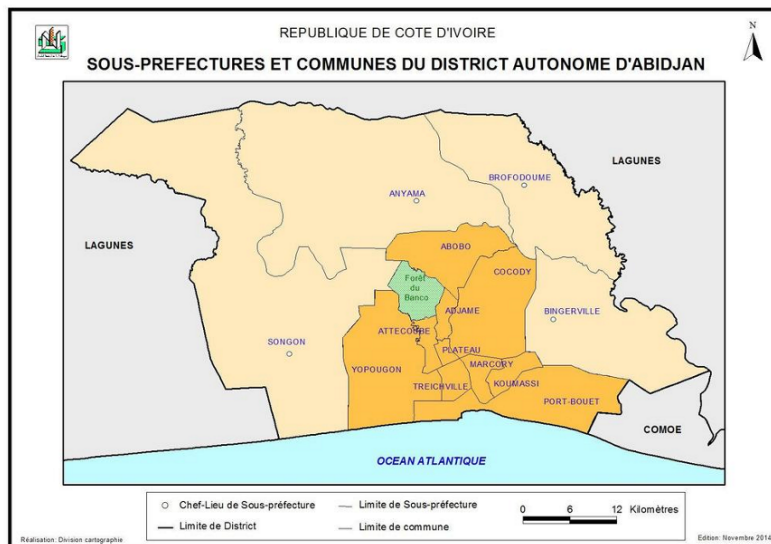
The towns of Tabou, San Pedro, Grand-Bereby, Fresco and Sassandra are located in the Taï National Park, while Grand Lahou and Jacqueville are located on the large coastal lagoons.

Table 1: Project cities

City	Population ¹	District
San Pedro	164 944	Low Sas-sandra
Sassandra	72 221	
Taboo	38 990	
Grand-Bereby	98 686	
Fresco	41 058	
Grand-Lahou	67 483	Lagoons
Jacqueville	32 288	
Total	515 670	

Data for the Autonomous District of Abidjan:

The map below shows the sub-prefectures and communes included in the Autonomous District of Abidjan:



Source: Institute of Circular Economy of Abidjan (IECA) in partnership with the Paris-Region Institute, Provisional diagnostic report of 14 October 2021 for the elaboration of the Circular Economy strategy of the Autonomous District of Abidjan

¹Source for population figures: San Pedro <https://www.citypopulation.de/en/ivorycoast/cities/> , other municipalities <https://cotedivoire.opendataforafrica.org/juhnrd/population-totale> . These are 2014 census figures.

Abidjan is the most populous city in French-speaking West Africa. At the last census in 2014, the city of Abidjan had 4.7 million inhabitants and is currently estimated to have between 5 and 6 million inhabitants. Abidjan represents more than 20% of the population of Côte d'Ivoire, which is a significant consumer market for all the country's economic sectors.

According to the projections of the Schéma Directeur d'Urbanisme du Grand Abidjan (SDUGA), the population could reach more than 7.2 million inhabitants by 2030.

Most of this growth would take place in the 10 historical communes. Currently, three communes (Abobo, Cocody, Yopougon) account for more than half of the population of the District².

Table 2: Population Composition

Historical Municipalities	Total population	Percentage
Abobo	1 030 658	22%
Adjamé	372 978	8%
Attenuated	260 911	6%
Cocody	447 055	10%
Koumassi	433 139	9%
Marcory	249 858	5%
Tray	7 488	0%
Port-Bouët	419 033	9%
Treichville	102 580	2%
Yopougon	1 071 543	23%
New Municipalities		
Anyama	148 962	3%
Bingerville	91 319	2%
Songon	56 038	1%

Côte d'Ivoire enjoys a dynamic and resilient economy, with growth averaging 8% since 2012. However, the COVID-19 pandemic has curbed economic growth in 2020 and 2021. The tertiary sector (telecommunications, transport, trade and finance) accounts for 55% of Côte d'Ivoire's GDP, the secondary sector (refining, energy, agri-food) for 23%, and the primary sector (agriculture) for 22%. It should be noted, however, that about half of GDP is estimated to be generated in the informal sector.

Côte d'Ivoire's budget deficit stood at 2.3% of GDP in 2019; with COVID, it reached 5.6%. Similarly, the pandemic has caused an 8.9% increase in public debt, which currently stands at 49.4%. This is expected to be reversed from 2024. With its stability and economic dynamism, Côte d'Ivoire is the second highest rated African country by Standard & Poor's or Fitch rating of creditworthiness with a value of BB-.

