adelphi

Technical Proposal

World Bank

Waste Management Study for the City and Province of Buenos Aires

Assignment No.:1282304

In collaboration with:

INTI 65 Años 1957-2022
Instituto Nacional de Tecnología Industrial

Technical Proposal

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Your Contact: **Paolo Facco** facco@adelphi.de
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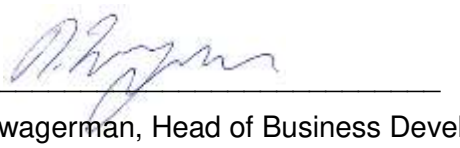

Nanne Zwagerman, Head of Business Development

Submission: 07/11/2022

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Waste Management Study for the City and Province of Buenos Aires

Assignment Number: 1282304

07/11/2022

COVER LETTER

To whom it may concern,

In response to your request for expression of interest we, adelphi consult GmbH (adelphi), acting as lead firm in association with our subcontractor The National Institute of Industrial Technology (INTI) herewith express our sincere interest in providing the consulting services for the above-mentioned project.

adelphi and INTI are uniquely suited for this task as each firm brings in vast expertise in conducting waste characterization for key waste generators, a strong track record in waste management policy reviews and policy gap analysis, as well as in the topic of circular economy. This is complemented by our experience in the waste management sector in the region and our vast network in this regard. Our competencies and capabilities include:

- Experience in reviewing waste management practices for different waste streams, and analyzing waste pollution hotspots.
- Experience in developing Material Flow Analysis and waste characterizations.
- Detailed knowledge of international trends for circular economy in waste management.
- Experience in engaging with policy making bodies and developing policy recommendations.
- Longstanding research capacity that brings together the interdisciplinary nature of waste management and circular economy.
- Strong global network with policymakers and experts keen to contribute to this important study.

Please find included our qualifications, technical and managerial competencies, experience in similar assignments and human capacity available for this assignment.

We understand you are not bound to accept any proposal you receive. In case you require any clarification or additional documentation, please do not hesitate to contact us.

We are looking forward to your interest and cooperation.

Yours sincerely,

Nanne Zwagerman
Head of Business Development
adelphi consult GmbH

Contents

1 Consultant's Organization 1

1.1 Overview of our Organization 1
1.2 adelphi 2
1.3 INTI 3

2 Consultant's Experience 5

2.1 adelphi 5
2.2 INTI 15

3 Comments/Suggestions on Terms of Reference 24

4 Description of Approach, Methodology and Work Plan 28

4.1 Technical Approach and Methodology 28
4.1.1 Task 1. Baseline Assessment 29
4.1.2 Task 2. Gap Analysis 34
4.1.3 Task 3. Policy recommendations and proposed action plans for GIIRSU and CE Promotion 38
4.2 Workplan 41
4.3 Organization and Staffing 42
4.3.1 Backstopping 42
4.3.2 Coordination with the Client 43
4.3.3 Rules and Principles of adelphi's project organization 43
4.3.4 Risk management 44
4.3.5 Quality Assurance 44
4.3.6 Project team 45

Annex 49

Annex I - Team Composition, Task Assignments & Level of Effort (LOE) 50

Annex II – CVs of Proposed Key Personnel

Annex III – Work Schedule

Annex IV – Power of Attorney

Annex V – Letter of Intent

List of figures

Figure 1: MRB's municipalities according their final disposal system 25
Figure 2: Sequencing of activities and resulting deliverables 28
Figure 3: Web-based tools for project planning and management 29
Figure 4: Approaches for data collection 29
Figure 5: Example of Sankey diagram obtained via the WFD tool (source: https://plasticpollution.leeds.ac.uk/toolkits/wfd/) 32
Figure 6: Waste characterization main activities and expected duration 33
Figure 7: Example of waste characterization activites conducted by INTI in Argentina (left) and by adelphi in Dominican Republic (right) 33
Figure 8: Example for different country performances based on the recycling rates. 36
Figure 9: International Trends in Circular Economy (source: adelphi) 37
Figure 10: Example of potential action plan goals (the mentioned goals should considered an example of the type of overall intervention required) 39
Figure 11: Example of potential overview tool for Short-, Medium- & Long-term strategy to reach the action plan goals 40
Figure 12: Team composition 42
Figure 13: Guiding questions for quality assurance 45

List of tables

Table 1: Qualifications of our organization 1
Table 2: Main characteristics of the MRB 24
Table 3: Backstopping pool of experts 43
Table 4: Risk management and mitigation measures 44

List of abbreviations

ACUMAR	Matanza Riachuelo Basin Authority
AMBA	Metropolitan Region of Buenos Aires
BAU	Business-as-usual
CBA	City of Buenos Aires
CEAMSE	Ecological Coordination Area Metropolitan State Company
EPR	Extended Producer Responsibility
FIUBA	Faculty of Engineering of the National University of Buenos Aires
GIIRSU	Integrated and Inclusive Management of Municipal Solid Waste
GIS	Geographic Information System
INTI	The National Institute of Industrial Technology
ISWM	Integrated Solid Waste Management
MFA	Material Flow Analysis
MR	Matanza Riachuelo
MRB	Matanza Riachuelo Basin
MSW	Municipal Solid Waste
MSWM	Municipal Solid Waste Management
PBA	Province of Buenos Aires
PISA	Integral Environmental Remediation Plan
PMGIRSU	Integrated and Inclusive Municipal Solid Waste Management Plan
SWM	Solid Waste Management
ToR	Terms of Reference
USW	Urban Solid Waste
WFD	Waste Flow Diagram

1 Consultant's Organization

1.1 Overview of our Organization

Our team is able to demonstrate a wide area of expertise relevant to the assignment due to the complementarity of our expertise. Our qualifications include the following:

Field of Expertise	adelphi	INTI
(i) Proven expertise in conducting waste characterization for key waste generators;	✓	✓
(ii) Experience in reviewing waste management practices for different waste streams, and analyzing waste pollution hotspots;	✓	✓
(iii) Experience in waste management policy reviews and policy gap analysis;	✓	✓
(iv) Detailed knowledge of international trends for circular economy in waste management;	✓	
(v) Experience in engaging with policy making bodies, and developing policy recommendations;	✓	✓
(vi) Excellent English verbal and written communication skills;	✓	✓
(vii) Excellent Spanish verbal and written communication skills;	✓	✓
(vii) Extensive experience in the waste management sector in Latin America and Global South;	✓	✓
(ix) Experience in working with international financial and development institutions (including the World Bank).	✓	✓

Table 1: Qualifications of our organization

1.2 adelphi

adelphi is a leading independent think tank and public policy consultancy on climate, environment, and development. Our mission is to improve global governance through research, dialogue and consultation. We offer demand-driven, tailor-made services for sustainable development and nature protection, helping governments, international organisations, businesses, and non-profits design strategies for addressing global challenges; since 2001, we have completed over 1000 projects worldwide for international clients including the European Commission, GIZ, KfW, and the World Bank amongst others.

Our work covers nine core areas: Resources – including waste management and circular economy - Climate, Energy, Green Economy, Sustainable Business, Green Finance, Peace and Security, International Cooperation and Urban Transformation. Across these areas, our interventions and technical assistance projects contribute to sectoral development, high-level policy dialogue and inter-regional cooperation, amongst others. Our in-house staff of over 250 comprises a variety of backgrounds and disciplines, allowing us to take an integrated consulting approach that combines technical, financial, legal and planning expertise; alongside this, our significant network of local partners and experts means that we can easily mobilize resourceful contacts in many different countries.

Circular Economy and Waste Management at adelphi

Circular economy is a significant area of expertise at adelphi, with a dedicated team of international analysts working exclusively on this topic. We implement a wide variety of projects across national and international contexts, drawing on a broad range of services in research, consulting, and dialogue. We advise and work directly with governments, public and private enterprises on building readiness and on design and implementation of circular economy systems, including in relation to cleaner production, waste management, wastewater treatment, end-of-life management, and recycling.

Specifically, adelphi develops solutions for the transition towards a Circular Economy by**:**

- promoting eco-design;
- increasing resource efficiency, including in the plastic packaging waste sector;
- fostering cleaner production and manufacturing;
- developing of new concepts of consumption, use and end- of life management;
- promoting sustainable entrepreneurship and circular business models;
- implementing closed-loop solutions worldwide.

adelphi's expertise in waste management touches on all stages of the intervention cycle, including gathering baseline data, conducting gap analyses, and providing policy recommendations accordingly. This is exemplified, for instance, in adelphi's leading role on the ongoing PROMAR project, which aims to quantify and map plastic waste streams and anchor monitoring systems at governing local authorities in selected demonstration sites in the Caribbean region. Specifically, adelphi leads the conducting of material flow analyses to assess the current regional situation, which informs the development of respective waste management tools and best practice materials.

In similar vein, other pertinent projects include national assessments on plastic waste management in Indian cities, the development of climate-friendly technologies and capacity development for waste policy in Brazil, and the development of a regional plan for waste management in Iran, amongst others. adelphi has served in various capacities to such projects, which together have covered a range strategically-relevant work packages, including: situational assessment and review of regional and national-level policies and regulations across respective value chains; quantifying of mismanaged (plastic) waste; (plastic pollution) waste modelling; developing recommendations in the way of practical master plans for waste treatment, and; providing recommendations on regional and national

policy. adelphi's multi-disciplinary team are well-positioned to conduct the various facets required by such initiatives, aiming to advance sustainable waste management systems and principles of circular economy.

Policy Consultation for the Waste Management Sector

adelphi supports policy makers in setting up frameworks that allow businesses to develop disruptive innovations and create functioning markets to facilitate reuse, recycling and cascading solutions. Further, we advise decision-makers from the public and private sector in all stages of innovation development, taking into account the diversity of stakeholders and the role of different sectors. We identify opportunities for modernization and investment that emerge from shifting towards circular production and consumption patterns and formulate tailor-made engagement strategies for multi stakeholder processes. An important part of this is the organization of events, conferences, awards and the production and dissemination of communication and PR material.

In the field of cleaner production through engagement of private companies, we advise the full range of private sector organizations, from micro/small enterprises, medium-sized companies and larger family-run firms to publicly listed companies in Germany, developing countries and emerging economies. On a global scale, adelphi helps companies realise their potential in the field of sustainable development as well as optimise their respective business models and to make the corresponding value chains sustainable. We also support enterprises in the implementation of certifiable environmental and energy management systems according to international standards and consult private sector operators on the topic of Cleaner Production, with a particular emphasis on resource efficiency.

Regional Experience

adelphi has extensive experience of implementing thematically-focussed projects in Latin America, not least in collaboration with stakeholders such as governments, international organizations, research centers, civil society organizations, private companies and development cooperation agencies. Since 2001, over 100 projects have been implemented in the region; in recent years, such projects have included focus on Waste Management and Policy, Natural Resource Management, Carbon Markets, and Sustainable Finance, though adelphi's competence and regional experience also extends to wider areas such as Adaptation to Climate Change, Sustainable Consumption, Climate Diplomacy, Climate Risk Management, Urban Governance, Sustainable Mining and Food Security, Livelihoods of People and Human Rights.

adelphi understands the significance of the local context with regard to development cooperation interventions, and is excellently connected to a wide network of decision-makers, governments, non-governmental organizations, universities and financial institutions; our significant network of local partners and experts means that we can easily mobilize resourceful contacts in many different countries, including in the Latin America region. Together with our multi-disciplinary in-house staff of over 250, this has enabled us to perform diligently, to high effect, and with careful consideration of local context, on a number of international projects.

1.3 INTI

The National Institute of Industrial Technology (INTI) is a benchmark in the local productive network and is consolidated as a technical arm of the Argentinian state. It has a team of technical professionals from multiple disciplines that address the topic of circular economy throughout the national territory. Its extensive network of regional and sectorial research and development centres as well as departments distributed in all provinces allows it to directly cater to the territorial challenges and to provide solutions adapted to the different local realities.

In particular, one of INTI's objectives is to provide technical assistance to industry, national, provincial and local governments on various topics, including waste management and circular economy. Addressing circular economy and integrated solid waste management (ISWM) strategies is possible due to our excellent technical capacity to contribute to the development of integrated solutions in different industrial sectors and in each link of waste management (generation, transport, treatment, recovery and final disposal), as well as in the different scales of territorial challenges. Our permanent contact with all industrial sectors and our work in integrated waste management provides us with the tools to carry out diagnoses and strategic plans, in consensus with the actors involved.

Specifically, with regard to circular economy, INTI stands out for having professionals working in:

- procurement of sustainable raw materials;
- eco-design and development of new materials;
- industrial symbiosis; product life extension;
- communication and relationship with the consumer;
- reverse logistics and management of new product life for their incorporation into new production cycles, either within the same industry or through other links or valorisation alternatives.

We also have experience in extended and shared responsibility, renewable energies, life cycle analysis, environmental footprints, cleaner production, efficiency in the use of resources, resource management, among other topics related to this call. In particular, INTI experts are actively participating since 2018 in the Technical Committee ISO 323 "Circular Economy", which is in the process of developing four international standards for the implementation and measurement of circular economy systems. The latter implies a high degree of knowledge about the strategies, policies and indicators used internationally on the subject. We have also participated in the different roundtables with the different productive sectors convened by the Ministries of Productive Development and Environment and Sustainable Development. In recent years, INTI has participated in the technical evaluation of numerous law proposals in favor of the circular economy presented by different political actors and spaces to the Chamber of Deputies.

On the other hand, it should be noted that INTI has experience in the development of projects within the framework of international lending agencies. Within the institute, for example, operates the Basel Regional Centre for Latin America and the Caribbean and, in turn, the team has already been awarded funding from UNDP, PTB, European Union, among others. Here we highlight: Quality Infrastructure for the Circular Economy in Latin America and the Caribbean (QI4CE LAC) implemented by the leading regional cooperation of the Quality Infrastructure of the Americas (QICA) - COPANT, IAAC and SIM - together with the Organization of American States (OAS) and the German National Metrology Institute (PTB) (ongoing); GEF Project AR 16 G23 "Sustainable business models for biogas production from organic municipal solid waste"; "Regional Fund for Quality Infrastructure for Biodiversity and Climate Protection in Latin America and the Caribbean", financed by the German Federal Ministry for Economic Cooperation and Development and implemented by the German National Metrology Institute (PTB); "Quality Infrastructure for Traceable Greenhouse Gas (GHG) Measurements in Support of Measurement, Registration and Verification Strategies"; Water Footprint Sub-Project of the PTB's Innovation and Green Economy project; and the Project for the Improvement of Regional Economies and Local Development in Argentina, funded by the European Union, among others.

It should be noted that INTI has signed six cooperation agreements with Matanza Riachuelo Basin Authority (ACUMAR) mainly focused on water quality analysis, and environmental management of industrial parks within the Matanza Riachuelo Basin (MRB). The working relationship developed over the years would be an important success factor for this project.

2 Consultant's Experience

2.1 adelphi

Assignment Name: Prevention of Marine Litter in the Caribbean Sea (PROMAR)	**Approx. value of the contract (US$):** 4,889,749 $ (4,894,687.90 €)
Country: Costa Rica, Dominican Republic, Colombia **Location within Country:** n/a	**Duration of assignment (months):** 37
Name of Client: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)	**Total Nº of staff-months of the assignment:** 460
Contact Person, Title/Designation, Tel. No./Address: Karolin Nübler, Technical Project Manager T +49 30 700181437 Johannes Schweda, Grants Management / International Programs – Team III T +49 30 700 181 686 Zukunft – Umwelt – Gesellschaft (ZUG) gGmbH, Stresemannstr. 69-71, 10963 Berlin, Germany	
Start Date (Month/Year): 11/2020 **Completion Date (Month/Year):** 12/2023	**No. of professional staff-months provided by your consulting firm/organization or your sub consultants:** 92
Name of Associated Consultants, If Any: ABRELPE – Brazilian Association of Public Cleaning and Waste Management Companies, CEGESTI – Fundación Centro de Gestión Tecnológica e Informática Industrial, CNPML – Centro Nacional de Producción Más Limpia y Tecnologías Ambientales, Parley for the Oceans	**Name of senior professional staff of your consulting firm/organization involved and designation and/or functions performed (e.g. Project Director/Coordinator, Team Leader):** • Jürgen Hannak, Head of Programme Circular Economy • Morton Hemkhaus, Senior Advisor • Lena Piepmeier, Manager • Paolo Facco, Advisor • Johanna Katharina Mützel, Consultant • Jan Janssen, Associate
Narrative Description of Project: The Dominican Republic, Costa Rica and Colombia share not only their access to the Caribbean Sea, but also several economic characteristics: Tourism, fisheries and maritime transport are of central importance. However, these industries all produce large amounts of waste, mainly from Fast Moving Consumer Goods wrapped in single-use plastic packaging.	

Inadequate collection and disposal has given rise to wide-spread public concerns about pollution levels and marine debris in the Caribbean Sea. Studies have measured the concentration of plastic litter across the region and found as many as 200,000 pieces of plastic per square kilometre in the north-eastern Caribbean. Most of this litter originates from the Caribbean countries and from northern waters. These plastics settle throughout the water column, fragmenting into microplastics that can seriously harm marine life. On average, 2,014 littered items were found per kilometre of beaches and coastal areas, most commonly including plastic bottles (21 %), other single-use plastic items and foam containers. Abandoned fishing gear is another critical form of marine litter and is considered the main source of plastic waste in the marine environment coming from the fisheries and aquaculture sectors.

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports the Dominican Republic, Costa Rica and Colombia in their goal to reduce flows of plastic waste (mainly packaging) from terrestrial sources into the Caribbean Sea. To this end, the PROMAR project will quantify and map plastic waste streams and anchor monitoring systems at governing local authorities in selected demonstration sites. Based on established baselines, the project team will implement pilot circular economy solutions to achieve a measurable reduction in plastic waste entering aquatic environments at all sites. The project will strengthen political partners' capacities to implement Extended Producer Responsibility (EPR) systems and support their contributions to international dialogue processes. Due to the transboundary effects of marine pollution, the project will replicate successful pilot cases in other areas beyond the demonstration sites and increase the public's awareness in order to avoid, collect and intercept marine litter in coastal areas. All of these activities are carried out in all three countries simultaneously; in addition, replication, policy dialogue and dissemination activities will also take place in other Latin American countries and the Wider Caribbean Region.

adelphi is leading the conduction of material flow analyses to assess the current regional situations as well as the development and dissemination of waste management tools and best practices materials. This includes supporting transnational policy dialogue with political partners and the dissemination of tools, results, and lessons through global and regional networks. As the project lead, adelphi further contributes to the project by carrying out the overall project management and coordination, monitoring and reporting vis-à-vis ZUG's designated programme manager for the grant programme on marine litter prevention, and supporting all other project activities.

Description of Actual Services Provided by Your Staff:

- Cross-cutting project management and reporting
- Analysis of material flows and conduction of waste characterizations
- Development and implementation of best practice methods
- Supporting the transnational policy dialogue around Extended Producer Responsibility and the dissemination of project results in global and regional networks
- Implementation of plastic waste prevention measures in pilot projects and subsequent scaling up and replication in other Latin American countries scaled up and replicated

Assignment Name: Prevention of Plastic Waste in Central America and the Caribbean - Belize	**Approx. value of the contract (US$):** US $ 203,993 (€ 204,230)
Country: Belize **Location within Country:** n/a	**Duration of assignment (months):** 18
Name of Client: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	**Total No of staff-months of the assignment:** 18.5
Contact Person, Title/Designation, Tel. No./Address: Dag-Hammarskjöld-Weg 1-5, 65760 Eschborn, Germany	
Start Date (Month/Year): 03/2022 **Completion Date (Month/Year):** 07/2023	**No. of professional staff-months provided by your consulting firm/organization or your sub consultants:** 18.5
Name of Associated Consultants, If Any: n/a	**Name of senior professional staff of your consulting firm/organization involved and designation and/or functions performed (e.g. Project Director/Coordinator, Team Leader):** • Jürgen Hannak, Head of Programme Circular Economy • Maro Luisa Schulte, Advisor

Narrative Description of Project:

Plastic waste pollution is contributing to the increasing destruction of Caribbean Sea ecosystems. These ecosystems have many vital environmental functions and are the basis for important economic sectors in the region such as fishing and tourism. To preserve the ecosystems, plastic waste must be prevented from entering the sea. At the same time, the amount of existing plastic waste must be reduced. However, recycling systems in the region are often underdeveloped. Often, only high-value materials (e.g. metals) are sent to a recycling process, while plastics end up in landfills. The private sector lacks capacity for sustainable waste and environmental management. Furthermore, awareness of the environmental impacts of plastic waste is low both in the business sector and in civil society.

The regional Caribe Circular project in the Caribbean, implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), aims to improve the political, economic and social framework to prevent plastic waste dumping in the Caribbean. As part of this project, adelphi supports GIZ and its partner Department of Environment in Belize in implementing country-specific activities. These activities aim to promote regional exchange and networking among the relevant actors in order to intensify the exchange on the project topic. At the same time, the role of the private sector is to be strengthened to improve the balance of plastic waste through innovative value chains. The activities will also include a pilot project to implement plastic waste prevention models and evaluate their effectiveness in Belize. As an overarching supportive measure, public and private sector awareness will be raised to support national implementation plans.

Description of Actual Services Provided by Your Staff:

- Promote regional exchange and networking among the relevant actors
- Capacity building for the private sector through business cases and strengthening of value chains, involving e.g.

packaging and manufacturing industries, hotels (regarding Single-Use Plastics), waste from cruise ships and ports, recyclers, and/or importers
- Pilot project to implement plastic waste prevention models and evaluate their effectiveness in Belize
- Support to national implementation plans

Assignment Name: National Assessment on Plastic Waste Management in Indian Cities	**Approx. value of the contract (US$):** 167,956 $
Country: India **Location within Country:** n/a	**Duration of assignment (months):** 18
Name of Client: The World Bank	**Total № of staff-months of the assignment:** 15.64
Contact Person, Title/Designation, Tel. No./Address: Poonam Ahluwalia Khanijo, pahluwaliakhanij@worldbank.org 1818 H Street, NW Washington, DC 20433 USA	
Start Date (Month/Year): 05/2020 **Completion Date (Month/Year):** 11/2021	**No. of professional staff-months provided by your consulting firm/organization or your sub consultants:** 10.68
Name of Associated Consultants, If Any: BlackForest Solutions, The Energy and Resource Institute (TERI), Cambridge Econometrics (CE)	**Name of senior professional staff of your consulting firm/organization involved and designation and/or functions performed (e.g. Project Director/Coordinator, Team Leader):** • Morton Hemkhaus, Senior Advisor • Johanna Katharina Mützel, Team Leader • Franziska Sophie Kohler, Advisor • Jana Hack, Consultant • Tim Bauer, Analyst

Narrative Description of Project:

India is characterised by a highly dynamic economy, where strong economic growth in recent years has resulted in the reduction of poverty rates across the entire country. While this development is highly desirable from the perspective of human well-being, it also results in increasing amounts of municipal solid waste (MSW). In many Indian cities, plastic waste has become a severe nuisance as it is openly dumped, burnt or managed in other inappropriate ways. In recent years, the Indian government has declared SWM a national priority and has taken far-reaching steps to improve collection, treatment and disposal through a number of state and local government measures. This includes the overarching Clean India Mission (Swachh Bharat) as well as various state sponsored investment programmes and policies, such as the circulation of the Unified Framework for Extensive Producer Responsibility (EPR) which seeks to guide the implementation of the Plastic Waste Management Rules from 2016. Despite these efforts, the extent of mismanaged plastics in India is still poorly understood and a systematic national assessment has not been conducted till date.

The World Bank had commissioned adelphi, The Energy and Resource Institute (TERI), BlackForest Solutions (BFS) and Cambridge Econometrics (CE) to conduct a comprehensive, empirical and data-based analytical assessment of mismanaged plastic waste at national and city level. The assessment quantified the amount of mismanaged plastic waste and reviewed existing national-level policies and regulations across the plastics value chain – from extraction of raw materials, imports, manufacturing and usage, to plastic waste generation and recycling or final disposal. Based on this, the

consortium developed a plastic pollution model that estimates the future trajectories of plastic waste generation in India along three different development scenarios: i) “business as usual” with few interventions to curb plastic consumption and waste generation; ii) “incremental change”, assuming increasingly ambitious policy and institutional interventions to improve downstream management of plastic waste; and iii) “transformative change” with ambitious and far-reaching reforms along the entire plastics value chain, including eco-design. Finally, the consortium compared the results from the Indian context with best practices in policy, institutions, technology and financing in order to develop recommendations for future interventions.

Building upon its experience from prior participation in waste management projects in India, adelphi was the project lead and thus in charge of the overall coordination, backstopping, implementation and quality control of this project. Additionally, adelphi contributed analytical expertise to the institutional, regulatory and policy assessment. On this basis of its long-standing experience with environmental policy instruments such as Extended Producer Responsibility (EPR) schemes and their legal, administrative and technical implications, adelphi also contributed to the development of policy recommendations for the Indian context.

Description of Actual Services Provided by Your Staff:

- Policy assessment
- Stakeholder analysis
- Supporting development of scenario analysis and plastic pollution model
- Stakeholder consultations
- Development of recommendations
- Study development

Assignment Name: Climate-friendly technologies and capacity development for waste policy in Brazil	**Approx. value of the contract (US$):** 1,932,248 $ (1,934,200 €)
Country: Brazil **Location within Country:** n/a	**Duration of assignment (months):** 55
Name of Client: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	**Total № of staff-months of the assignment:** 107
Contact Person, Title/Designation, Tel. No./Address: Sybille Dähn-Ralamboarison, sybille.daehn-ralamboarison@giz.de, +49 619679-1451 Dag-Hammarskjöld-Weg 1-5, 65760 Eschborn, Germany	
Start Date (Month/Year): 11/2017 **Completion Date (Month/Year):** 06/2022	**No. of professional staff-months provided by your consulting firm/organization or your sub consultants:** 39
Name of Associated Consultants, If Any: GOPA Infra GmbH	**Name of senior professional staff of your consulting firm/organization involved and designation and/or functions performed (e.g. Project Director/Coordinator, Team Leader):** • Jan Janssen, International Long-Term Expert

Narrative Description of Project:

People often underestimate the impact of the waste sector on climate. The policies and implementation strategies focus on effective waste management without considering the climate-related effects – this is often due to a failure to understand how the waste sector can help mitigate climate change. A recent collaboration project with partners in Brazil aimed to increase awareness and understanding of sustainable waste management.

The project focussed on improving the country's pioneering role in sustainable waste management in Latin America. To this end, it developed waste policy that not only considers the short-term, but also long-term goals such as climate protection. The project was divided into three components, in which adelphi played a leading role. The aim of the first component was to ensure that the parameters and criteria for mitigating climate change are integrated into national regulatory and funding instruments. These tools are a prerequisite for the consolidation of low-emission treatment technologies as an alternative to landfill. Even if these treatment technologies have higher costs, they should be promoted, given their potential to reduce greenhouse gases and contribute to a circular economy.

As part of the second component, the project developed decision-making tools that enable municipalities and the private sector to select the most appropriate technologies and methods for each case. Examples of national and international best practices have been made available and disseminated and will be published on the project's online platform. To complement this platform, the project carried out a capacity-building program for municipalities and private sector partners. This offered the opportunity to learn about methodologies, technologies, business models and strategies for implementing a sustainable municipal solid waste management (MSWM) system.

The third component of the project aimed to combine practical information about sustainable waste management with academic knowledge. The project created integrated university modules that explicitly deal with the climate protection

potential of municipal waste. Various universities in Brazil were selected and responsible teams received training to act as facilitators for these new modules. A virtual German-Brazilian network of experts was also created to promote innovation. In addition, the project provided support for applied research projects for treatment systems and technologies with high climate protection potential in the solid waste sector in Brazil.

Description of Actual Services Provided by Your Staff:

- Waste policy consulting on national and municipal level, e.g. with regard to the anchoring of climate targets in the national waste management system.
- Development and monitoring of measures for the competence development of decision-makers at national and municipal level in the field of climate-oriented waste policy.
- Promoting and facilitating the exchange of knowledge on climate-oriented waste management between Brazilian and German decision-makers.

Assignment Name: Development of a regional plan for waste management in Iran	**Approx. value of the contract (US$):** 77,132.10 $ (77,210 €) (adelphi share)
Country: Iran **Location within Country:** n/a	**Duration of assignment (months):** 25
Name of Client: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) / Fraunhofer UMSICHT Institute Branch Sulzbach-Rosenberg	**Total Nº of staff-months of the assignment:** 4.36 (adelphi share)
Contact Person, Title/Designation, Tel. No./Address: Jonas Umgelter, Technical Advisor, jonas.umgelter@umsicht.fraunhofer.de, +49 9661 908 431 Fraunhofer-Gesellschaft, Hansastraße 27c, 80686 Munich, Germany	
Start Date (Month/Year): 11/2017 **Completion Date (Month/Year):** 12/2019	**No. of professional staff-months provided by your consulting firm/organization or your sub consultants:** 4.36 (adelphi share)
Name of Associated Consultants, If Any: BlackForest Solutions, Fraunhofer UMSICHT Institute Branch Sulzbach-Rosenberg, Universität Rostock	**Name of senior professional staff of your consulting firm/organization involved and designation and/or functions performed (e.g. Project Director/Coordinator, Team Leader):** • Inga Fischer, Senior Project Manager • Amarnath Munnolimath, Senior Manager • Morton Hemkhaus, Senior Advisor • Jan Janssen, Associate • Mikael P. Henzler, Management Board

Narrative Description of Project:

For almost four decades, economic relations with Iran were restricted and later interrupted. International sanctions have caused a high investment backlog in the Iranian economy. There is a considerable need for development and investment, particularly in the area of waste management: Currently, just under 6% of municipal waste is recycled, about 10% composted, and over 80% disposed of in unsealed landfills. There is only one small, unsealed landfill for hazardous waste. With the opening of the Iranian economy and an expected economic upturn; the bottlenecks in waste management will become even more acute if the country does not succeed in creating an adequate infrastructure. In addition, when developing a structured waste management system, there is always the possibility of building up a sustainable and innovative sector of the economy, which also has a positive influence on other sectors (mechanical and plant engineering, construction, etc.).

The project aimed at developing a region-specific waste management master plan for the construction of integrated waste treatment plants for municipal and hazardous waste. Based on the analysis of a geographically limited region, a policy brief was prepared to make recommendations for the development of the entire Iranian waste management in the field of municipal and hazardous waste. In addition, market development in Iran was propelled forward by German small and medium-sized enterprises (SMEs). The focus was on targeted exchange and cooperation between German SMEs in the

environmental technology sector and Iranian authorities and industry representatives.

The project was funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and carried out by adelphi together with BlackForest Solutions GmbH, under the direction of Fraunhofer UMSICHT in Sulzbach-Rosenberg and the Department of Waste and Resources Management at the University of Rostock.

Description of Actual Services Provided by Your Staff:

- Organization and implementation of stakeholder kick-off workshop
- Collaboration on selected topics of the regional waste management plan (municipal waste): regulatory framework, financial structures, waste collection and logistics
- Collaboration in the preparation of a policy brief
- Organization and implementation of two delegation trips (incl. final workshop)

2.2 INTI

Assignment Name: Evaluation of the potential for capture and energy use of methane generated in 13 landfills in Argentina, within the GEF-AR16/G23 project "Sustainable Business Models for the Production of Biogas from Solid Waste Organic Urban".	**Approx. value of the contract (US$):** 125.000
Country: Argentina **Location within Country:** Ten locations in Argentina: Mendoza (x2), Córdoba, Chubut, Catamarca, Misiones, San Juan, Bahía Blanca, Mar del Plata, Gualeguaychú	**Duration of assignment (months):** 14 (10 sanitary landfills completed)
Name of Client: Ministerio de Ambiente y Desarrollo Sustentable de la Nación	**Total Nº of staff-months of the assignment:** 23
Contact Person, Title/Designation, Tel. No./Address: Candela Nassi. Jefa de Gabinete de la Secretaría de Control y Monitoreo Ambiental del Ministerio de Ambiente y Desarrollo Sustentable de la Nación. / (54-11) 3990-0400 / San Martín 451, C1004AAI CABA, Argentina	
Start Date (Month/Year): 12/2018 **Completion Date (Month/Year):** 03/2019	**No. of professional staff-months provided by your consulting firm/organization or your sub consultants:** 23
Name of Associated Consultants, If Any: n/a	**Name of senior professional staff of your consulting firm/organization involved and designation and/or functions performed (e.g. Project Director/Coordinator, Team Leader):** • Mazzeo, Nadia. Project Coordinator from INTI. • Barlatey, María Alejandra. Senior engineer. Biogas specialist • Devia, Leila. Policy analyst • Dietrich, Alberto. Senior engineer. Economic specialist • Garro, Justina. Senior engineer. GHG specialist. • Goicoa, Víctor. Senior engineer. Biogas specialist. • Muzlera, Ana. Waste management specialist • Poliak, Raúl. Senior advisor. Waste management specialist • Ruhl, Gustavo Gabriel. Senior engineer. Waste management specialist
Narrative Description of Project: The objectives of the project where to carry out a study of the potential for capture and subsequent energy use of the	

methane generated in 13 (thirteen) sanitary landfills in Argentina and to estimate the reduction of greenhouse gas emissions associated to using the methane generated in the 13 (thirteen) landfills. To achieve these objectives, technical information was collected on the current management of each landfill and field visits were made. Based on the information and applying the model of the Intergovernmental Panel for Climate Change, methane emissions were calculated in the current base situation without the project. Subsequently, technological proposals were made for the extraction, capture and use of landfill gases (GRS). Finally, the potential for electricity generation from LFG and the GHG emissions in the situation without the project and with the project (considering the emissions avoided directly by capturing the LFG and those avoided indirectly by the project) were calculated.