1.4 Project promoter

1.4.1 Institution:

The promoter of the project is the Agence Nationale de Gestion des Déchets (ANAGED). ANAGED is the regulatory authority for the solid waste sector in Côte d'Ivoire. It is the result of the merger of the Agence Nationale de la Salubrité Urbaine (ex-ANASUR) and the Fonds de Financement des Programmes de Salubrité (ex-FFPS). ANAGED ensures the implementation of the governmental policy in terms of management and recovery of all types of solid waste throughout the national territory.

The National Agency for Waste Management, ANAGED is a Public Establishment of an industrial and commercial nature created by decree n°2017-692 of 25 October 2017.

ANAGED is placed under the technical supervision of the Ministry of Sanitation and Hygiene (MINASS) and under the financial supervision of the Ministry in charge of the Budget and the State Portfolio.

² Source of the table: Distribution of the AAD population - Source: Census 2014, Abidjan Circular Economy Institute (IECA) in partnership with the Paris-Region Institute, Provisional diagnostic report of 14 October 2021 for the development of the Circular Economy strategy of the Autonomous District of Abidjan

It is responsible for :

- Participating in the development and implementation of the Government's policy on the management of all types of solid waste ;
- Contributing to the development and implementation of Solid Waste Management Programmes for all types of waste with a focus on waste recovery to promote a circular economy ;
- Contributing to the establishment of economic mechanisms and incentives to facilitate investment in the management of all types of solid waste ;
- Regulating the management of all types of solid waste ;
- Proceeding with the delegation of the public service of cleanliness including the collection, the transport, the valorization, the elimination of waste as well as the cleaning in the regions and communes of Ivory Coast;
- Conducting the planning and creation of infrastructure for the management of all types of solid waste;
- Controlling the public cleaning service that may be delegated to local authorities or private legal entities, under the conditions set by the legislation in force ;
- Providing technical assistance to local authorities and the private sector in the field of solid waste management ;
- Ensuring the delegated management of all construction, maintenance and rehabilitation works of infrastructures for the management of all types of solid waste ;
- Mobilising financial resources for the management of all types of solid³ waste.

1.4.2 Contact person

enquiries@copip.eu

2 Planning framework

2.1 Policies, strategies, plans

Over the past decade, the Ivorian authorities have adopted a series of policies to promote the well-being of the population. Development programmes and projects have been developed and implemented in line with the objectives of the National Development Plan 2016-2020 and international commitments to sustainable development.

In 2017, the Government of Côte d'Ivoire established the National Waste Management Agency (ANAGED) under the Ministry of Sanitation and Hygiene (MINASS), one of whose missions is the development of solid waste management channels "with a focus on waste recovery to promote a circular economy"⁴. MINASS has also initiated the formalisation of a national sanitation policy for 2019-2023 as well as a new national solid waste management policy (PNGDS) to define the priorities and frame the Government's actions in terms of waste management. This new policy aims to promote recovery and recycling as a strategic choice to deal with the increasing amount of waste generated.

In this respect, the State wishes to improve management capacities by increasing the collection rate of solid waste from 70% to 90% in the Autonomous District of Abidjan, and from less than 40% to 80% in the country's secondary towns. In terms of waste recovery, the PNGDS should also enable a recycling rate of 10% of solid waste (plastics, paper and cardboard, glass, metals, textiles, etc.) to be achieved.

Among other ministries involved in waste management, the Ministry of Environment and Sustainable Development (MINEDD) is also committed to formalising a **national circular economy strategy**. The issue of waste thus has significant support from the state.

The central authority for solid waste management is ANAGED, which delegates collection and landfill services by public contract. Waste recovery is in the hands of the private sector.

³<http://anaged.org/anaged/index.php>

⁴<http://anaged.org/anaged/missions.php>

At the local level, communes are required to develop urban planning schemes and sanitation master plans. Currently, seven districts, including *Abidjan*, Bouaké, Yamoussoukro, Daoukro, Daloa, Gagnoa and San-Pédro have a sanitation master plan, which focuses primarily on wastewater management.

Côte d'Ivoire has put in place a range of financial instruments to cover the costs of waste management and sanitation. However, the central government subsidises part of the waste management to fill the gap between revenues and expenditures.

It can therefore be concluded that, although the strategic public policy documents for waste management have not yet been officially validated, the Ivorian government is pursuing a coherent policy with the objective of ensuring sustainable financing of waste management, providing a sufficient framework for basic public services and implementing the polluter pays principle.

2.2 Key legislation relevant to the project

The Environmental Code, which dates from 1996, is currently being revised to take into account the evolution of international environmental law, the issue of climate change and the sustainable management of natural resources. The following table summarises the existing environmental legislation related to solid waste.

Table 2: Summary of legislation

No., date and title	Content
Decree no. 2012-1047 of 24 October 2012 laying down the details of the polluter-pays principle	The decree sets out the terms of application of the polluter-pays principle as defined in the Environmental Code. The decree adopted aims to identify the polluter, determine the level of environmental degradation, take measures to repair environmental damage, determine the nature of the payment due by the polluter in the event of non-repairable damage, promote the rational use of taxes, fees and other fines for the restoration of the degraded environment, as well as the institution of legal recourse in favour of the polluter who is up to date with his or her obligations in the event of non-repairing of the damage ⁵
Decree n°2017-692 of 25 October 2017	Creation of ANAGED
Decree No. 2017-271 of 5 April 2017 on the ecological management of waste electrical and electronic equipment and used tyres in Côte d'Ivoire	This decree provides for the implementation, over the period 2017-2020, of several waste recovery and recycling channels, including the WEEE and used tyre channels.
Decree No. 2013-327 of 22 May 2013 prohibiting the production, import, marketing, possession and use of plastic bags	This decree prohibits the production, import, marketing, possession and use of plastic bags. It aims to improve the well-being and health of people and animals; to fight pollution; to preserve sanitation works and other infrastructure; to promote public health; to promote biodegradable packaging ⁶ .
23 July 2020, Law ratifying Order No. 2019-1087 of 18 December 2019 amending the procedures for setting the distribution key for the proceeds of the tax on property assets	The law provides for a levy on property wealth and income; a tax on roads, hygiene and sanitation; a tax on sanitation and environmental protection; a special tax on certain plastic products; and a remuneration tax for the removal of household waste. 50% of property taxes are to be allocated to solid waste management
Article 1138 of the General Tax Code	Introduction of a special tax on certain plastic products, to be paid by companies producing plastic bags and sacks (50 FCFA/kg)

Note: FCFA is West African Franc currency

⁵Source : <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC122634>

⁶Source : <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC132141>

2.3 Documentation provided by the applicant

ANAGED is currently preparing a contract for a technical feasibility study of the modernisation and inter-communal solid waste management project for the towns of Sassandra and San Pedro and the mode of contracting the infrastructure with the private sector. This contract will not take place if COPIP supports the pre-feasibility study for these two cities. ANAGED would like the COPIP project to carry out the second study called: Technical feasibility study of the project of modernisation and inter-communal management of solid waste of the towns of Jacqueline, Fresco, Grand-Lahou, Grand-Béréby and Tabou and the mode of contracting the infrastructures with the private sector.

It would therefore be in the framework of a possible COPIP project that information would be collected and used in a pre-feasibility study for the Ivorian coastal strip. Regarding this component, the implementing entities have not developed any documents apart from a questionnaire given to the COPIP consultants.

In the framework of the discussions concerning the integration of perimeter 2 in the project, ANAGED made available to COPIP the following documents

- Ministry of Sanitation & Urban Resilience Project (PARU) financed by the World Bank: Study of sustainable financing, economic viability and fiscal reforms of solid waste management in Côte d'Ivoire, Consortium Artélia & Cabinet Phoenix, 2021 (diagnostic report 1 validated and reports 2 & 3 on the provisional sustainable financing study in the process of validation);
- Ministry of the Environment and Sustainable Development & French Government: FASEP7 study to define a collection and treatment system for floating macro-waste in the lagoon bays of Abidjan and stranded on their banks, Keran Group (SCE), 2021 ;
- Ministry of Public Works and Road Maintenance & Infrastructure Project for Urban Development and the Competitiveness of Secondary Urban Areas (PIDUCAS) financed by the World Bank: Study on the strategic evaluation of the solid waste management system in the town of San Pedro, STUDI International, 2021 (provisional report in the process of validation);
- Summary of donors involved in the circular economy, UNICEF, 2022.

3 Assessment of the current situation and needs

3.1 Management of household and similar waste

Area 1: Coastal region - west

In perimeter 1 (coastal region - west), only the town of San Pedro has a household waste collection service, which is currently buried in a controlled landfill. This service is organised and funded by ANAGED. No formal service is in place in the other secondary coastal towns targeted by the project.