Description of Actual Services Provided by Your Staff:

- Policy assessment
- Stakeholder consultations
- Development of recommendations
- Study development
- Estimate the GHG emissions from activities, waste management included.
- Support to national implementation plans

Assignment Name: Evaluation of the Waste Management System of Municipality of Exaltación de la Cruz	**Approx. value of the contract (US$):** 18.000
Country: Argentina **Location within Country:** Exaltación de la Cruz, Buenos Aires	**Duration of assignment (months):** 6
Name of Client: Municipalidad de Exaltación de la Cruz	**Total Nº of staff-months of the assignment:** 11
Contact Person, Title/Designation, Tel. No./Address: Jesica Leichner, Jefa de Medio Ambiente de la Municipalidad de Exaltación de la Cruz / (54 02323) 49-1050 / Capilla del Señor, Provincia de Buenos Aires	
Start Date (Month/Year): 01/2021 **Completion Date (Month/Year):** ongoing	**No. of professional staff-months provided by your consulting firm/organization or your sub consultants:** 11
Name of Associated Consultants, If Any: n/a	**Name of senior professional staff of your consulting firm/organization involved and designation and/or functions performed (e.g. Project Director/Coordinator, Team Leader):** • Cruz, Natalia. Project Coordinator from INTI. • Muzlera, Ana. Waste management specialist and project coordinator • Mazzeo, Nadia. Waste management specialist. • Dietrich, Alberto. Senior engineer. Industrial and economic specialist • Frisardi, Nicolas. Junior policy specialist.
Narrative Description of Project: Since 2021, INTI has been working with the Municipality of Exaltación de la Cruz to improve the current municipal waste management plan. Exaltación de la Cruz is in the north of Buenos Aires province and is part of Buenos Aires Metropolitan Area. The proposed workplan was divided into four stages, of which two have already been completed. The first stage consisted of the waste characterisation according to the IRAM 29.523 methodology, the second, in a diagnosis and proposals for improvement of current waste management; and a third stage is currently underway, consisting of the evaluation of the waste treatment technology that the municipality wants to implement. Finally, the fourth stage consists of the evaluation of possible uses for the final product obtained from treated waste	
Description of Actual Services Provided by Your Staff: • Policy assessment • Stakeholder consultations • Development of recommendations • Study development	

- Waste characterization according to IRAM 29.523
- Support to national implementation plans

Assignment Name: Sanitary landfill design for the city of Concepción del Uruguay	**Approx. value of the contract (US$):** 67,000
Country: Argentina **Location within Country:** Concepción del Uruguay	**Duration of assignment (months):** 6
Name of Client: Municipality of Concepción del Uruguay	**Total Nº of staff-months of the assignment:** 6
Contact Person, Title/Designation, Tel. No./Address: Dr. Miguel A. Toledo. Secretary of Health, Disability and Human Rights of the Municipality of Concepción del Uruguay.	
Start Date (Month/Year): 2020 **Completion Date (Month/Year):** 2021	**No. of professional staff-months provided by your consulting firm/organization or your sub consultants:** 6
Name of Associated Consultants, If Any: F6aculty of Health Sciences - National University of Entre Ríos.	**Name of senior professional staff of your consulting firm/organization involved and designation and/or functions performed (e.g. Project Director/Coordinator, Team Leader):** • Gustavo Ruhl. Degree in Environmental Health, Specialist in Environmental Engineering. • Federico Bailat. Environmental Engineer. • Gisela Rodriguez. National Public Accountant. • Verónica Bertoncini. Degree in Environmental Management. Specialist in Environmental Engineering. • Alejandra Barlatey. Chemical Engineer, Master in Renewable Energies. • Eugenio Pettigiani. Specialist in MSW. Development of Technical Project. • Violeta Silbert. Agricultural Engineer, specialist in organic solid waste (OSW). Development of OSW Plant Project.

Narrative Description of Project:

Design of the city's landfill. The project considered the final disposal of 100% of the household waste generated by the city of Concepción del Uruguay; it contemplated an average of 90 tons of municipal waste per day, with a life span of 20 years. The property for this project covers an area of 14 hectares.

The proposal includes the sustainable management of the city's Urban Solid Waste (USW) and the revaluation of most of the waste in order to minimize the volumes destined to the landfill. The spaces for the treatment of household solid waste, non-hazardous industrial waste, green waste, end-of-life tires (ELT), aggregates and rubble, and bulky waste were considered.

Within the environmental complex, recovery and treatment areas and three storage modules were designed, together with the development of management and operation recommendations and the necessary engineering to control direct and indirect environmental impacts generated by the final disposal of MSW, such as the leachate treatment system and landfill degassing. For the sizing of the modules, the aforementioned estimation values and a density of stabilized waste within the

module of 0.70 t/m3 were adopted. The treatment of recyclable materials (paper and cardboard, glass, metals and plastics such as PET, HDPE and PP) and green waste was designed for the generation of organic amendment in agriculture and related areas; bioremediation; and direct use in ovens and boilers or chipping.

As complementary infrastructure, the project includes the construction of industrial buildings for the treatment of the different waste fractions, machinery maintenance and tool storage, offices to control the entry and weighing of trucks, administrative offices, dressing rooms, and restrooms for personnel. In addition, the executive project included management recommendations for the operation, control and maintenance of the landfill.

Description of Actual Services Provided by Your Staff:

- Determining the actions derived from the design, construction and operation of an Urban Solid Waste Treatment and Disposal Center (Environmental Complex) in the city of Concepción del Uruguay, province of Entre Ríos.

Assignment Name: Development of an integrated solid urban waste management system with energy recovery technology.	**Approx. value of the contract (US$):** 448,200
Country: Argentina **Location within Country**: Municipality of Sarmiento – Province of San Juan	**Duration of assignment (months):** 65
Name of Client: FONARSEC FITS - ENERGIA - Fuentes renovables: Biomasa	**Total Nº of staff-months of the assignment:** 83
Contact Person, Title/Designation, Tel. No./Address: Laura Toledo, Director of Fonarsec	
Start Date (Month/Year): 08/2014 **Completion Date (Month/Year):** 12/2019	**No. of professional staff-months provided by your consulting firm/organization or your sub consultants:** 83
Name of Associated Consultants, If Any: n/a	**Name of senior professional staff of your consulting firm/organization involved and designation and/or functions performed (e.g. Project Director/Coordinator, Team Leader):** • Juan Carlos Najul: FONARSEC Project Director. • Natalia Vanin: Project Coordinator from INTI. • Ricardo Quiroga: Development of technical proposal. • Raul Poliak: Development of technical proposal.

Narrative Description of Project:

The project represents a model of an Integrated Solid Urban Waste Management Demonstration Plant and contemplates the guiding principles: Reduce, Separate at Source, Recycle and Energy Valorisation of waste from certain waste streams. The municipality's waste will have differentiated logistics, and will be received at the Integrated Management plant where it will be classified and separated for recycling the inorganic and dry fractions. The rejects and the wet fraction will be thermally treated through the development of a VERSU Plant, which is basically a controlled combustion with electric power generation through a combined gas and steam cycle.

Description of Actual Services Provided by Your Staff:

- Provide technical information to evaluate new ways of treating MSW and eliminating environmental liabilities, as part of an Integrated MSW Management System (ISWM).
- Demonstrate compliance with environmental and energy parameters of a waste combustion system for electricity generation.
- Generate new forms of institutional relationships that favour and promote the common good over private interests. Public-Private Associative Consortiums (CAPP).
- To develop technical capacities in the SMEs of the metal-mechanic sector to manufacture the necessary equipment for the proposed systems.

Assignment Name: Strategic Regional Plan for Integrated Waste Management for the Sierras Chicas Region.	**Approx. value of the contract (US$):** 100,000
Country: Argentina **Location within Country:** Sierras Chicas – Province of Córdoba	**Duration of assignment (months):** 36
Name of Client: Municipalities of Villa Allende, Mendiolaza, Unquillo, Río Ceballos, Salsipuedes, El Manzano, Villa Cerro Azul, Agua de Oro, y La Granja	**Total Nº of staff-months of the assignment:** 22
Contact Person, Title/Designation, Tel. No./Address: Eugenio Pettigiani, Head of Department of Analytical Chemistry and Urban Waste, +54 9 3543 515168	
Start Date (Month/Year): 11/2018 **Completion Date (Month/Year):** 11/2021	**No. of professional staff-months provided by your consulting firm/organization or your sub consultants:** 22
Name of Associated Consultants, If Any: n/a	**Name of senior professional staff of your consulting firm/organization involved and designation and/or functions performed (e.g. Project Director/Coordinator, Team Leader):** • Eugenio Pettigiani: INTI Project Director.

Narrative Description of Project:

The project focussed on the design of a Strategic Plan for the Integrated Management of the solid waste generated in nine municipalities in the Sierras Chicas Region in the Province of Córdoba (125000 inhabitants in total). The project consisted on a base line study which included waste generation and characterization, waste collection systems and infrastructure analysis, recovery facilities and programs, survey of the three existing open dump sites, and a poll that reached 11 % of the population to learn about waste management habits and expectations.

The results of the base line study were presented in public hearings to design a waste management strategy with public participation which resulted in the design of a Regional Waste Treatment and Transfer Station to manage 100 t/day of MSW. The project also included the remediation of three open dump sites and the existing transfer station of Río Ceballos where the regional Plant was sitted. INTI also participated in the Environmental Impacts Assessment of the regional project.

Another important aspect of the project was the training of over 800 students of 18 high-schools in Sierras Chicas to promote waste separation of recyclables and home composting of organic waste in the school and neighboring households.

Description of Actual Services Provided by Your Staff:

- Waste generation and characterization studies
- Baseline study of existing waste management practices, equipment and infrastructure in each municipality.
- Environmental Assessment of three open dump sites in Sierras Chicas Region and technical proposal to remediate them.
- Development of household waste management practices poll through eighteen high schools in Sierras Chicas
- Development of a Strategic Plan for the Integrated Management of the solid waste generated in the Region with public

participation. The strategic plan focuses on implementing waste separation at source and collection of recyclables, promotion of household composting, and promoting local Circular Economy projects with recovered materials.

- Design of a Regional Waste Treatment and Transfer Station.

3 Comments/Suggestions on Terms of Reference

The Province of Buenos Aires (PBA) has a population of 17,541,141 inhabitants and covers an extensive territory of 305,907.40 km^2. However, more than 90% of its inhabitants live in urban areas, where the most important one is the metropolitan region of Buenos Aires (AMBA) integrated by the City of Buenos Aires (CABA) and almost 40 municipalities, with a population density of 1140 hab/km^2.

The MRB covers an area of 2047.86 km^2 and includes CABA and 14 municipalities from the AMBA. In CABA alone there is a population of 2,890,151 inhabitants and a population density of 14,450.8 hab/km^2. The MRB has a population density of 2197.41 hab/km^2 and generates an approximate amount of 10,000 tons of urban solid waste per day.

The basin is divided in three sub-basin (lower, mid and upper basin) that has different degrees of urbanization and density population as follows:

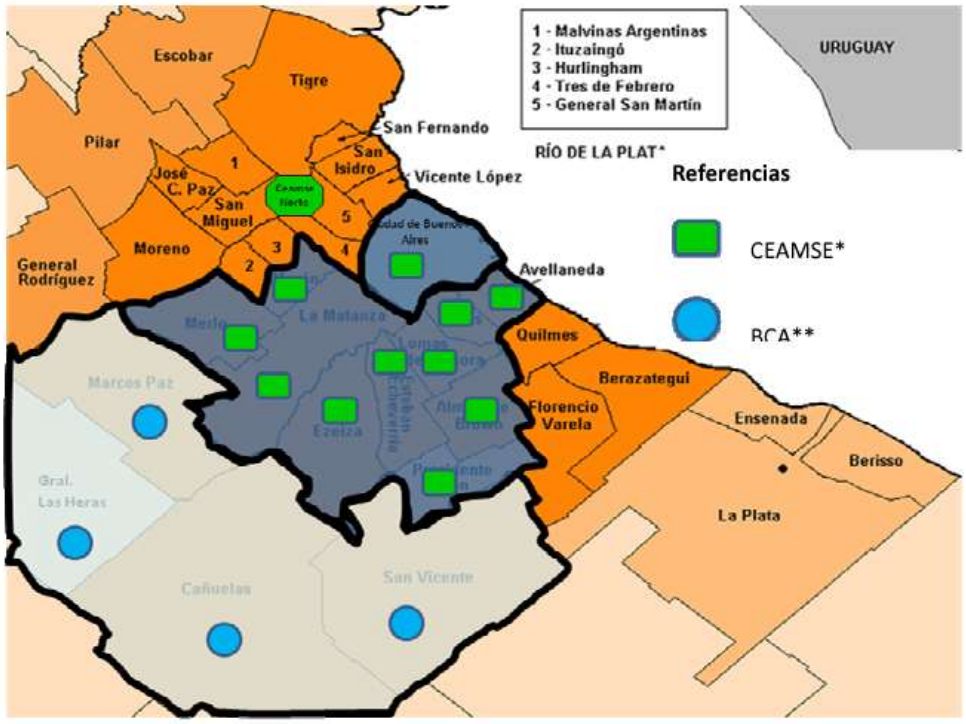
LOWER BASIN CABA, Avellaneda, Lanús and Lomas de Zamora	MIDDLE BASIN Esteban Echeverría, Ezeiza, Morón, Merlo, La Matanza and Almirante Brown	UPPER BASIN General Las Heras, Marcos Paz, Cañuelas, San Vicente, President Perón.
Predominantly urban landscape. Industrial activity and services. High population density.	Mixed urban-rural landscape. Mainly secondary activities. Variable population density.	Predominantly rural landscape. Primary activities and agro-industries. Low population density.

Table 2: Main characteristics of the MRB

The municipalities that make up the MRB have high rates of population below the poverty line and indigence in a higher percentage than the rest of the municipalities of the PBA, according to data from the Ministry of Health, and low insertion in work wage earner and high levels of precarious housing and living conditions in general. According to data from Universidad Nacional de General Sarmiento (UNGS), in 2009 there were 273 villas and settlements located in the Lower and Middle Basin. For this reason, the recovery of recyclables is a frequent activity among its population. In some cases, such as the cooperatives that make up the recovery circuit in CABA or are part of the river basin clean-up, they have institutional recognition.

The National Law 25.916 of house-hold waste establishes that the municipal governments are responsible for the management of the waste generated in their district and requires them to move forward to integrated waste management systems in order to protect the environment and the life quality of the population.

At present, the waste management in the MRB is narrowed to the collection and final disposal stages. Waste collection and transport are mostly private but, in some cases, it is done by the municipality. Nevertheless, there are neighbourhoods which are inaccessible, and there are new settlements that do not have waste collection services and, therefore, generate new open dump sites.



* Disponen en CEAMSE

** Disponen en basurales a cielo abierto

Figure 1: MRB's municipalities according their final disposal system

Regarding the urban hygiene service in CABA, the city is divided in 7 zones, 6 are administered by private companies and 1 by the local government through the Hygiene Urban Entity. Only 30% of CABA has source separation (wet and dry).

The municipalities located in the medium and low sub basins (Alte. Brown, Avellaneda, Esteban Echeverría, Ezeiza, Lanús, La Matanza, Lomas de Zamora, Merlo, Morón y Presidente Perón) and CABA dispose their waste in sanitary landfills which are reaching their limit capacity. The rest of the CMR dispose in open dumps that have different levels of control.

Waste pickers and their cooperative organizations are covered by Law 1854/05 of the City of Buenos Aires (known as Basura Cero Law) and Law 992/02, which pioneered the recognition of the urban hygiene system as a public service and the incorporation of the so-called urban recuperators in it. Resolution 317/20 established that the work carried out by cooperatives and civil associations of waste pickers carry out essential work within the

framework of the Mandatory Social Distance established as a result of the Covid-19 Pandemic.

Although it is an activity that is carried out individually or with the family and, in many cases, it is sporadic because it is combined with informal work or "changas", the collection of recyclable materials has gone through a long process of organization since the year 2002, when the social and economic emergency pushed many people from the suburbs of Buenos Aires to recover materials in large urban centres for daily subsistence.

In general, the MRB districts have hardly any tools to manage their waste in a more sustainable way. One of the many limitations we can find is that almost all the municipal governments have financial problems due to an insufficient budget which has to be completed with national and provincial funds. Another important limitation is the absence of a department responsible for the waste management in the local government structure, and the unavailability of resources, tools or technical capacity that are required for the elaboration and development of an integral SWM plan.

As a consequence of the court case known as “Causa Mendoza” and in the absence of a public policy to bring a solution to the environmental degradation of the MRB, Law N° 26.168 was passed in 2006 to create the ACUMAR and established it as the agency in charge of harmonizing environmental policies developed within the MRB. This Law establishes that ACUMAR is the maximum environmental authority in the basin, articulating public policies with the national, provincial and CABA authorities. In practice, ACUMAR can intervene when illegal dumps occur within 100 meters of the Matanza Riachuelo (MR) river and its affluents, but face serious difficulties in preventing dumping of waste further inland or promoting better waste management tools and practices like selective waste collection of recyclables and recycling and composting facilities. The same applies to the "Ecopuntos" recycling plants, some of which were financed by ACUMAR but whose operation is not under ACUMAR's control.

In 2008 the National Supreme Court intimated ACUMAR to eradicate, clean and close all open dump sites within the basin which resulted in a baseline survey of these hot spots in 2011. ACUMAR was able to comply by cleaning most of these sites once. However, most of these sites returned to the original situation because no effective preventive measures were taken.

Specific comments to the ToR:

- While we find the Terms of Reference (ToR) elaborated and comprehensive, we suggest to limit the project scope to this key region comprised of the municipalities within MRB (CABA plus 14 municipalities from PBA). In this way, a higher impact could be achieved while using the associated resources of the project more efficiently. Even if the scope of the analysis would be focused on the MRB, most conclusions could be extrapolated to other municipalities within the PBA.
- Furthermore, given the extended geography, its complexity and the different waste value chains that are required to be studies, the execution of waste characterization and the review of waste management practices could take more than the envisaged 3 months. Therefore, the Consultant suggest to allocate a potential additional month for the latter activities. In this way, more detailed data collection can be ensured, which will have a positive impact on the other tasks of the project. This extension will not interfere in the overall project duration. Gap analysis and the Integrated and Inclusive MSW Management (GIIRSU)/action plans will be finalized within the foreseen time (6 and 12 months respectively).
- There are plenty of sound waste generation and characterization studies available. The study should again focus on analysing existing waste generation and characterization studies in municipalities within the MRB. Waste characterization studies could be conducted in representative municipalities that lack waste

composition studies, and to estimate the composition of waste disposed in open dump sites near the MR River and its affluents.

- Since the MRB's geography is developed on both in CABA and PBA, the development of a specific framework for MRB could overlap with the frameworks created for the other two provinces. ACUMAR's authority related to waste management is limited to certain activities (i.e. dump sites monitoring and closure) which may create a limitation in the future implementation of a GIIRSU/action plan for MRB.