Two waste characterisation studies were conducted by Terrabo in San Pedro in 2010 and 2011. These studies show that putrescible waste is in the majority (around 40-45%), followed by plastic waste and fine materials (between 15 and 20% each). Within the framework of the Infrastructure Project for Urban Development and Competitiveness of Secondary Urban Areas (PIDUCAS) financed by the World Bank, STUDI International conducted another waste characterisation study as part of the strategic evaluation of the solid waste management system in the town of San Pedro. The first results were presented in 2021 and, although still provisional, appear to be consistent with the findings of the previous studies.

Perimeter 2 (Autonomous District of Abidjan)

About 30-40% of the waste produced is not collected in Abidjan due to the lack of infrastructure and therefore often ends up in the waterways or in the wild. In this context, it is not surprising that 55% of the macro-waste floating in the lagoon is plastic waste⁸.

⁷ FASEP: Fonds d'études et d'aide au secteur privé; French government funds financing feasibility studies in order to promote the private sector

⁸ SCE/ Groupe Kéran study on macro-waste in the Abidjan Lagoon, 2021

Waste management in Abidjan suffers from a lack of selective sorting, at least from a formal point of view. A "non-accessible" part is still taken care of by pre-collectors who are themselves more or less formalised (independent, cooperatives, etc.), with a high proportion of women. The latter collect the recyclable fraction of plastic waste as soon as possible, which constitutes a source of income.

The three waste characterisations listed in the table below give fairly consistent results for the last 12 years:

Table 3: Waste composition in Abidjan

Category of waste	Percentage (%)		
	Gevalor, 2015	Burgeap, 2010	Keran Group, 2021
Green waste (wood etc.)	13		60
Wet organic waste	45	49	
Paper and cardboard	5	6	6
Metal		2	2
Glass		2	2
Plastic		8	11
Textiles	3	3	5
Inerts	1		1
Fine	15	18	
Other	17	12	10

3.2 Rainwater management

Stormwater management is not the responsibility of ANAGED, but of ONAD (National Sanitation and Drainage Office). Therefore, this project does not include a stormwater component.

3.3 Wastewater management

Wastewater management is under the supervision of ONAD. ANAGED is not involved in the collection and treatment of latrine sludge. However, it is proposed, during the pre-feasibility study, to explore the possibilities of collaboration with ONAD for the co-treatment of latrine sludge in drying-co-composting facilities or by co-biomethanisation.

4 Scope of the project and type of investment measures to be implemented

4.1 Scope and estimated cost of the project

The proposed project has two main components:

1. The first concerns the **coastal towns of the south-west** (i.e. San Pedro, Sassandra, Tabou, Grand-Bereby, Fresco, Grand-Lahou, Jacqueline) where it is a question of **developing infrastructures for the collection, recovery and elimination of waste which** are almost non-existent today;
2. The second concerns **Abidjan**, where the aim is to (i) **strengthen the collection system for the management of plastic waste, in particular**, for which recycling initiatives exist but have difficulty scaling up due to the lack of collection structure, and (ii) **support a pilot project for the recovery of floating macro-waste in the lagoon**, which will contribute to the scaling up of recycling initiatives, in particular while waiting for the collection system within the city to become fully operational⁹;

⁹ The pilot project is awaiting confirmation of funding from a private partner.

A parallel project on governance, institutional strengthening and legislation, especially for the implementation of the circular economy and extended producer responsibility is proposed but does not fall within the scope of COPIP.

The table below summarises the main funding lines by component, which are detailed below.

Table 5: Funding

Proposed interventions	Budget	
	€	Millions FCFA
Scope 1: Coastal cities	40 365 000	26 479
Scope 2: Abidjan	21 505 000	14 107
TOTAL	61 870 000	40 587

Component 1: Development of waste collection, recovery and disposal infrastructure in south-western coastal towns

With the demographic data, the values of the waste characterisation in Abidjan and the hypothesis of a production of 0.6 kg/(inhabitant*day) of waste, it is therefore possible to make an initial estimate of the need for waste treatment infrastructures in the western coastal zone of the country:

Table 6: Estimate of Needs

Subject	Tabou	San Pédro	Sassandra	Fresco	Grand-Lahou	Jacqueville	Grand-Béréby	Total
Habitants (extrapolation)	42 094	305 418	49 269	37 033	52 716	20 598	98 986	606 114
Organic and green waste:								0
Composting (t/day)	7.15	51.90	8.37	6.29	8.96	3.50	16.82	103
Anaerobic digestion (t/day)	4.77	34.60	5.58	4.20	5.97	2.33	11.21	69
Metal, plastic, glass: Recycling (t/day)	1.21	8.80	1.42	1.07	1.52	0.59	2.85	17
Final disposal (t/day)	6.36	46.18	7.45	5.60	7.97	3.11	14.97	92
Total	19.50	141.47	22.82	17.15	24.42	9.54	45.85	281

This is obviously a first estimate; a waste characterisation should be carried out in all the towns in the area in order to know the real deposit and to correctly size the proposed infrastructures.

The COPIP project will also aim to introduce and improve pre-collection and collection of waste. Rehabilitation of former dumpsites could be included as appropriate.

The following measures are proposed:

Table 7: Proposed Measures

The following measures are proposed: Description	Eligibility for EIB
Introduction and improvement of pre-collection	√
Installation of waste drop off centres	√
Introduction and improvement of waste collection	√
Transfer stations	√
Centralised mechanical sorting facilities	√
Bio-digestors	√
Centralised mechanised composting facilities	√
Simple, manual sorting and composting facilities	√
Sanitary landfill	√
Construction of decen-tralised landfill cells	(√)
Rehabilitation of old dumps	√
Technical assistance	
TOTAL	

The capacity and nature of the facilities will be reviewed in the pre-feasibility phase of the project.

Component 2: Strengthening of household waste collection and recovery systems in Abidjan

Component 2 has the following objectives:

Table 8: Proposed Objectives

Description
Establishment of an integrated plastic waste collection system (studies, information system, equipment, training)
Strengthening of waste collection: segregation at the source, formalisation of pre-collectors, drop-off points, intermediate sorting and storage centres
Rehabilitation and extension of existing material recovery facilities (Yopougon and Attécoubé)
3 additional material recovery facilities
Totals

The estimated investment budget for this component is **EUR 18 700 000**. The component also includes a specific technical assistance envelope for the realisation of these works up to 15% of these investments, i.e. **EUR 2 805 000**.

The subtotal amounts to EUR 21 505 000.

Interest and complementarity of components 1 and 2

In Abidjan, unlike the other coastal cities in the west of the component 1, household waste collection and recovery systems exist. Thus, **the experience of these systems and the reinforcement provided in the framework of component 2 in Abidjan will enable valuable lessons to be learned for developing recovery channels in the coastal cities of the South-West targeted by component 1.**

In addition, **the development of household waste collection, particularly plastic waste, under component 1 in the western coastal towns will increase the supply of plastic waste to the recycling facilities in Abidjan (component 2).** Indeed, recycling facilities already exist in Abidjan and significant investments are also being made to develop them. The supply of plastic waste for these infrastructures represents a major challenge to meet the objectives of developing collection and recovery at national level but also in the international context, particularly in Europe, where regulations are being tightened to increase the mandatory share of recycled plastic in materials placed on the market. Some of the recycled plastic produced in Côte d'Ivoire is already exported to meet this need, which should therefore continue to grow.

Component 3: Cross-cutting activities

This component covers technical assistance activities that support components 1 and 2, including

- The financing of a project coordination unit for the implementation and monitoring of activities and of a steering committee involving public authorities and technical structures for the strategic orientations and good governance of the project;
- Strengthening the legal and institutional framework ;
- Support for awareness-raising activities among households.

6 million is proposed for this component (to be reviewed). This component should ideally be funded by a grant from another institution, in parallel to the COPIP project.

4.2 Assessment of project scope and alternative/complementary options

The project promoter has not proposed any alternatives. However, we believe that it would be interesting to evaluate during the pre-feasibility study different options concerning :

Under Component 1 for the development of waste collection and recovery infrastructure in western coastal towns:

- Potential of recovery channels and priority channels to be set up: market study for waste recovery products (recyclable materials, compost, biogas...), marketing of recovery materials and quality criteria (evaluation of outlets);
- Number and location of centralised facilities;
- Degree of mechanisation of facilities;
- Methods of (pre-)selective collection;
- Option to integrate latrine sludge for co-biomethanisation in the project (cooperation with ONAD).

In Component 2 for the reinforcement of the collection system and the management of plastic waste in Abidjan:

- The possibility of integrating other types of recyclable waste (paper, cardboard, glass, metals, etc.);
- Evaluation of the collection and recovery potential (precision of the objectives to be reached, market study on the deposit and the outlets);
- Prospects for the development of the macro-waste recovery system at the lagoon level and the supply of the material recovery facilities according to their mutual progressive deployment (this depends on the approval of the pilot project).