4 Description of Approach, Methodology and Work Plan

4.1 Technical Approach and Methodology

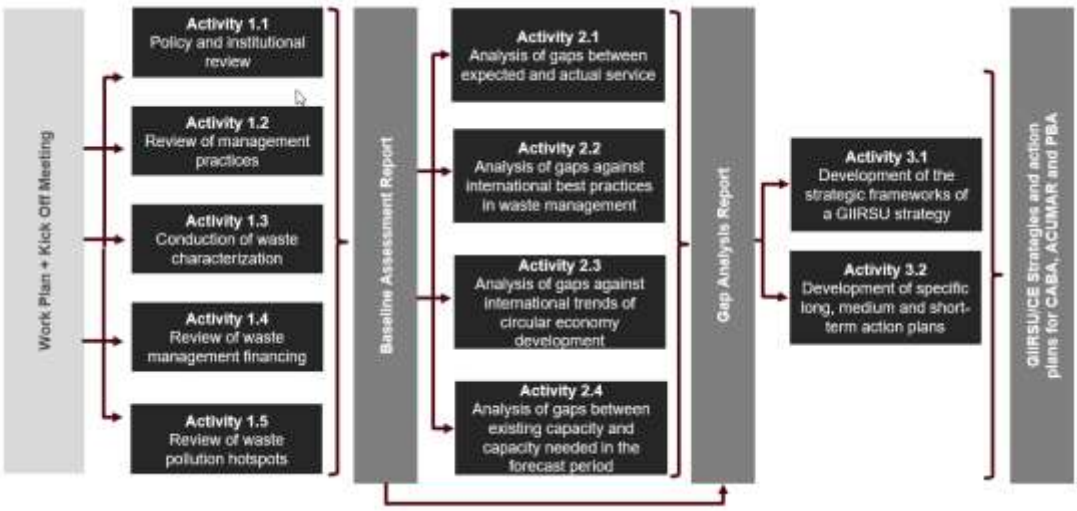


Figure 2: Sequencing of activities and resulting deliverables

Information to develop Task 1 will be collected via extensive primary and secondary research. The review of the current policies on waste management in the study areas, the review of the waste management financing systems, and the review of the pollution hotspots will be done via key stakeholder interviews and secondary data research. Waste characterization, along with the review of waste management practices, will be the most labor-intensive part of Task 1, collecting primary data from communities at different levels of the waste management chain. The review of the waste management practices will be conducted via interviews and secondary data collection. The result of this work is going to be a Material Flow Analysis that will assess and show the current waste management situation for selected waste value chains. The latter one will be used as the base for the development of the next project's tasks.

The information to be used as a benchmark for the gap analysis in Activity 2.1 will be collected through stakeholder interviews, while the remaining information will be collected through a mix of literature review and interviews with international stakeholders to gather experiences and suggestions on best practices at the global level.

Task 3 will be the part of this project that will make a difference in the overall success of this assignment. An extended consultation process will be conducted with the key stakeholder at CABA, PBA, and MRB to align and develop the GIIRSU framework. The consequent action plans will be conducted in close cooperation with the World Bank experts and key stakeholder to define the strategies and necessary investments to pave the way towards better SWM practices and adoption of circular economy principles in the short, medium, and long term.

The expert interviews for data collection as well as the stakeholder workshops for data triangulation will be done in person or, if the circumstances require, in a virtual format. The consortium members all have a longstanding track record of implementing projects all over

the globe and are familiar with the use of innovative digital communication, brainstorming and planning tools such as Zoom and Miro, which enable, for example, the sharing of presentations, the organization of break-out sessions and the visualization of collaborative planning and brainstorming.

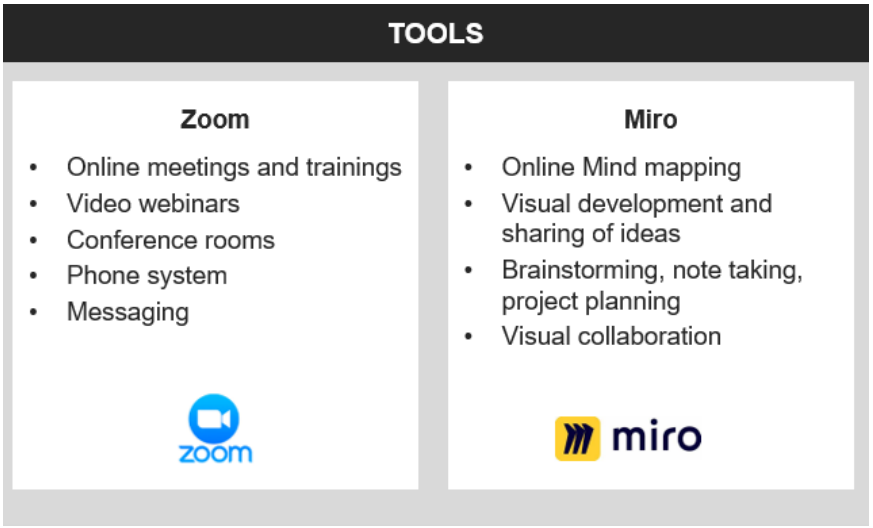


Figure 3: Web-based tools for project planning and management

Due to the tight time schedule of the assignment, activities will run concurrently whenever possible, and rigorous progress and time monitoring will be applied to also ensure the timely conclusion of activities such as the modelling exercise or the development of recommendations that depend on the finalization of other activities. The short time frame also emphasizes the need for efficient use of the inception meeting, which is used to get a clear and final picture of the assignment. One of the most important points to be decided in the meeting is which geographical areas certain activities of the assignment will be limited to. During the meeting, the consortium will present preliminary suggestions for the population threshold as a selection criterion for the location on which to focus part of the activities under Task 1. During this time of intensive review and planning, the methodology of data collection methods and modelling exercises, a preliminary stakeholder map, mapping of policies/regulatory framework and a work plan will be presented, discussed and agreed upon.

Depending on the situation at that time, the inception meeting can be organized in person or virtually.

Figure 4: Approaches for data collection

4.1.1 Task 1. Baseline Assessment

The first task of this assignment will define a baseline for the key SWM topics in the study area. From one side all the current waste management practices will be analysed understanding key generators, the paths that the waste follow before the dumping, disposal

and treatment. Waste characterizations studies will be also carried out to obtain a clear picture of the composition of the waste along different value chains.

This review will be reinforced by a precise analysis of all other aspects crucial for the SWM such as policy, institutional capacity, and financial mechanisms. A mapping of the current leakage hotspot will provide a full picture of the bottlenecks of the system which suggestions for its improvement will be provided under Tasks 2 & 3.

Activity 1.1 - *Policy and institutional review*

The Consultant will analyze all the relevant policies for the main waste streams in the CABA; PBA, and MRB.

Policy and institutional review will be conducted by internet research, since most information is publicly available on the internet, and through interviews with the stakeholders: waste management authorities at CABA, Province of BA, individual municipalities in the MRB, ACUMAR, and the judicial authorities that have the MRB case.

The current plans for the GIIRSU strategies will be identified and analyzed in order to have a clear picture of the current status which will be critical for the development of the activities under Task 3.

The team will first prepare a matrix of regulations and policies applicable in the three jurisdictions, analysing overlaps, contradictions and initial weak links and/or potential conflicts. After initial review of policy framework, personal interviews with aforementioned stakeholders would be conducted to confirm or find new weak links/potential conflicts.

From an institutional perspective, the focus is on understanding the organizational structure of current waste management chains (formal and informal), understanding the current actors and their existing contracts.

Activity 1.2 - Review of management practices

Regarding waste management practices, again each municipality within the basin is responsible for waste collection, promoting recycling programs and operating recycling plants. Waste disposal is managed by the regional Ecological Coordination Area Metropolitan State Company (CEAMSE) that operates two landfills However, some municipalities still operate open landfills, especially in the upper MRB, which is further away from the CEAMSE landfills. The coverage of waste collection is not 100 %. Some areas, usually associated with poverty-stricken marginal settlements, lack waste collection services which results in household wastes feeding open dump sites usually along the MR river shores. For other waste streams like green waste, construction and demolition waste, and metal scrap in most cases there is no formal collection system resulting in them being disposed of in open dumpsites. Although there are some municipal recycling plants, poor separation at source and management practices compromise the sustainability of these plants. Most recycling plants within MRB have incorporated cooperatives, composed primarily of informal waste pickers to sort and process recovered materials, with a wide variety of internal agreements and success. There also exist urban waste pickers that are not part of cooperatives who are recovering materials to support their families. One positive aspect of the recovered materials value chain is that there is a robust network of recyclers near the MRB that purchase recovered materials, albeit at fluctuating prices.

ACUMAR has developed its own Integrated Waste Management Master Plan (PMGIRSU) which includes an Integral Environmental Remediation Plan (PISA). But as mentioned before, this master plan does not necessarily align with individual waste management plans from the municipalities within MRB.

It is important to point out that ACUMAR has its own fleet of waste collection vehicles that are constantly collecting waste from existing open dump sites close to the river basin to

prevent these wastes to end up in the river. Furthermore, ACUMAR has a catamaran vessel that collects waste floating on the Riachuelo river.

For Activity 2.1, the team will gather information on the waste collection system, focusing on coverage, frequency and state of the collection fleet. The consultant will review existing recycling programs, sorting plants, cooperatives and recycling plants were recovered materials end up. The team will gather information on types of agreements between cooperatives and municipalities, existing equipment and infrastructure, working conditions, amount of materials recovered, the value chain, and the sustainability of these plants.

This task will be performed by a quantitative and qualitative study carried out through data analysis, direct observation, semi-structured interviews with organized urban waste pickers, interviews with buyers of recyclable materials (sheds or collectors), officials from public agencies involved in social and environmental issues (mainly in the municipalities within MRB and ACUMAR) and specialists in the subject.

The collected information and data will be elaborated via a Material Flow Analysis (MFA). The consultant team has experience in developing the Waste Flow Diagram (WFD)[1] methodology, which can help understand waste flows within municipal waste management systems, estimate the amount of plastics escaping into the environment, and identify key areas for investment in waste management infrastructure. The inception meeting will also evaluate and discuss other MFA tools.

As a general product of this specific activity, infographics such as Sankey diagram will be generated to offer a clearer overview of the current flow of waste (amounts, nodes, leakage points, etc) for the different selected streams.

[1] https://www.giz.de/expertise/html/62153.html

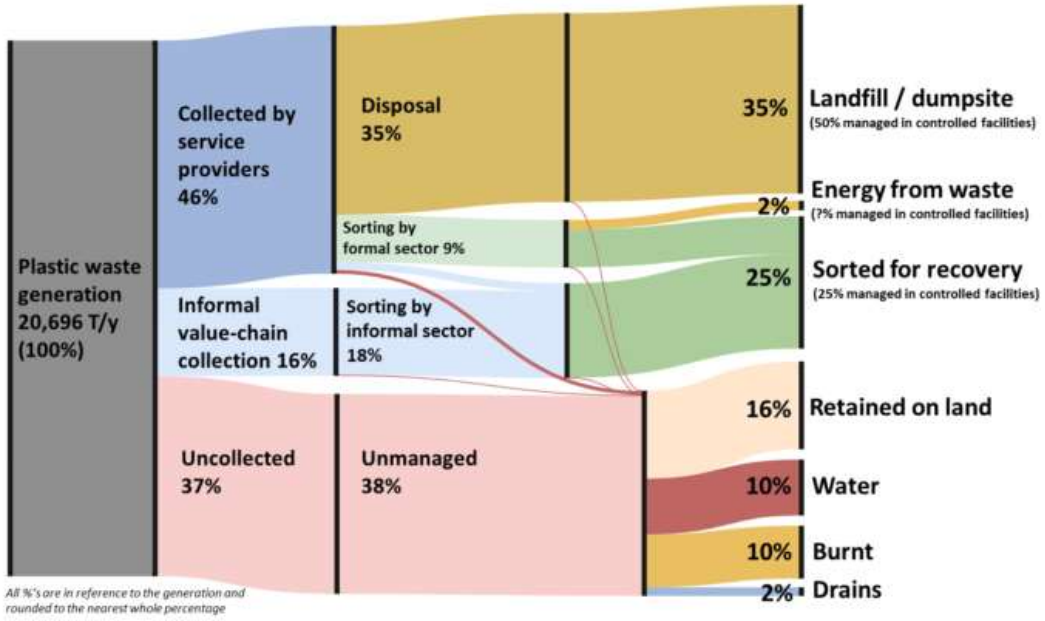


Figure 5: Example of Sankey diagram obtained via the WFD tool (source: https://plasticpollution.leeds.ac.uk/toolkits/wfd/)

The team will also form working groups on value chains for key recycled (e.g., paper, metal, plastics, e-waste) and organic (e.g., kitchen and garden waste) wastes to conduct SWOT analyses related to circular economy, reverse logistics, and waste recovery. For this, the team will have the assistance of the INTI sectorial centres (INTI Plastics, INTI Rubber, INTI Cellulose and Paper), which have in-depth knowledge about the players in the production chain. The needs expressed by the treatment facilities will be identified to achieve the transition from a linear to a circular economy (training, technical assistance, tools for diagnosing the current situation and detecting critical points, etc.).

Finally, ACUMAR has a system of indicators in place that will be evaluated to find existing trends and see if they need to be adjusted.

Activity 1.3 - *Conduction of waste characterization*

There have been many waste characterization studies conducted in the study area, mainly by the Faculty of Engineering of the National University of Buenos Aires (FIUBA) and ACUMAR.

FIUBA studies (*Estudio de Calidad de los Residuos Sólidos Urbanos del Área Metropolitana de Buenos Aires)*, contracted by CEAMSE, were carried out according to the "Standard Test of the Composition of Unprocessed Municipal Solid Wastes" (ASTM 5231-92) and the corresponding national IRAM 29523 norm. These studies have been performed for all the municipal districts in the metropolitan area of Buenos Aires and include all municipalities within the MRB except for the four municipalities in the upper basin (Marcpos Paz, Gral. Las Heras, Cañuelas and San Vicente).

ACUMAR has also conducted waste characterization studies in some municipal districts of MRB. Furthermore, ACUMAR has conducted waste characterization studies in some of the open dump sites and on waste floating on the Riachuelo river collected by the catamaran.

All the available information from these characterization studies will be analyzed to determine waste generation and composition within MRB.

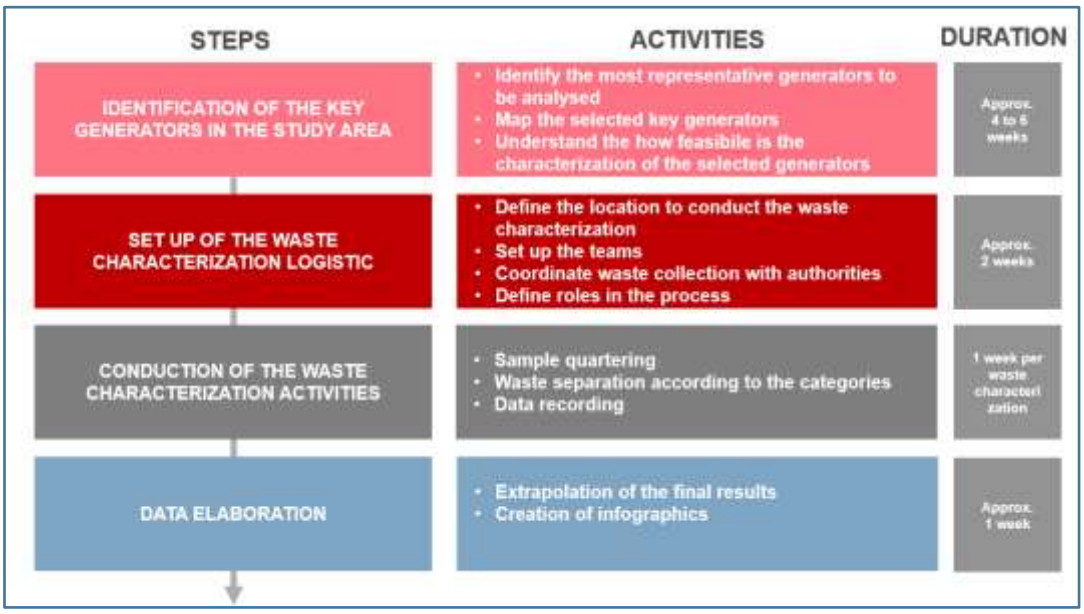


Figure 6: Waste characterization main activities and expected duration

The team will conduct waste characterization studies, following the national IRAM 29523 Norm (which has been adapted from the ASTM 5231-92), focusing on completing existing information (upper basin), and estimating the composition of key open dump sites close to the river shores that have a higher risk of contaminating the river. Special attention will be paid to determining the sources of waste streams that have a higher risk of reaching the river, and the sources of plastic contamination. In addition, the consultant will examine the volume and composition of major waste generators and the sources of that waste.

Figure 7: Example of waste characterization activites conducted by INTI in Argentina (left) and by adelphi in Dominican Republic (right)

The consultant team will mobilize as many resources as possible to conduct the waste characterizations. Depending from the number of key generators that need to be analysed the waste characterizations could run in parallel. The consultant would prefer to have one waste characterization activity developed per week to ensure all the coordination activities are fulfilled. For this latter reason an extension of one month in the entire waste characterization plan (from 3 to 4 months) would be beneficial for the entire project.

Activity 1.4 - *Review of Waste Management Financing*

This section of the study proposes as a general objective the revision and updating of the financing system for the integral management of MSW in the area of influence of the Riachuelo Matanza account, which will allow the sustainability of the GIIRSU system in financial, economic and environmental terms.