4.3 Pilot projects

Financing of a pilot project for the recovery of macro-waste from the Abidjan lagoon

As explained above, the dysfunctions of the current waste collection system in Abidjan lead to a significant dumping of waste in the lagoon, estimated at more than 75,000 tonnes each year (about 200 tonnes per day), 55% of which is plastic.

While waiting for awareness-raising to bear fruit, the recovery of these tonnages, in addition to the obvious environmental benefit, would therefore make it possible to **ensure a stable supply at a controlled cost to recyclers**, which would be a **major asset in supporting the development of their activities**.

The technical and financial study carried out by the Keran Group for the implementation of a system for the recovery of floating macro-waste in the lagoon establishes the profitability of the project taking into account the progressive reduction of waste dumping in the lagoon in favour of the development of collection at source (see forecasts presented in the graph below). Thus, **the contribution to the financing of such a system reinforces the success factors of the collection system presented above**.

ANAGED would therefore like COPIP to participate in the financing of a pilot project for this system in order to enable it to accelerate its implementation. In this context, ANAGED would work closely with CIAPOL¹⁰ as the competent national structure for the management of the lagoon.

The scheme involves the use of **boats to collect waste** from the lagoon and transport it to the collection and recovery centres. The choice of these boats is one of the determining factors of the operational and economic performance of the project. Depending on the equipment and the size of the boats, their cost can vary from about 300 to 500,000 Euros. COPIP could, together with another donor, co-finance such a boat.

The tests carried out with this first boat will make it possible to refine the operational and economic model for more efficient waste collection in the lagoon. The results of the tests will make it possible to determine the number and model of boats to be acquired for the system as well as the organisation and rhythm of the logistical flows to supply the collection and sorting centres.

5 Contribution to the objectives of the Clean Oceans Initiative

The project contributes to the objectives of the Clean Oceans Initiative (COI) as follows:

¹⁰ CIAPOL : Centre Ivoirien d'Anti-Pollution/ Ivorian anti-pollution centre

The waste component:

- Introduction and improvement of (pre-) collection by introducing selective sorting;
- Setting up waste disposal centres to receive recoverable waste;
- Setting up waste sorting and treatment centres (channels to be specified);
- Recovery of organic waste;
- Landfill according to standards and rehabilitation of illegal dumps.

The climate aspects and the quantities to be treated are not yet specified.

The value of the project area for biodiversity and the aquatic environment should also be mentioned here. The entire coastline of the Bas-Sassandra district is part of the Taï National Park, and the two towns in the Lagunes district are located both on the edge of the lagoons and on the seashore.

The water component:

- Protection of the oceans by removing macro-waste from the lagoon, which is the 'gateway' to the Gulf of Guinea;
- Rehabilitation of the lagoon.

6 Approach to project funding

Mobilising the necessary financial resources and ensuring the financial sustainability of the management of all types of solid waste is one of ANAGED's objectives and mandates.

The public part of waste management is financed by a variety of fees and taxes, including:

- Property tax;
- Property income tax;
- The road, hygiene and sanitation tax;
- Household waste collection tax;
- The special tax on certain plastic products;
- The special environmental protection tax¹¹ ;
- State subsidies.

This concerns the collection of household waste. It should be noted, however, that the sum of the revenues from these different financial instruments does not cover the total costs and that the government subsidises part of the costs.

In 2021, the cost of household waste collection, transport and disposal activities in San Pedro town amounted to FCFA 1 800 million/year (EUR 2.7 million); the other towns in the project area do not yet have operators for waste management.

To finance its activities, ANAGED is thinking of introducing a tax on waste from economic activities in order to increase revenue and better apply the polluter-pays principle.

With regard to component 2, the integrated waste management system should promote the implementation of the Extended Producer Responsibility (EPR) scheme, which should contribute to the sustainable financing of waste management for recovery. In addition to benefiting from EPR funding, Material recovery facilities should also earn income from the resale of materials.

¹¹Source: Report PAD3407, Project Appraisal Document on a Proposed IDA Scale-Up Facility Credit to the Republic of Côte d'Ivoire for an Urban Resilience and Solid Waste Management Project, May 20, 2020

Moreover, the proposed waste collection and management system meets a public service need (neighbourhood sanitation, employability, etc.) and can therefore also be financed in part from the budget of the State of Côte d'Ivoire, whose resources dedicated to this type of project will be better provided for thanks to :

- More efficient management of resources by ANAGED with the strengthening of the legal and institutional framework;
- An optimised system of taxation, with a broader and more appropriate tax base to increase financial resources.

The World Bank is working closely with MINASS on these points within the framework of the Urban Sanitation and Resilience Project (PARU). In particular, the study on sustainable financing, economic viability and fiscal reforms of solid waste management in Côte d'Ivoire, carried out by the Artelia and Phoenix consortium, is expected to deliver all its recommendations in 2022.

7 Approach chosen for the implementation of the project

7.1 Role and responsibility of the promoter and key stakeholders

ANAGED will be the project promoter. Other important actors may be involved as listed in the table below. The exact governance of the Project and the composition of the steering bodies (Project Coordination Unit and Steering Committee including in particular the authorities and public structures involved) will remain to be specified in the framework of the feasibility study.

The key stakeholders identified at this stage are

Table 9: Main project stakeholders and actors

Stakeholders	Mandate and responsibilities	Role in the project
National Waste Management Agency (ANAGED)	Waste management Treatment of household liquid waste	Project manager for the development and management of the solid waste service project Government agency.
Ministry of Sanitation and Hygiene (MINASS)	Technical, administrative and financial supervision of ANAGED	Counterpart of an EIB loan, transfer of COPIP project financing to ANAGED.
Ministry of Budget and State Portfolio		Policy and strategic guidance and support.
Ministry of Economy and Finance		
Ministry of Environment and Sustainable Development (MINEDD)	Technical ministry in charge of sustainable development policy (including circular economy and pollution control)	Policy and strategic guidance and support Support for the pilot project for the recovery of macro-waste in the lagoon (Centre Ivoirien Anti-Pollution, CIAPOL under the supervision of MINEDD) ¹²
Communes of San Pédro, Sassandra, Tabou, Grand-Bereby, Fresco, Grand-Lahou, Jacqueville and Abidjan	Delegation of waste management to ANAGED	Inter-municipal cooperation Communication and local coordination
Pre-collection and collection networks, associations (AIVP,	Private company/IEG/NGO, agreements with ANAGED	Partnership with ANAGED for waste collection and pre-collection

¹² Awaiting confirmation from the private co-financier

Stakeholders	Mandate and responsibilities	Role in the project
IECA, Moi Jeu Tri...), private companies providing integrated waste management solutions (logistic optimisation and traceability systems)		
Private plastic waste recycling companies (CGECI, AIVP, Coliba, Conceptos Plásticos, Ecoplastinnov, Envipur, Recyplast, existing waste recovery units...)		Contribution to the selective collection and recycling of waste, including that recovered from the Lagoon
Private composting companies		Recovery of organic waste
Plastics companies (Cotiplast, Coca-Cola, Nestlé, Solibra, Prosuma, Unilever, Plastica, Safplast...)	Private companies marketing plastic products	Contribution to the financing of an Extended Producer Responsibility (EPR) scheme

The following table shows the role of ANAGED and other project actors in relation to the proposed infrastructure and facilities.

Table 10: Distribution of responsibility and ownership

Project component	Property	Operation	Supervision
Component 1: Coastal cities			
Pre-collection equipment	ANAGED (donations to pre-collectors) but contractualisation method to be specified in particular during the feasibility study	Existing networks of pre-collectors grouped in an economic interest group under an agreement with ANAGED	ANAGED, town halls (and communal authorities), BNETD
Collection and transport equipment	ANAGED & private operator(s) (contractualisation mode with ANAGED to be specified in particular during the feasibility study)	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, town halls (and communal authorities), BNETD
Waste disposal centres	ANAGED	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, town halls (and communal authorities), BNETD
Sorting and pre-packaging plants	ANAGED	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, town halls (and communal authorities), BNETD
Composting plants	ANAGED	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, town halls (and communal authorities), BNETD