This work will in the first phase consist mainly of desktop work to synthesize the information produced by the different institutions (public and private, national, and international) in the recent past, referring to the GIIRSU system. Here the modalities of collection, transport and separation of SWM will be relieved; the costs and revenues (e.g. from the selling of recyclables) at each stage of the chain will be also analysed. The service feed applied to the users and the budgets destined for the GIRSU system are among other variables that will be considered during this review by the consultant.

A second stage contains multiple personal interviews with references from each jurisdiction (municipalities, PBA and CABA) with the aim of establishing the initial set up or baseline for each variable that is analyzed in this section in order to later be able to carry out analyses between them. The various jurisdictions in the basin, extra-basin, etc., are provided with measures of efficiency and effectiveness that allow comparisons to be made and also identify, for example, investment needs in working capital and human resources.

The funding plan proposed for the GIIRSU system will include in its forms of financing action proposals that allow economic, financial and environmental sustainability and are aligned with the SDGs postulated by the United Nations General Assembly.

Activity 1.5 - *Review of Waste Pollution Hotspots*

ACUMAR conducted a Baseline study of existing open dump sites in the MRB in 2011. ACUMAR took responsibility for the one-time cleaning of most of the open dumpsites, prioritizing those near the MR River and its affluents, without intervening on official open dump sites (where some municipalities dispose of their waste, since it has not been transferred to one of the CEAMSE dumpsites). The idea was to clean the sites and hand them over to the municipalities in custody to prevent future dumps.

The baseline study was updated in 2017 by ACUMAR and a new clean-up effort was conducted in agreement with CEAMSE. The last update on the situation of open dump sites was conducted in the first semester of 2022. Open dump sites are classified according to size as large (over 15.000 m^3 of waste disposed), medium (between 500 and 15.000 m^3), small (between 15 and 500 m^3) and less than 15 m^3.

As mentioned earlier, ACUMAR has PISA with short medium and long-term goals that will be considered in this study. Furthermore, ACUMAR has a geographic information system (GIS) called SIOAT where relevant information such as impacted area, volume of waste accumulated, types of waste and visual characterization are georeferenced.

For this activity, the team will analyze the existing information on the GIS, conduct on-site visits to key open dump-sites focusing on sources of waste streams feeding the dump sites, and interviews with key stakeholders (municipal authorities, ACUMAR, waste collection companies, representatives of neighborhoods without collection service, and others).

This information will be georeferenced in a GIS compatible with ACUMAR.

4.1.2 Task 2. Gap Analysis

After the completion of the Task 1, the Consultant and the WBG will have a clear picture of the current waste management situation in the study area. The current situation will be benchmarked against the following:

- Expected services according to the GIRSU and to the waste management contracts currently in place in the areas (activity 2.1)
- Best practices in waste management in the region and in more advanced economies (activity 2.2)
- International trends of circular economy (activity 2.3)

The identified gaps will be used to develop a business-as-usual (BAU) scenario, a best practice scenario and a circular economy scenario for the improvement of different waste streams up to 2035.

Activity 2.1 - *Gaps between expected and actual services*

The information collected under Activity 1.2 (review of management practices) regarding the different value chains will be key for the conduction of this gap analysis activity.

The level of compliance of the SWM with the existing GIIRSU and waste management contracts is expected to vary significantly across PBA, CABA, and MRB.

The achievement of Argentine national targets and objectives depends also on the ability of these sub-national authorities to provide waste management services on a reliable basis. Yet, many local authorities struggle to deliver waste services to their constituencies that meet national aspirations and wide ranging environmental, financial and social objectives.[2]

As an example, the MBT plant installed in CABA had little impact in the MSWM of the City. Its low efficiency recovery of recyclable materials compared to other strategies like Green Centers and Urban Recuperators' cooperatives can be a case study that can be analysed under this activity.[3]

Activity 2.1 will also analyze to what extent the services provision has been fulfilled and what gaps exist in reaching full compliance with existing law and contracts.

The analysis will follow and include the parameters studied in Activity 1.2 such as:

- *Demand vs supply of services* (e.g., the supply of services can be reduced due to limited resources including finance and expertise)
- *Environmental and social performances* (e.g. equal opportunities and discriminations can be present especially in the non-formalized waste management cooperatives)
- *Financial sustainability* (e.g., revenue captured from the collection cannot maintain a balance with total waste management expenditures)
- *Climate resilience of the services* (e.g. quality standards of final disposal are often not met due to unavailable capacities, anaerobic decomposition of waste in sanitary landfills still predominant)

The bottlenecks found in this analysis will allow to understand why and where leakages happen along the waste management chain in the studied geographies. The collected results will be used also as triangulation instrument to prove and describe the waste pollution hotspots reviewed under Activity 1.5.

[2] https://openknowledge.worldbank.org/bitstream/handle/10986/35703/Bridging-the-Gap-in-Solid-Waste-Management-Governance-Requirements-for-Results.pdf?sequence=6&isAllowed=y

[3] López de Munain D, Castelo B, Ruggerio CA. Social metabolism and material flow analysis applied to waste management: A study case of Autonomous City of Buenos Aires, Argentina. Waste Manag. 2021 May

Activity 2.2 - *Gaps against international best practices in waste management*

The baseline information reviewed under the entire Task 1 will be benchmarked against the best practices of similar and more advanced economy or regional governments.

Many countries have undertaken initiatives to manage in a sustainable way their waste and especially plastic packaging. Under Activity 2.2, the wide spectrum of initiatives and international best practices will be presented, including successful practices.

This work will be developed via desk research and online interview with key SWM stakeholders in the selected countries and regions. This will allow the consultant to identify improvements needed in the current waste management services. Such improvements will cover all policy, institutional, technical, financing and management practice issues reviewed under Task 1.

This work will allow the consultant to highlight unique features of waste management issues in the PBA, CAMA, and MRB when present, as well as to deliver a variety of options and best examples to close these gaps given the specific country context.

To select best practices for comparison and gap analysis, visible factors such as recycling rates, sustainability of the financial/fee system, or similar performance indicators of countries from the region or with related geographic and socioeconomic characteristics are reviewed and the countries with the best rates are further explored for the gap analysis.

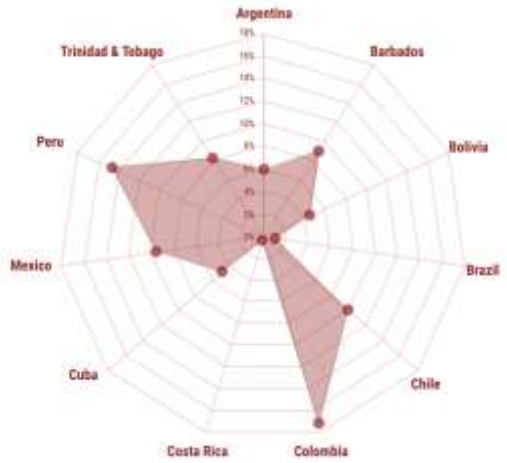


Figure 8: Example for different country performances based on the recycling rates.[4]

Regional examples relevant for this study could include Colombia and Chile whose financial strategy can be used as a valuable reference. Under the financing aspects **Colombia** has introduced in 2016 a successful model of cost recovery to finance the SWM in place. The national government, through the Water and Regulatory Commission (CRA), establishes tariff methodologies based on which service providers must determine the value charged to users. In **Chile**, local authorities charge residents a waste fee based on both the fixed and variable cost components of the service.

[4] Waste Management Outlook for Latin America and the Caribbean | International Environmental Technology Centre (unep.org)

On a global level the consultant will benchmark the situation in the studied areas with practices from countries with similar institutional and social background (e.g., considering the presence of informal sector and successful formalisation strategies such as those ones applied in the **Eastern European countries**). If relevant to the World Bank, regions with more advanced waste management systems, such as the EU (e.g., Germany and Spain) and Asia (e.g., Singapore and Japan), can be used as benchmarks for the gap analysis. However, the examples of these countries can be handled less as directly transferable examples, but must be seen much more as overarching, long-term goals that can point the way to a better organized waste management system for Argentina. It is always necessary to consider the geographic, developmental, and socio-economic context of the countries, and it cannot be expected to implement highly elaborated systems in a short period of time in a country that is not yet so developed.

Activity 2.3 - *Gaps against international trends of circular economy development.*

As last benchmarking analysis, the consultant will study existing circular economy activities in the waste management sector of the study area comparing them against latest circular economy practices at the global level. This analysis will cover policy, institutional, technical, financing and management practices issues analyzed under the baseline study.

As the international trends of circular economy in waste management are moving towards Extended Producer Responsibility (EPR), first the status quo of EPR regulation in Argentina will be assessed and compared with best practice examples of EPR occurring worldwide in a broad variety of forms. The analysis could start from the most sophisticated, mandatory, and long-standing EPR systems in Europe (e.g., Germany and Spain), and continue with those systems in more geographically and developmentally similar areas. The analysis and comparison with the latter ones will take into account the inclusion of the informal sector (e.g., Chile, South Africa, and India).

EPR is a multisectoral approach that includes different aspects of circularity. In the figure below adelphi´s concept and experience in Circular Economy is depicted. The consideration of some of these aspects during this activity could allow a to obtain a comprehensive understanding of Circular Economy status in Argentina.

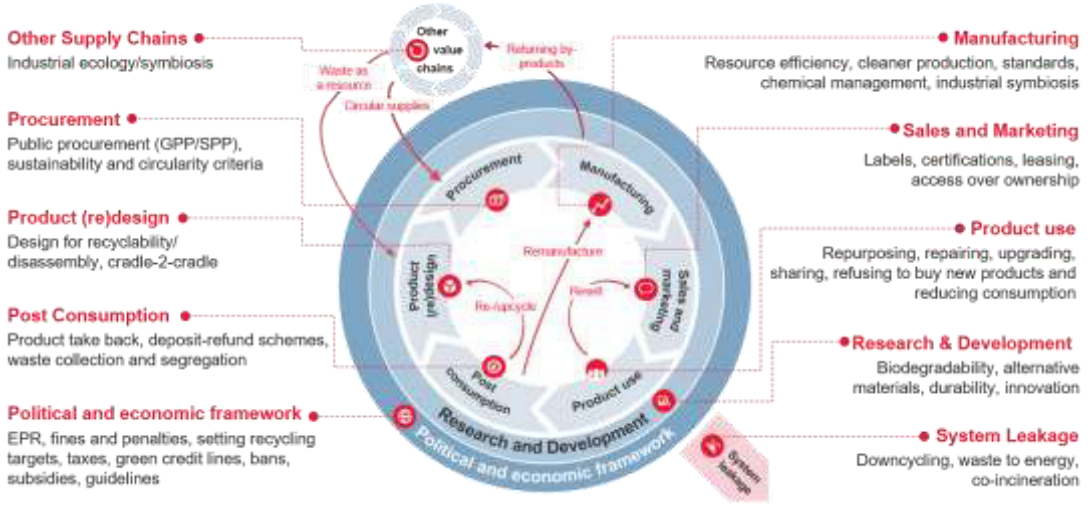


Figure 9: International Trends in Circular Economy (source: adelphi)

The conduction of this activity will additionally involve some key local stakeholders such as the "*Mesa Técnica de Trabajo de Economía Circular*" (Circular Economy Technical Working Group) which convenes representatives of the waste management and recycling sector on the national scale.

Activity 2.4 - *Gaps between existing capacity and capacity needed in the forecast period (by 2035)*

Based on baseline information, the consultant will develop a BAU scenario assuming that the current waste generation trend and management practices will continue until 2035.

A second-best practice scenario until 2035 will also developed. The latter one will assume that the study area will introduce and apply those international best practices identified under the Activity 2.2.

The last scenario will be the circular economy one, which assume that the study area will adopt all practical circular economy interventions identified under Activity 2.3.

For each of the three scenarios, the consultant will highlight investments (e.g. HR, capacity, infrastructure) needed to address the identified gaps.

4.1.3 Task 3. Policy recommendations and proposed action plans for GIIRSU and CE Promotion

Under Task 3 the consultant will support ACUMAR and CABA in the development of their GIIRSU strategies and investments in line with the circular economy approaches identified under Task 2. For PBA, given the proposed outline plan, the support provided by the consultant will be more focused on refining the draft framework.

In addition, the consultant will propose specific interventions to PBA, CABA, and MRB to lead their ways towards better SWM practices and adoption of circular economy principles. The latter interventions will help the Government of Argentina, the PROBLUE Trust Fund, and the Korean Green Growth Trust Fund (KGGTF) in planning the next investment phase for improved waste management and circular economy development.

In the development of this task the consultant will engage via in person meetings with all the key stakeholders in the study area such as:

- CABA: Ministry of Environment and Public Space
- MRB: ACUMAR
- Municipal Waste Management authorities in the basin
- PBA: Environment Ministry
- CEAMSE
- Judicial authorities that have the MRB case

Activity 3.1 - *Strategic frameworks of a GIIRSU strategy up to 2035 to promote circular economy development in CABA, MRB and PBA*

The consultant will support CABA and MRB in developing their own GIIRSU strategy framework. This development will conduct in reaching a consensus on the format of their strategies. This will be done in a continuous consultation with key stakeholders at the Ministry of Environment and Public Space at CABA and with ACUMAR at MRB in order to find a consensus on the key features that a future GIIRSU will have.

For PBA the work of the consultant will focus more on finalising the proposed outline for its GIIRSU.

The Argentine government has developed an implementation guide for GIIRSU in February 2022 and is continuously uploading Annexes relevant for the implementation of the plan in the municipalities. This documentation will be the main reference for the consultant during the development of the frameworks.

Overall the framework will contain at least the following specific points:

1. The strategic framework will point the *specific objectives, KPI, and targets* of the new GIIRSU. Example of this can be the number of dumpsites that need to closed in the specific 10 years time frame, the increase in terms of recyclable waste collection and treatments, etc. Is therefore essential that the Task 1 will collect all the baseline information to set the status-quo.
2. *Priority interventions* on different levels considering both public and private investments for technical interventions
3. *Implementation plans* to monitor the implementation process of the GIIRSU and the achievement of the objectives defined under point 1
4. *E&S management plans* that will consider the inclusion of the informal sector, awareness raising, results achievement disclosure, etc.

Ad hoc consultation meetings will be organised with CABA, ACUMAR, and PBA to refine the frameworks during their development.

Activity 3.2 - *Specific long, medium and short-term action plans for CABA, PBA and ACUMAR*

The outputs of the baseline and of the gap analysis will support the consultant in identifying which intervention (goals) need to be done to improve the circularity in the studied areas. These goals will be part of an action plan that the consultant will develop separately for CABA, PBA, and MRB, and that will pave the way towards better SWM practices and adoption of circular economy principles until 2035.

The definition of the main goals of the action plans will be the first step of this specific activity. These goals can be defined already during the framework development (Activity 3.1) in order to provide an overall strong connection with the GIIRSU strategy.

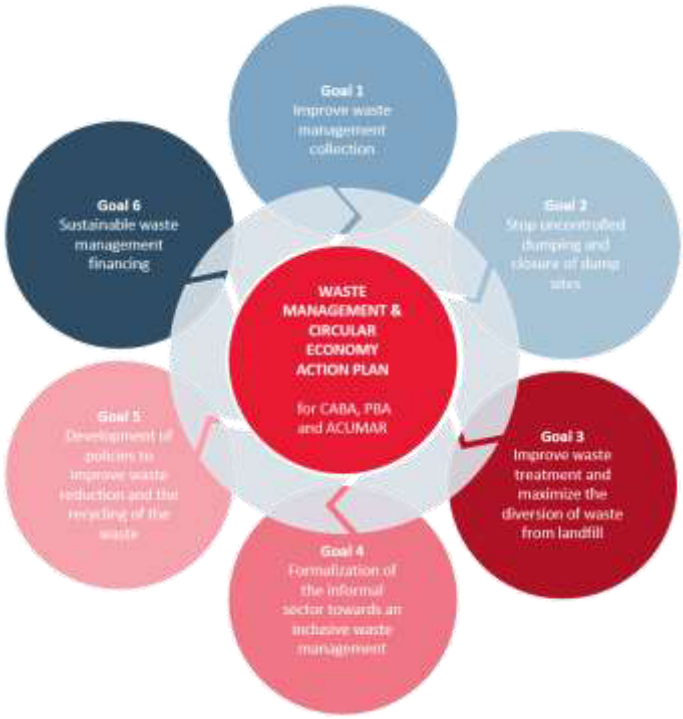


Figure 10: Example of potential action plan goals (the mentioned goals should considered an example of the type of overall intervention required)

Once the goals have been identified and aligned with the key stakeholders, the consultant will develop the strategy/ies for their implementation. These strategies will be on different

timeframe (short, medium, and long-term). The extension of each timeframe will be defined also in close discussion with the key stakeholders.

In the case of PBA, strong emphasis will be given to the short-term action plan where the required investments for the suggested measures/strategies will include scope, timeline, share of responsibilities, implementation arrangements, resources needed and financing options.

In the case of CABA and ACUMAR, the definition of the focus to be placed on a specific timeframe for action will be discussed with the respective contacts.

Goal	Strategy	Necessary Activities		
		Short-term (2025)	Mid-term (2030)	Long-term (2035)
1	a. b. c.			
2	a. b. c.			
3	a. b. c.			
4	a. b. c.			
5	a. b. c.			
6	a. b. c.			

Figure 11: Example of potential overview tool for Short-, Medium- & Long-term strategy to reach the action plan goals

The validation process for the three action plans will be conducted via at least two rounds of consultation. In the first round of consultation, the strategy and recommendations will be presented and discussed, while the final version will be presented to CABA, PBA, ACUMAR and the WBG in the second round.

4.2 Workplan

Due to the tight time schedule a stringent progress and time monitoring will be applied to ensure the timely start and conclusion of activities, such as the waste characterizations (Activity 1.3) or the review of waste management practices (Activity 1.2) that depend on the finalization of other activities. Stakeholder consultations in the form of workshops, semi-structured interviews and commenting rounds will be organized throughout the project in order to ensure the appropriated reflection of stakeholders' views in the findings.

The short time frame also makes the efficient utilization of the inception meeting, which will enable all actors involved to get a clear and final picture of the assignment, crucial. The inception meeting will be utilized to agree on geographical focus areas, to intensively review the methodology of data collection methods and modelling exercises. The detailed work plan for CABA, PBA, and ACUMAR will be presented, discussed and agreed upon during the inception workshop.

For more information and a graphical overview of the sequencing of activities and deliverables, please see Annex 3 and the paragraph "Technical Approach and Methodology" - section 4.1.

4.3 Organization and Staffing

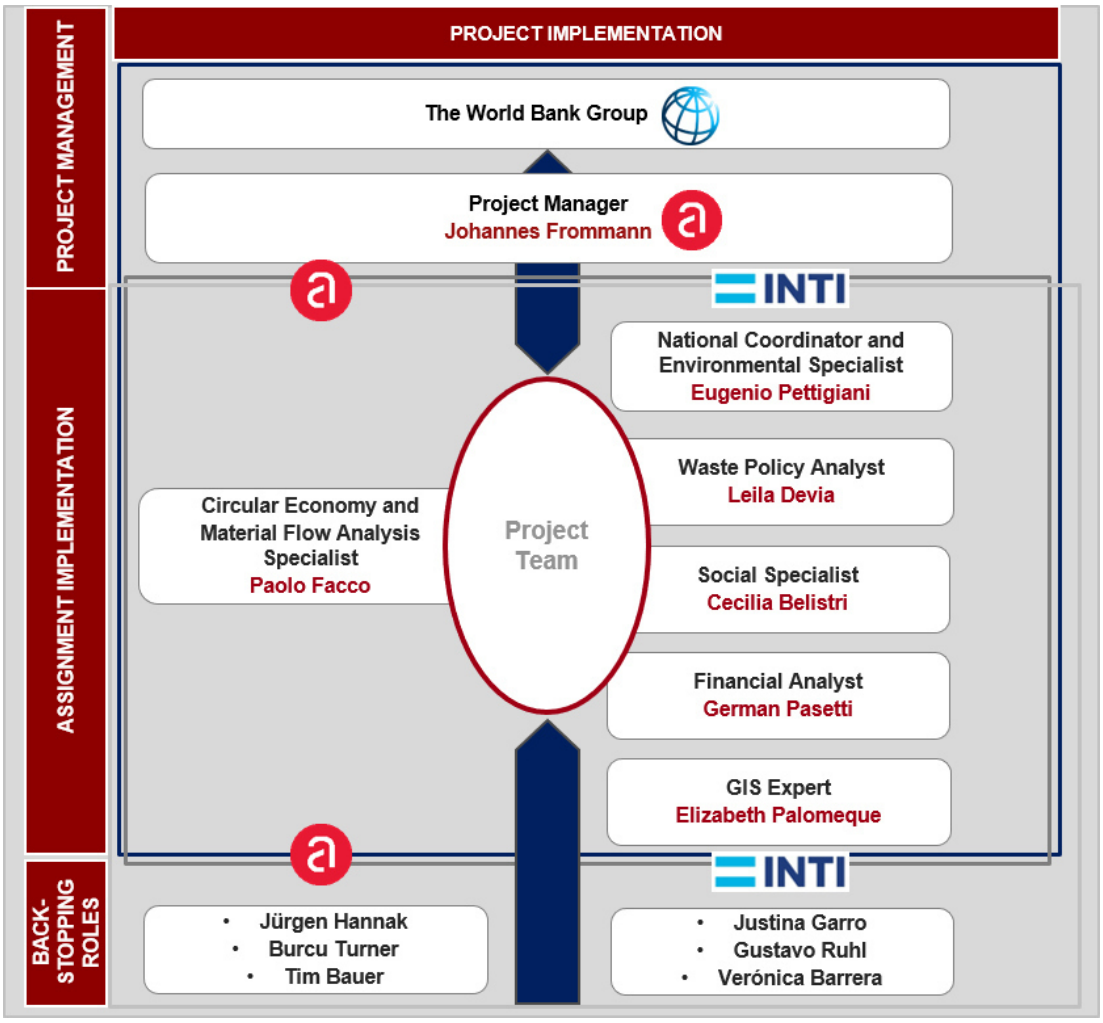


Figure 12: Team composition

4.3.1 Backstopping

Backstopping is an essential part of the integrated management approach for this project. An additional **backstopping pool (see Table 3 below)** ensures the availability of further (senior level) support in case of unforeseen changes in the working capacities of the core team. The backstopping pool also provides access to additional experts within adelphi who can provide deeper insights into the jurisdiction-specific idiosyncrasies of carbon pricing developments around the world, contextual additions to broader climate policy trends based on work in other interrelated fields, as well as long-standing experience with managing lay-out and publication processes.

Name	Position	Backstopping role
Dr Jürgen Hannak (adelphi)	Senior Expert	Drafting, quality assurance. Content expertise: waste management, circular economy
Burcu Tuncer (adelphi)	Senior Expert	Circular economy, policy, and institutional expertise in the global south including Latin America
Tim Bauer (adelphi)	Consultant	Waste management expert
Justina Garro (INTI)	Senior Expert	Waste policy and circular economy expert
Gustavo Ruhl (INTI)	Senior Expert	Waste characterization studies
Verónica Barrera (INTI)	Junior Consultant	On site survey of hot-spots and interviews with stakeholders

Table 3: Backstopping pool of experts

4.3.2 Coordination with the Client

At the start of the project, an **inception meeting** will provide the opportunity to discuss the overarching workflow for the project as well as communication and coordination processes between adelphi and the WBG. The workflows described in this proposal form the basis for this coordination. At the inception meeting, the most important tasks for the first few weeks of the project as well as the project timeline will be discussed. Based on this and on the indicative timetable in the ToR, a **detailed project timeline** with interim milestones and timeframes for revision rounds by the World Bank's team on drafts and graphics will be drawn up and shared with the client.

We propose online **monthly meeting** to coordinate between the project team and the WBG. This allows for a regular discussion of the current progress of individual activities, important organizational matters, and deadlines. Furthermore, these meetings will also provide an opportunity to discuss ways of improving the project workflows. adelphi will coordinate and monitor all ongoing deadlines, so that it is always clear which activities are at which stage of completion and who is working on each of them, thereby ensuring prompt delivery. Meeting outcomes will be documented in writing and shared promptly after the call in a standardized format.

4.3.3 Rules and Principles of adelphi's project organization

adelphi will manage and monitor the project using its in-house system based on the European Foundation Quality Management (EFQM) model tailored to adelphi's fields of work. Within this total quality management concept, we include our entire enterprise with all its activities, employees, customers, partners and the wider business environment. The concepts, which underpin our framework and are embedded at all levels of our work, are:

- **Results Orientation:** Achieving results that delight all our company's stakeholders.
- **Customer Focus:** Creating sustainable customer value.
- **Management by Processes & Facts:** Managing our company through a set of interdependent and interrelated systems, processes, and facts.
- **Continuous Learning, Innovation & Improvement:** Challenging the status quo and using learning to create innovation and improvement opportunities.
- **Partnership Development:** Developing and maintaining value-adding partnerships.
- **Corporate Social Responsibility:** Exceeding the minimum regulatory framework and striving to understand and respond to the expectations of our stakeholders in society.

The Team Leader will assure adherence to these principles within the project team. These principles include not only review processes of the study and its deliverables as well as

feedback rounds among the project team but also close communication with the client. The project team will closely liaise with the client at all stages of the development of the study, document agreements reached and thereby ensure a continuous common understanding of project milestones.

4.3.4 Risk management

We identified risks that could arise during the project and influence the extent to which meeting project objectives and planning can be achieved. In the following table, we present these risks, their potential impact and our proposed strategy to mitigate them effectively:

Risk	Mitigation measure(s) / suggested modifications
Due to missing or not sufficiently plausible data, the waste flows along the value chain could be modelled with sufficient detail and accuracy by means of the planned analyses and measures (such as waste characterisations)	More extensive waste analyses have to be conducted than those planned within the scope of this offer.
Improving MSWM may not be very high on the (political) agenda of CABA, PBA and MRB (and its stakeholders). Priorities may be set or assessed differently. Consequently, there may be a reduced willingness to: • provide information and access to interlocutors, • to cooperate with the appointed consultant.	Roles and scope of the study are clarified between WBG, Partners and the consultant at the outset of the assignment.
Inconsistent or contrasting interests and views cannot be overcome (reconciled) in the course of the validation of action plans.	The process steps and the consultant's role and responsibility are agreed upon from the outset. Detailed and timely briefing by the WBG on existing plans and projects (promising and discontinued ones) and corresponding financing in the MSWM sector.
The tight timeline and integrated nature of the work relies on excellent teamwork between all sides.	The adelphi and INTI teams have a long track record of co-delivering complex projects, with well-established modes of communication and cooperation. Through other WBG assignments, the adelphi team already has a good sense of the production process of the reports, including feedback loops and involved stakeholders.

Table 4: Risk management and mitigation measures

4.3.5 Quality Assurance

The quality assurance (QA) processes for this assignment are informed by adelphi's standard approach (see box below), but are adapted to the requirements of the specific assignment, e.g. by: (1) Preparation of a quality plan at the beginning of each assignment with identified QA needs, to specify aim and scope of the QA per milestone, and to define self-checks which all experts are required to conduct before output submission; (2) Checks on all written deliverables to ensure alignment vis-à-vis the ToR and to ensure the quality of the deliverables; (3) Ongoing feedback collection from the client regarding content of deliverables, timeliness of delivery, added value, and responsiveness to inquiries. The results will continuously feed back to the development and adaptation of services and thus constantly enhance the quality of our work.

The project team will also keep a record of all lessons that could be incorporated into a repeat of the process, in the instance that the consultant team were to also take on further similar studies.

adelphi's guiding questions for quality assurance

- **Clear and sound communication:** Are visuals, text, overall presentation aligned? Are they clear and understandable? Is the language quality perfect? Do our statements hold up to scrutiny?
- **Stakeholder focus:** Are our words, images, and actions telling the audience a relevant and compelling narrative?
- **Originality:** Are our concepts novel, imaginative yet sufficiently serious and inclusive?
- **Impact:** Do the people we want to reach receive our message, and are they able to incorporate it into their work/mission?
- **Client focus:** Is WBG being made sufficiently visible, and presented in a positive light?
- **Consistent messaging:** Is our message and presentation aligned and up to date with key priorities, the agenda and statements of the WBG? Is it aligned with the visual identity of WBG?

Figure 13: Guiding questions for quality assurance

4.3.6 Project team

Johannes Frommann (International; Project Manager)

Johannes Frommann is a chemical and environmental engineer. He brings over 30 years' experience, more than 15 years of which come entirely or predominantly attributable to consulting and engineering projects in the waste management sector. His areas of expertise include resource efficiency, circular economy, waste management, climate change, renewable energy, business development, green economy and material flow management.

Johannes has extensive experience in working as a long-term expert in the development, management and monitoring of international and regional projects thematically-tied to circular economy and waste management. Until recently, he worked for 8 years at the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, including 4 years as head of the GIZ Advisory Sector Project "Concepts for Sustainable Waste Management and Circular Economy", in charge of providing technical and policy advisory services to the German Federal Ministry for Economic Cooperation and Development (BMZ) in the field of circular economy. He has a broad technical expertise in areas of waste and recycling management, concerning e-waste, packaging, plastics (post-consumer and post-production), organics (various material flows), paper/cardboard, mixed municipal and commercial waste, hazardous waste from households, commerce and industry, construction and demolition waste, excavated soil, recyclables. Alongside such technical expertise, Johannes also brings extensive experience in the way of leading project teams and of general project management, not least in relation to long-term international consultancy assignments.

Johannes brings more than 10 years' experience specifically of the Latin America region, which includes previous accounts of working with national governments and public authorities of Latin American States, as well as facilitating stakeholder dialogues and engagement with (national and international) target groups and partners. This includes more than 3 years specifically in Argentina, predominantly in Buenos Aires (CABA & Province). From 2010 to 2012 Johannes was an integrated expert in a national programme on SWM at INTI in Buenos Aires and Córdoba. As part of his employment with INTI, Johannes also worked with informal and formalised collectors and processors of recyclables in the Buenos Aires metropolitan area. He has a deep understanding of how international, national or supra-national policy instruments, regulations, guidelines, technologies and best practices are developed, disseminated, transferred and in turn adapted to the respective local or regional conditions.

Paolo Facco (International; Circular Economy and Material Flow Analysis Specialist)

Paolo Facco is an Advisor at adelphi in the Circular Economy Programme. He has 12 years of professional experience in the fields of SWM, Circular Economy and Climate Change, largely coming with geographic focus on Latin America and South and South East Asia.

Recent examples of Paolo's work include the development of Material Flow Analysis methodologies for plastics and post-consumer waste (and the coordination of local teams for the on-ground data collection activities and waste characterization studies) in Colombia, Costa Rica and Dominican Republic, amongst others; the design of an EPR scheme for plastic and packaging waste ready for transposition into national law in the Maldives, and; the drafting and implementation a of Training of Trainers programme regarding ISWM in China. Paolo has profound experience in working with both public and private stakeholders, for instance having conducted more than 100 in-depth stakeholder interviews with plastic recycling companies and with local/national SWM decision makers across Asia. Furthermore, his expertise includes working with municipal waste management units in improving their waste collection, transportation, treatment and disposal, for instance having assessed and worked on the improvement of different MRFs (Material Recovery Facilities) in Indonesia and Philippines. Paolo helps decision makers in moving towards circular economy and GHG emission reduction solutions via building sustainable waste management systems involving stakeholders, developing intervention plans and identifying the necessary infrastructure requirements. He has experience in conducting training for local SWM units and in organizing and conducting workshops for clients and key stakeholders.

Before joining adelphi, Paolo worked as a regional project manager for GA Circular in Singapore. In this capacity, he developed feasibility studies for the assessment, collection, and recycling of plastic packaging waste. Paolo also contributed to developing roadmaps for the set-up of voluntary EPR schemes led by the industry in Indonesia and Thailand, and assessed the plastics value chains and the recycling markets in the Philippines and Malaysia with the overall goal of identifying the opportunities and barriers for plastics circularity.

Paolo holds an M.Eng. in Environmental Engineering with a focus on SWM from the Università degli Studi di Padova, Italy. Prior to that, he completed a B.Eng. in Environmental Engineering and a B.A. in International Development and Cooperation Studies at the same university.

Eugenio Pettigiani (Local; National Coordinator/Environmental Specialist)

Eugenio Pettigiani works at the National Institute of Industrial Technology (INTI) as Head of Department of Analytical Chemistry and Urban Waste Center. In this capacity, he coordinates the work of twenty professionals and technicians in the fields of Urban Solid Waste, Effluents, Life Cycle Analysis and Renewable Energies. Eugenio has more than twenty years of experience in the field of USW in Argentina, having previously served as a technician in the area of USW of the Secretariat of Environment of the Province of Córdoba, USW Expert in the Córdoba Limpia Program, and since 2011, as head of the USW department of INTI Córdoba, in addition to other Senior Consultancy roles.

Eugenio has participated in more than thirty studies of waste generation and characterization according to IRAM 29523 Standard, both for municipalities in different provinces of Argentina, as well as for special projects such as the MSW Energy Recovery project in Sarmiento (Province of San Juan) and the Central Market of the City of Buenos Aires. He has participated in three studies of characterization of green waste from urban tree pruning, and has been the author of the "Guide for an integrated management of municipal green waste" distributed throughout the country. Eugenio has extensive experience in working with cooperatives of informal waste collectors and with Circular Economy micro-enterprises in adding value to various waste streams. Eugenio has led more than ten ISWM projects that include a comprehensive diagnosis and baseline, and the design of strategic ISWM plans and the design of source separation and differentiated collection systems, remediation of

open dumps, waste sorting plants, transfer stations, site selection and regional landfills. Eugenio is also a specialist in Environmental Impact Assessments (EIA) and has participated in more than fifty EIAs on various topics. Eugenio has participated in more than ten open dump closures, both in the design of social inclusion policies for informal waste pickers and in the design and supervision of the environmental remediation of these degraded sites.

Eugenio Pettigiani holds a degree in Physics from the Universidad Nacional del Sur in Bahía Blanca, Argentina, and a Master's degree in Environmental Sciences from Dalhousie University (Halifax, Canada).

Leila Devia (Local; Waste Policy Analyst)

Leila Devia is a lawyer, working as Vicedirector of the Environmental Law Center of the Law School of the University of Buenos Aires, and as Director of the South American Regional Center for Training and Technology Transfer dependent on the Basel Convention. She has more than 30 years of work experience in the area of law and policy, focusing on natural resources and environmental law. She is the author of numerous publications and articles on natural resources law and has worked on various multi-year projects regarding waste of electronic or electrical equipment (WEEE) and Extended Producer Responsibilty (EPR) Schemes.

Leila is a Doctor of Law and Social Sciences (University of Salvador) and holds a Post Doctorate degree in law (Buenos Aires University). She is also a Specialist in the Legal Regime of Natural Resources (Buenos Aires University), and is currently pursuing a PhD in political science (University of Salvador).

Cecilia Belistri (Local; Social Specialist)

Cecilia Belistri is a professional in Industrial Services Management. She has almost 20 years of professional experience working with vulnerable sectors in the area of urban solid waste and family agriculture. Cecilia has extensive experience in the design of analysis tools for socio-territorial diagnosis, in the design of economic development tools and programmes. She has worked with public and private entities and has extensive experience in drafting projects and reports related to the subject.