Project component	Property	Operation	Supervision
Biomethanization plants	ANAGED	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, town halls (and communal authorities), BNETD
CET	ANAGED	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, town halls (and communal authorities), BNETD
Component 2: Plastics industry in Abidjan			
Integrated waste management system (logistics optimisation and traceability system)	ANAGED	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, Autonomous District of Abidjan, town halls, BNETD And combinations such as IACP, ACEI
Pre-collection equipment	ANAGED (donations to pre-collectors) but contractualisation method to be specified in particular during the feasibility study	Existing networks of pre-collectors grouped in an economic interest group under agreement with ANAGED	ANAGED, Autonomous District of Abidjan, town halls, BNETD
Collection and transport equipment	ANAGED & private operator(s) (contractualisation mode with ANAGED to be specified in particular during the feasibility study)	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, Autonomous District of Abidjan, town halls, BNETD
Intermediate collection, storage and sorting points (sites)	ANAGED	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, Autonomous District of Abidjan, town halls, BNETD
Sorting and recovery pre-plants (existing, to be rehabilitated)	To be specified in the pre-feasibility study (currently its own cooperative status, but close support from the State could allow the status to evolve, to be studied further)	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, Autonomous District of Abidjan, town halls, BNETD
Sorting and recovery plants (new)	ANAGED	Private operator(s) (contracting mode with ANAGED to be specified in particular during the feasibility study)	ANAGED, Autonomous District of Abidjan, town halls, BNETD
Possible pilot project¹³	Property	Operation	Supervision
Waste collection boat in the lagoon	Private operator & CIAPOL / ANAGED	Private operator (contracting mode with ANAGED to be specified in particular during the feasibility study)	CIAPOL, ANAGED

¹³ Awaiting confirmation from the private co-financier

7.2 Level of commitment

Since 2008, the Ivorian State and successively National Agency for Urban Health (ANASUR) and ANAGED have shown a very strong commitment to the solid waste management sector with:

- The creation first of ANASUR, then of ANAGED, with a clear mandate to invest and carry out works in waste management;
- Considerable investments in the country's main cities (Abidjan, Yamoussoukrou, Bouaké);
- The introduction and implementation of financial instruments that ensure the participation of citizens and businesses in the costs of waste management.

For ANAGED, the time has now come to also integrate the country's secondary cities in the efforts made for urban sanitation, hence the orientation of the COPIP application towards the coastal cities in the west of the country.

7.3 Preparation and implementation of the project

To be determined during the pre-feasibility study.

The project implementation period is estimated to be at least 60 months (5 years), taking into account the duration of international tenders and the planning required for waste management infrastructure (including site identification and acquisition, infrastructure construction), equipment and services.

7.4 Main aspects to be considered in the pre-feasibility study

The pre-feasibility study will be carried out within six months of the approval of the project fiche and the pre-feasibility ToR by the EIB. In addition to the topics indicated in the COPIP Terms of Reference and those raised in [section 4.2](#), the main issues to be addressed in the pre-feasibility study will be

Technical aspects

Component 1:

- Characterization of waste in the towns of Sassandra, Tabou, Fresco, Grand-Béréby, Grand-Lahou, Jacquenville;
- Audit of existing landfills: are there any landfills to be rehabilitated; what are the locations and capacities?

Component 2:

- The technical and financial modalities of an integrated plastic waste management system;
- Governance, rules of use and ownership of the data managed in the system;
- The status and governance for the grouping and formalisation of pre-collector networks (Economic Interest Group);
- The location and size of the sites and the equipment required to reinforce the collection network (source separation devices, collection points, intermediate storage and sorting, means of transport between these points, individual protective equipment);
- The status, number, size and location of DSUs.

Financial aspects

- Conduct household income and expenditure surveys to facilitate an affordability study;
- Conduct a financial analysis of cost and revenue streams (discounted costs and revenue streams over 20-25 years);
- Assess the potential financing gap resulting from the interaction between project costs, affordable tariffs and the other financial instruments highlighted above, for the waste and sewerage/wastewater components separately;

- Identify any potential economic, environmental and social benefits of the project that could be used to justify closing the funding gap (if applicable);
- Carry out a cost-benefit analysis of potential economic, environmental and social impacts (quantifying them if possible);
- Estimating financial and economic rates of return.

General aspects

- Identify technical assistance needs to determine beneficial institutional delegations and responsibilities (O&M, financial management, private sector delegations);
- Identify opportunities to improve efficiency, reduce costs, optimise resources and mobilise private funding by engaging the private sector in PPP mode;
- Environmental aspects, impact of the project on climate change.

7.5 Feasibility study

If the project is selected for the feasibility study, in addition to the topics indicated in the COPIP Terms of Reference (ToR), further studies will be required:

- Environmental and Social Impact Assessment (ESIA), including gender and vulnerable groups;
- Repeat waste characterisation to capture seasonal variations;
- Topographic surveys for waste collection centres, sorting and composting plants and sanitation infrastructure.

8 Review of potential environmental and social issues

During the pre-feasibility study, it will be necessary to consider and recommend whether ESIA is required for waste and black water/wastewater management facilities, as these are decentralised facilities for which simplified procedures are likely to apply.