In addition, her experience includes university and technical school teaching. Cecilia holds a Bachelor's degree in Sociology and a Master's degree in Social Sciences of Work and is currently studying for a Master's degree in territorial and urban development.

Germán Pasetti (Local; Financial Analyst)

Germán Pasetti is an advisor and economic analyst at the National Institute of Industrial Technology (INTI). In this capacity, his main tasks include the production of economic studies for sectors defined as "priority" of the national industry, and analysis and policy proposals to correct divergences. Germán has more than 20 years of experience in technology transfer to industry and technological institutions, and has developed deep experience in project management with international organizations that promote economic development.

During 2011-16, Germán was Alternate Administrator of the Project for the Improvement of Regional Economy and Local Development, co-financed between INTI – EU (to a total budget of EUR 14,000,000; the consultancy provider of the TA was the Spanish consultancy EPTISA). The main objective of this project was the installation of 10 Technological Centers in the Great North of Argentina. During the execution period of the Project, new equipment for the pilot plants and laboratories was acquired through international bidding. Training (aimed at technicians and industry professionals) and specialized Technical Assistance were provided to companies and other institutions linked to the value chains of the economic sectors.

Alongside this, Germán has participated in 3 further projects financed by the EU, namely: the “Silk Project” (2016 – 2018) in which he was responsible for respective monitoring and evaluating; Improving the Efficiency and Competitiveness of the Argentine Economy (2003 – 2007), and; CERPYME (European Cooperation for the Regions and SMEs of Argentina) (2000 – 2003). Such capacities included a range of environmental considerations, since the respective international projects were required to be environmentally neutral; from project inception through to project end, sustainability of all activities was to be demonstrated.

Germán has experience of trainings related to Bioeconomy and Biotechnology, and by virtue of this, has participated in the writing and publication of the work "Prospective of the Argentine Bioeconomy towards the year 2030" as an expert consultant for the area "Local Chains of Worth". The consortium responsible for the research was formed by the National Institute of Agricultural Technology (INTA), INTI, the National University of the Northeast, the National University of Santiago del Estero and the National University of Salta.

Germán Pasetti has a degree in Economics from the University of Buenos Aires, a Master's degree in Government Economics from the University of San Andres, and a postgraduate degree in Financial Administration dictated by the Central Bank of the Argentine Republic.

Elizabeth Palomeque (Local; GIS Specialist)

Elizabeth Palomeque is responsible for GIS, Blueprints and Infrastructure Design at the Department of Chemistry and Urban Waste of INTI. She has more than 20 years of work experience with GIS, cartography and topography. Elizabeth has worked for a variety of clients from the public sector, and her work covered a variety of topics, among them also waste management and garbage dumps.

Elizabeth Palomeque has an architectural degree from the National University of Córdoba (Argentina).

Annex

- **Annex I – Team Composition, Task Assignments & Level of Effort (LOE)**
- **Annex II – Curricula Vitae of Proposed Key Personnel**
- **Annex III – Work Schedule**
- **Annex IV – Power of Attorney**
- **Annex V – Letter of Intent**

Annex I - Team Composition, Task Assignments & Level of Effort (LOE)

Name of Staff & Firm associated with[5]	Area of Expertise Relevant to the Assignment	Designation for this Assignment[6]	Assigned Tasks or Deliverables	Location[7]	Number of Days
Johannes Frommann (adelphi)	Project supervision, report conceptualization and writing, work experience in the (municipal) waste and circular economy sector	Project Manager	▪ Overall project management and team lead ▪ Methodological and technical guidance ▪ Report drafting and revisions ▪ Mediating potential conflicts that may occur between project partners	International	184
Paolo Facco (adelphi)	Expertise in material flow analyses and with (solid) waste management, multi-year work experience in the circular economy sector	Circular Economy and Material Flow Analysis Specialist	▪ Conduction of Material Flow Analysis for the selected waste streams ▪ Conduction of gap analysis and provision of inputs regarding international best practices in SWM and circular economy best practices	International	80
Eugenio Pettigiani (INTI)	Leading and coordinating projects and working	National Coordinator & Environmental	▪ Co-lead and co-management of the project ▪ Contacting all the local key stakeholders	Local	170

[5] Indicate if the proposed staff is an employee or agent of your consulting firm/organization or a sub consultant.

[6] Title or position as described in the TOR or otherwise named in your proposed Organization and Staffing under Section D, sub section (c).

[7] Relative to the assignment subject of the Contract, indicate if the staff/consultant local or international.

	groups, experience in conducting environmental assessments	Specialist	relevant in the project ▪ Coordination of waste characterization activities		
Leila Devia (INTI)	Analysis of policy documents and legal texts, also related to waste policy and management, development of recommendations	Waste Policy Analyst	▪ Waste policy and institutional analysis ▪ Suggestion of required policy interventions	Local	55
Cecilia Belistri (INTI)	Experience with social inclusion aspects of projects, work experience with the informal sector and with awareness campaigns	Social Expert	▪ Focus on social inclusiveness regarding the informal sector ▪ Provision of inputs regarding awareness raising strategies, social inclusion, and grievance redressing	Local	40
Germán Pasetti (INTI)	Financial evaluation, conducting (pre-)feasibility studies, development of requirements (a.o. on financial aspects)	Financial Analyst	▪ Study of steering effect of waste fees ▪ Development of guidelines and requirements for fee systems ▪ Input on financial aspects for required investments suggested in the action plan	Local	35
Elizabeth Palomeque (INTI)	Broad expertise with GIS technologies, a.o. in the waste sector	GIS Expert	▪ Identification and collection of information on key waste management hotspots	Local	40

Annex II – CVs of Proposed Key Personnel

ANNEX 2: CURRICULUM VITAE (CV) OF PROPOSED KEY PERSONNEL

1. **Name of Staff** [*Insert full name*]: Georg Johannes Frommann

2. **Proposed Position**
   Project Manager

3. **Employer**: Self-employed

4. **Date of Birth**: 26/06/1961 **Nationality**: German

5. **Education**

School, college and/or University Attended	Degree/certificate or other specialized education obtained	Date Obtained
Berliner Hochschule für Technik (Berlin, Germany)	Graduate engineer for process and environmental engineering (*'Dipl.-Ing. Verfahrens- und Umwelttechnik'*)	February 1989

6. **Professional Certification or Membership in Professional Associations**: n/a

7. **Other Relevant Training**: n/a

8. **Countries of Work Experience**: [*List countries where staff has worked in the last ten years*]: Argentina, Germany, Italy, Western Balkans (Albania, Bosnia and Hercegovina, Montenegro), South Africa, Paraguay, Colombia, Dominican Republic, Ecuador, Egypt

9. **Languages** [*For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing*]:

	Speaking	Writing	Reading
German	Mother tongue		
English	Excellent	Excellent	Excellent
Spanish	Good	Good	Good
Italian	Good	Good	Good

10. Employment Record [*Starting with present position, list in reverse order every employment held*]:

From [*Year*]: 2021 To [*Year*]: Ongoing

Employer: self-employed

Positions held:
- Project development (self-employed) on aquaculture and sustainability carried out in cooperation with a group of investors, Italy

- Freelance consultant, mainly on smaller short-term assignments, which I mostly do in my home office. This includes, contributing to project proposals on behalf of consultancies.

From [*Year*]: 2018 To [*Year*]: 2021

Employer: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Positions held: Project Manager: Regional Project integrated waste management and marine litter prevention in the Western Balkans (2018-2021, Albania, Montenegro, Bosnia and Herzegovina)

From [*Year*]: 2017 To [*Year*]: 2018

Employer: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Positions held: Senior Advisor for public (municipal) services sectors (solid waste and wastewater treatment, water supply) at the Agency for Business & Economic Development, a joint venture of KfW subsidiary DEG and GIZ. Main tasks: One-stop shop provision of information and guidance to companies on available project development, investment promotion and financing instruments for investments in developing and emerging economies

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From [*Year*]: 2013 To [*Year*]: 2017

Employer: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Positions held: Head of the GIZ Advisory Sector Project “Concepts for Sustainable Waste Management and Circular Economy”

From [*Year*]: 2013 To [*Year*]: 2015

Employer: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Positions held: Planning officer at the Environment and Climate Division

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From [*Year*]: 2012 To [*Year*]: 2013

Employer: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Positions held: Project development and implementation, e.g.: fundraising, planning and complete realisation of an expert mission to Germany on "material and energetic use of biogenic waste and residual material flows" of high-level decision-makers from MERCOSUR member states (Argentina, Brazil, Paraguay, Uruguay)

From [*Year*]: 2010 To [*Year*]: 2012

Employer: *Instituto Nacional de Tecnología Industrial* – INTI (Argentine State Institute of Industrial Technology), a position sourced and placed by the Centre for International Migration

and Development (CIM) via Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Positions held: Senior Advisor at the national programme on material flow management, waste management and circular economy implemented by INTI

From [*Year*]: 2011 To [*Year*]: 2013

Employer: freelance assignments in cooperation with local partners

Positions held: Development of an industry-scale biogas project using organic waste and energy crops, Italy

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From [*Year*]: 2007 To [*Year*]: 2010

Employer: Mercosur Alliance of German Chambers of Commerce Abroad (Argentina/Buenos Aires, Uruguay/Montevideo, Brazil/São Paulo) a position sourced and placed by the Centre for International Migration and Development (CIM) via Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and co-funded by the German Federal Ministry of Education and Research

Positions held: Integrated Expert and Innovation Manager on Technology Transfer between Mercosur and Germany by promoting cooperation with a focus on the transfer of environmental, energy and energy efficiency technologies

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From [*Year*]: 2001 To [*Year*]: 2007

Employer: self-employed

Positions held: Development of 2 wind farm projects with local partners: Prospecting, site identification, wind assessment, transmission planning, preliminary design, approval planning, facilitation process among stakeholders, negotiate power purchase agreements, project financing, tendering, Spain and Italy

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From [*Year*]: 2006 To [*Year*]: 2006

Employer: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Positions held: Short-term assignment “Analysis of the business potential between Europe and Costa Rica in the field of urban-industrial environmental protection and environmental technologies”, Costa Rica

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From [*Year*]: 2005 To [*Year*]: 2006

Employer: IP - Institut für Projektplanung GmbH (Stuttgart / Germany) on behalf of GIZ

Positions held: Team leader, project "Promoting Cleaner Technologies and Environmental Management in SMEs", El Salvador / San Salvador

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From [*Year*]: 2004 To [*Year*]: 2005

Employer: freelance assignments on behalf of Ecosoil Group (Germany and Indaver Group (Italy/Belgium)

Positions held: Project and business development in hazardous waste management and brown-field redevelopment: permit management, cross-border recovery and disposal of hazardous wastes, mediation between authorities, waste generators and waste disposal companies

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From [*Year*]: 2004 To [*Year*]: 2004

Employer: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Positions held: Short-term assignment “Analysis of the current status of Chilean hazardous waste management” on behalf of the “Hazardous Waste Management Chile Project”, Chile: Fact-finding mission “hazardous industrial waste” on behalf of the programme “Urban-Industrial Environmental Protection”, Brazil, various States

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From [*Year*]: 2000 To [*Year*]: 2003

Employer: HIM GmbH (Wiesbaden/Germany and Milan/Italy)

Positions held: Business Development Manager Italy “Solutions for the remediation of contaminated sites and hazardous waste treatment”

From [*Year*]: 1997 To [*Year*]: 2000

Employer: IP - Institut für Projektplanung GmbH (Stuttgart / Germany) on behalf of GIZ

Positions held: Project Manager project "Promotion of environmental technologies: Prevention, reduction and recycling of packaging waste through the development and implementation of economic, technical and legal instruments / Design and setup of a national Cleaner Production Center for the promotion of eco-efficient production in industry”, Chile / Santiago de Chile

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From [*Year*]: 1996 To [*Year*]: 1996

Employer: Siemens Nixdorf Informationssysteme (SNI) AG, Berlin / Germany

Positions held: Consultant of the European Competence Centre on Waste Management for the development and implementation of IT solutions and services for the business processes of large public and private companies in the waste management sector

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From [*Year*]: 1994 To [*Year*]: 1995

Employer: AEW Plan GmbH für Abfall Energie Wasser, Berlin and Cologne / Germany

Positions held: Head of Waste Department at the Berlin branch Assessment and design of waste treatment plants; Management of permitting procedures for waste treatment facilities

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From [*Year*]: 1988 To [*Year*]: 1994

Employer: Ingenieurgesellschaft für technischen Umweltschutz - INTECUS mbH, (Berlin, Potsdam, Freiburg / Germany)

Positions held: Research fellow, Planning, tendering and construction supervision of waste treatment plants, International and national consultancy and engineering services with regard to abandoned dump sites and industrial sites, MSW, commercial waste and hazardous wastes, Market studies for secondary raw materials and modelling of material flows

11. Detailed Tasks Assigned	**12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**
▪ Overall project management and team lead ▪ Methodological and technical guidance ▪ Report drafting and revisions ▪ Mediating potential conflicts that may occur between project partners	[*Among the assignments in which the staff has been involved, indicate the following information for those assignments that best illustrate staff capability to handle the tasks listed under point 11.*] Name of assignment or project: (1) GIZ Advisory Sector Project "Concepts for Sustainable Waste Management and Circular Economy"; (2) Planning tasks in the area of project appraisal and evaluation Year: 2013 - 2017 Location: Eschborn/Germany and frequent international short-term assignments and appraisal missions to different countries Client: (1) German Federal Ministry for Economic Cooperation and Development (BMZ); (2) Bi- and multilateral cooperation and development projects implemented by GIZ in the areas of MSW Management, resource efficiency and climate change Main project features: (1) Technical and policy advisory services to BMZ and GIZ in the field of circular economy; (2) Technical planning, monitoring and evaluation under the responsibility of GIZ's Environment and Climate Division Positions held: (1) Head of project; (2) Planning officer Activities performed: (1) The task comprised: - providing, researching and editing sector-related international technical and policy information, forward-looking monitoring and scouting of the sector, preparing contributions and position papers in relevant contexts (such as: UN, G7, G20, international conventions), - preparing, piloting or evaluation of programmes and policies in priority areas: e.g., marine litter, closure of open dumps, informal sector(s) in the MSW value chain, MSW benchmark indicators,

	(2) - Planning, setting-up and introducing results-based monitoring systems, - participating in project evaluations, - project development, proposal writing, appraisal and launch of long-term international technical cooperation projects and programmes

12. Do you currently or have you ever worked for the World Bank Group including any of the following types of appointments: Regular, term, ETC, ETT, STC, STT, JPA, or JPO? If yes, please provide details, including start/end dates of appointment.
NO

Certification

I certify that (1) to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience; (2) that I am available for the assignment for which I am proposed; and (3) that I am proposed only by one Offeror and under one proposal.

I understand that any wilful misstatement or misrepresentation herein may lead to my disqualification or removal from the selected team undertaking the assignment.

_____ Date: 07/11/2022

[Signature of staff member or authorized representative of the staff] *Day/Month/Year*

ANNEX 2: CURRICULUM VITAE (CV) OF PROPOSED KEY PERSONNEL

1. **Name of Staff** [*Insert full name*]: Paolo Facco

2. **Proposed Position**
   Circular Economy and Material Flow Analysis Specialist

3. **Employer**: adelphi

4. **Date of Birth**: 01/12/1984 **Nationality**: Italian

5. **Education**

School, college and/or University Attended	Degree/certificate or other specialized education obtained	Date Obtained
Università degli Studi di Padova, Italy	Environmental Engineering M.Eng., Curriculum in Solid Waste Management	2014
Università degli Studi di Padova, Italy	Environmental Engineering B.Eng.	2011
Università degli Studi di Padova, Italy	International Development and Cooperation Studies B.A.	2008

6. **Professional Certification or Membership in Professional Associations**: n/a

7. **Other Relevant Training**: GIZ Capacity WORKS certification (2016)

8. **Countries of Work Experience**: [*List countries where staff has worked in the last ten years*]: Italy, Germany, Singapore, Dominican Republic, Colombia, Indonesia, Maldives, Sri Lanka, India, Philippines, Thailand, Lao PDR, Serbia, Türkiye

9. **Languages** [*For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing*]:

	Speaking	Writing	Reading
Italian	Mother tongue		
English	Excellent	Excellent	Excellent
German	Good	Good	Good

10. Employment Record [*Starting with present position, list in reverse order every employment held*]:
From [*Year*]: 02/2021 To [*Year*]: Ongoing

Employer: adelphi

Positions held: Advisor

From [*Year*]: 02/2019 To [*Year*]: 01/2021

Employer: GA Circular

Positions held: Senior Project Manager

From [*Year*]: 03/2015 To [*Year*]: 11/2021

Employer: AHT Group

Positions held: Project Manager

From [*Year*]: 06/2014 To [*Year*]: 09/2014

Employer: GIZ - Deutsche Gesellschaft für Internationale Zusammenarbeit

Positions held: Intern

11. Detailed Tasks Assigned	**12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**
• Conduction of Material Flow Analysis for the selected waste streams • Conduction of gap analysis and provision of inputs regarding international best practices in SWM and circular economy best practices	[*Among the assignments in which the staff has been involved, indicate the following information for those assignments that best illustrate staff capability to handle the tasks listed under point 11.*] Name of assignment or project: **Promotion of Multi-Stakeholder Projects for Sustainable Textile Supply Chains in Jordan** Year: 11/2021-12/2022 Location: Germany, Jordan Client: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH Main project features: Identify opportunities to minimize textile and garment waste, including recycling, upcycling and reuse measures in the Al-Hassan Industrial Estate (HIE) and selected factories within the HIE. Positions held: Senior Technical Expert Activities performed: Coordinating and conducting a study on garment waste materials and their recycling potential ++ Development of Scenarios and Business Cases ++ Conducting Stakeholder Dialogue ++ Capacity building and implementation of business cases ++ Policy recommendations.

	Name of assignment or project: **Developing an EPR scheme for plastic and packaging waste in the Maldives** Year 03/2021 – 02/2023 Location: Maldives Client: UNDP-Ocean Innovation Challenge Main project features: Development of an Extended Producer Responsibility scheme for plastic packaging in the Maldives Position held: Project Manager and International Solid Waste Management Expert Activities performed: Waste policy analysis ++ Conduction of 50+ stakeholder interviews ++ Financial feasibility study for material recovery facilities++ Financial feasibility study for Producer Responsibility Organisation, PRO ++ Development of EPR roadmap based on BAU status and circular economy future ++ Conduct of national and regional roundtable on EPR. Name of assignment or project: **Reducing Tourist Marine Litter in Northern Africa through a Sustainable Waste Management System - TouMaLi (Tourist Marine Litter)** Year: 01/2021-12/2023 Location: Algeria, Egypt, Morocco, Tunisia Client: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) Main project features: Minimize waste from tourism in Egypt, Algeria, Morocco and Tunisia and recycle and reuse unavoidable waste in order to sustainably reduce the total amount of marine and beach litter. Positions held: Senior Technical Expert Activities performed: Support the development of concepts and solutions of different aspects of waste management in the targeted countries ++ Disseminate the project results ++ Provide awareness raising and capacity building activities on marine litter and waste management in cooperation with local actors as well as activities to enable project impacts beyond the project duration and pilot areas ++ Develop an institutional platform to manage financial and material flows (i.e. Producer Responsibility Organisation, PRO) in the four countries ++Conduct national and regional workshops for discussing the proposed operational, financial and

	organizational solutions ++ Develop and implement a concept for dissemination, awareness raising and capacity building ++ Introduce education on waste banks. Name of assignment or project: **Prevention of Marine Litter in the Caribbean Sea (PROMAR)** Year: 11/2020-12/2023 Location: Costa Rica, Dominican Republic, Colombia Client: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) Main project features: Quantify and map plastic waste streams and anchor monitoring systems at governing local authorities in selected demonstration sites. Based on established baselines, implementing pilot circular economy solutions to achieve a measurable reduction in plastic waste entering aquatic environments at all sites. Positions held: Senior Technical Expert Activities performed: Conduction of material flow analyses to assess the current regional situations as well as the development and dissemination of waste management tools and best practices materials. ++ Supporting transnational policy dialogue with political partners and the dissemination of tools, results, and lessons through global and regional networks. ++ Contribution to the project by carrying out the overall project management and coordination, monitoring and reporting vis-à-vis ZUG's designated programme manager for the grant programme on marine litter prevention ++ Supporting all other project activities. Name of assignment or project: **Prevention of Marine Litter in the Lakshadweep Sea (PROMISE)** Year: 07/2020-06/2024 Location: India, Maldives, Sri Lanka Client: European Commission, EuropeAid - Co-operation Office, SWITCH-Asia Programme Main project features: Contributing to the prevention and leakage of wastes from land-based sources into the Lakshadweep Sea, thus enhancing the attractiveness of tourism in the region, avoiding further deterioration of marine ecosystems and improving living conditions in the Maldives, Sri Lanka and India, promoting regionally integrated source-to-sea solutions to reduce marine littering in tourism clusters and strengthen the position of

	micro, small and medium enterprises (MSMEs) in the tourism cluster and of regional governance mechanisms. Positions held: Senior Technical Expert Activities performed: Coordinating and conducting material flow analyses ++ Prepare and conduct prototyping workshops for modelling the zero-waste governance mechanisms organising workshops on access to finance. Name of assignment or project: **Market study for the Philippines: plastic circularity opportunities and barriers** Year: 06/2020-12/2020 Location: Philippines Client: The World Bank Group - GA Circular Main project features: Goal of the study was to understand the status-quo, challenges and opportunities for the Philippine plastic sector for different types of resins/packaging types (PET, HDPE, LDPE and PP, Multilayer Flexibles). Positions held: Project Lead and Circular Economy Expert Activities performed: In-depth interviews with the entire plastic value chain (i.e. resin producers, converters, brand owners, recyclers, cement plants for energy recovery, etc.) ++ In-depth interviews with national and local Solid Waste Management government bodies and associations (i.e. Department of Environment and Natural Resources, Department of industry, PARMS, etc.) ++ Elaboration of a national-level Material Flow Analysis for each studied resins/packaging type ++ Benchmarking national policies with the best/most related international circular economy practices ++ Development of a detailed report including the analysis of the current challenges and the presentation of the required interventions to enhance plastic circularity in the Philippines (i.e. buy back schemes, design improvements for packaging etc.) ++ Workshop preparation and conduction to present the project results/interventions to the client, Government and private sector key stakeholders. Name of assignment or project: **Roadmap for the creation of a Packaging Recovery Organisation (PRO) in Indonesia and Thailand**

	Year: 09/2019-06/2020 Location: Indonesia, Thailand Client: FMCG and Packaging producer companies - GA Circular Main project features: Support the client in developing the structure and governance framework for a voluntary PRO for Indonesia and Thailand (different group of clients in each country) and to create a strategy to increase collection for recyclables working with the formal and informal value chains Positions held: Project Lead Activities performed: Identify key stakeholders in local Government, the waste management sector, recycling sector and other organisations ++ In-depth interviews with the key identified stakeholders ++ Understand national and local regulations and targets related to packaging collection ++ Develop a tailored strategy to increase the "collection for recycling" rates for packaging in the PRO defined locations. This has been based on onground findings, company targets and in alignment with the local policies ++ Building collaborations between local recycling companies and clients (understanding and discussing capacity, targets, price points for recyclables etc.) ++ Development of white papers (one for each country) to position the PRO strategy in front of the National Government ++ Workshop preparation and conduction to present the project results/interventions to the client ++ Coordination of the local teams on ground. Name of assignment or project: **Bali without waste Project** Year: 11/2019-12/2019 Location: Indonesia Client: FMCG company - GA Circular Main project features: Goal of the project was to design and develop a replicable model that aims to scale up post-consumer packaging collection and recycling rate through integrated waste management practices in the Province of Bali. Positions held: Project Lead and Solid Waste Management Expert Activities performed: Baseline analysis of the SWM situation in terms of MSW tonnage and plastic generation

	in Bali ++ Analysis of different kind of plastic packaging (PET, PP cups, UBC and Aluminium Cans) within the MSW via waste characterizations executed in different MRFs ++ Identification of the key stakeholders working on waste management, recovery and recycling of primary plastic packaging. Execution of in-depth interviews with them and with the informal sector (waste pickers, junk shops, pre-processors) ++ Identification of the main interventions required to improve the TPS3R (Material Recovery Facilities) operations ++ Based on the collected data, elaboration of alternative waste reduction schemes to reduce GHG emission and marine plastics ++ Develop and present three different strategies to increase the collection rate of these packages in the Province of Bali. Name of assignment or project: **Open access data and visualisation of waste management plastic recovery and leakages in Indonesia, Philippines and India** Year: 06/2019-12/2020 Location: India, Indonesia, Philippines Client: National Geographic Society - GA Circular Main project features: The project proposes to build a publicly available data set for municipal waste generation in Asia (Indonesia, Philippines and India) with focus on those materials contributing to global plastic leakage into the oceans. Positions held: Project Lead Activities performed: Identification and in-depth interviews with the key stakeholder impacting waste management, recovery and recycling of primary plastic packaging (i.e. informal sector, recyclers, SWM city departments). 300+ interviews/surveys conducted across Bangalore, Jakarta Metropolitan Area and Metro Manila ++ Development and execution of value chain analysis and detailed material flow analysis for different kinds of packaging in each city ++ Data Collection across the local SWM units to collect data in order to develop marine plastic and GHG emissions reduction schemes ++ Development of a toolkit to assess financial/economic models for each city to move towards Circular Economy ++ On ground preparation and implementation of trainings for the survey teams.

	Name of assignment or project: **Feasibility Study for Pyrolysis in one Indonesian Island (Lombok)** Year: 01/2019-07/2019 Location: Indonesia, India Client: Polyolefins manufacturers company- GA Circular Main project features: Support the client in identifying the most suitable location and pyrolysis technology that fits with the local MSW scenario Positions held: Solid Waste Management Expert Activities performed: Baseline analysis of the SWM situation in terms of MSW tonnage and plastic generation in two Indonesian Islands ++ Shortlist of the most suitable island based on technical and financial criteria ++ Analysis of the rigid and flexible plastic compositions within the MSW via waste characterization ++ Identification of key stakeholder impacting waste management, recovery and recycling of primary plastic packaging ++ Selection of the most appropriate pyrolysis technology provider that fits with the local MSWM scheme ++ Calculation of GHG emissions reduction obtained adopting pyrolysis as alternative to landfilling/open burning ++ Coordination of the local team on the ground and training of the local waste collectors for the waste characterizations ++ Planning and execution of a study visit for the client to a pyrolysis plant in Chennai, India. Name of assignment or project: **Consulting Services for Accompanying Measures for the Project Emission Reduction in Cities Programme - Solid Waste Management"** Year: 10/2015-11/2018 Location: Indonesia, Germany Client: KfW – AHT Group Main project features: Supporting the accompanying measures for the Project Emission Reduction in Cities Programme - Solid Waste Management" Positions held: Solid Waste Management Expert and Backstopper Activities performed: Conduction of stakeholder interviews in the 4 project locations (Jambi, Jombang, Malang and Sidoarjo) and in-depth SWM situation analysis ++ Analysis of the existing waste separation

	initiatives and development of concepts for a pilot project about separate collection in Jombang Regency, East Java including: waste segregation and 3R activities with local Waste Banks, collection, transport, recycling and final disposal ++ Elaboration of a Monitor and Evaluation assessment tool for TSP and TPS-3R (local MRF collection facilities). Scope of this M&E is to identify which facilities need to be improved (increasing capacity, SOP etc.) in the 4 project locations ++ Data Collection for GHG emissions calculations and development of alternative waste reduction schemes ++ Training of the Municipal Waste Management Unit staff in using the assessment tool to identify which facilities need improvements ++ Support the team in the development of an investment scenario for the identified MRF. Name of assignment or project: **Feasibility studies for the Region of Krusevac and the Region of Vranje** Year: 04/2018-11/2018 Location: Serbia, Germany Client: KfW – AHT Group Main project features: Feasibility Study for 2 locations is Serbia. Scope of the Project was to understand the MSWM strategy in place and to address the best location for the construction of 2 sanitary landfills. Positions held: Solid Waste Management Expert and Backstopper Activities performed: Visit the 2 project locations (Krusevac and Vranje) to conduct stakeholder meetings and SWM situation analysis ++ Analysis of existing waste separation initiatives and development of concepts for a pilot separate collection project ++ Data Collection for GHG emissions calculations and development of alternative waste reduction schemes ++ Coordination of the Experts' input and organising travel arrangements ++ Review and quality management of project outputs ++ Technical Backstopping. Name of assignment or project: **Support to the Reconstruction and Transition process in Syria (UWTS)** Year: 06/2017-08/2017 Location: Türkiye, Germany Client: GIZ – AHT Group

	Main project features: The objective of the services (1) to support the UWTS programme and partners in developing a conceptual framework for needs-based waste management in local communities in a conflict environment (2) developing partner ownership and capacities through a set of activities (3) to explore the potential for further integration of the approach into other GIZ and partner activities inside Syria, including potentials for partnerships with commercial entities. Due to the impossibility for international experts to operate on ground the project was stirred remotely from Germany. The meetings were held in Gaziantep (Turkey) between North Syrian communities' representatives and local GIZ. Positions held: Solid Waste Management Backstopper Activities performed: Analysis of the local SWM situation ++ Supporting the development recommendations about how to improve the MSWS on ground in terms of collection and transport to the local landfills ++ Supporting the development of capacity building modules for the training of local Government's employees ++ Coordination of the Experts' input and organising travel arrangements ++ Review and quality management of project outputs. Name of assignment or project: **Internship at the department of Environment and Climate** Year: 2014 Location: Eschborn, Germany Client: GIZ Main project features: Secondary research on the subject of Waste to Energy in developing countries as initial work for the creation of a handout for decision-makers Positions held: Intern Activities performed: Literature search, creation of a fact sheet and a presentation on marine litter / marine pollution in Asia ++ Collaboration in the creation of the documentation for a waste management and basic sanitation in Benin. Name of assignment or project: Management of the waste collection point Year: 2006-2013 Location: Padua, Italy

	Client: ETRA Spa (municipal waste management company) Main project features: Responsible for the management of the waste collection point Positions held: Waste collection center responsible Activities performed: Registration and evaluation of the incoming flux of household waste ++ Supported and managed collaboration between recycling companies and public utility.

12. Do you currently or have you ever worked for the World Bank Group including any of the following types of appointments: Regular, term, ETC, ETT, STC, STT, JPA, or JPO? If yes, please provide details, including start/end dates of appointment.
NO

Certification

I certify that (1) to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience; (2) that I am available for the assignment for which I am proposed; and (3) that I am proposed only by one Offeror and under one proposal.

I understand that any wilful misstatement or misrepresentation herein may lead to my disqualification or removal from the selected team undertaking the assignment.

_____ Date: 07/11/2022

[Signature of staff member or authorized representative of the staff] *Day/Month/Year*

ANNEX 2: CURRICULUM VITAE (CV) OF PROPOSED KEY PERSONNEL

1. **Name of Staff** [*Insert full name*]: Eugenio Pettigiani

2. **Proposed Position**
   National Coordinator/Environmental Specialist

3. **Employer**: National Institute of Industrial Technology (INTI)

4. **Date of Birth**: 08/01/1962 **Nationality**: Argentine

5. **Education**

School, college and/or University Attended	Degree/certificate or other specialized education obtained	Date Obtained
Dalhousie University (Halifax, NS, Canada)	Master of Environmental Studies	10/1994
Universidad Nacional del Sur (Bahía Blanca, Argentina)	Licenciate (a graduate level degree) in Physics	11/1986
Universidad Católica de Córdoba (Córdoba, Argentina)	Undergraduate Studies in Civil Engineering	11/1982

6. **Professional Certification or Membership in Professional Associations**: Registered Environmental Consultant

7. **Other Relevant Training**: From Biomass to Renewable Energies (FAO/RLC, 2017), Visits to Recycling and Energy Recovery Plants in Germany (GIZ, Germany, 2012), Integrated Solid Waste Management (UNITAR/CIFAL, Curitiba, Brazil, 2004), Entrepreneurial Skills Training Program (BCIT, Vancouver, Canada, 1998), Geographic Information Systems (CAERCEM/CONICET, Buenos Aires, Argentina, 1987)

8. **Countries of Work Experience**: [*List countries where staff has worked in the last ten years*]: Argentina

9. **Languages** [*For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing*]:

	Speaking	Writing	Reading
Spanish	Mother tongue		
English	Excellent	Excellent	Excellent
French	Good	Poor	Good
Portuguese	Good	Poor	Good
Italian	Good	Poor	Good

10. Employment Record [*Starting with present position, list in reverse order every employment held*]:

From [*Year*]: 2021 To [*Year*]: Ongoing
Employer: INTI
Positions held: Head of Analytical Chemistry and Urban Waste (ACUW) Department, INTI Central Region

From [*Year*]: 2011 To [*Year*]: 2021
Employer: INTI
Positions held: Responsible for Urban Waste Division at Analytical Chemistry and Urban Waste Department, INTI Central Region

From [*Year*]: 2007 To [*Year*]: 2009
Employer: Environment Secretariat of the Province of Córdoba
Positions held: Professional staff in the Solid Urban Waste Department

From [*Year*]: 2003 To [*Year*]: 2007
Employer: Interamerican Development Bank/Environment Secretariat of the Province of Córdoba
Positions held: Senior Consultant – Urban Solid Waste Specialist – Córdoba Limpia Program

From [*Year*]: 2002 To [*Year*]: Ongoing
Employer: Registered Environmental Consultant (Private)
Positions held: Conducting Environmental Impact Assessments, Waste Management and Environmental Consulting

From [*Year*]: 2001 To [*Year*]: 2005
Employer: Universidad Siglo XXI – IES Siglo XXI
Positions held: Professor in Waste Management, Air Quality and Thesis Projects

From [*Year*]: 1999 To [*Year*]: 2002
Employer: British Columbia Institute of Technology (BCIT, Canada)
Positions held: President of BCIT Argentina

From [*Year*]: 1997 To [*Year*]: 2002
Employer: Transtek South American Ventures (partnership in consulting company)
Positions held: President

From [*Year*]: 1995 To [*Year*]: 1997
Employer: Seaconsult Marine Research (Vancouver, BC, Canada)
Positions held: Environmental Consultant – Responsible for SEACAST project (an Integrated Marine Geographic Information System)

From [*Year*]: 1995 To [*Year*]: 1997
Employer: Aquatic Resources Limited (Vancouver, BC, Canada)
Positions held: Environmental Coordinator

From [*Year*]: 1993 To [*Year*]: 1994
Employer: School for Resource and Environmental Studies. Dalhousie University (Halifax, NS, Canada)
Positions held: Assistant Professor in Sustainable Development

From [*Year*]: 1991 To [*Year*]: 1992
Employer: Canadian International Development Agency/Argentine National Council for Scientific Research and Technology (CONICET)
Positions held: Intern at Bedford Institute of Oceanography (NS, Canada) processing satellite information and building a GIS system for the Argentine Sea

From [*Year*]: 1988 To [*Year*]: 1991
Employer: CAERCEM (a CONICET Institute)
Positions held: Research Scholar in satellite oceanography and GIS systems for the Argentine Sea

11. Detailed Tasks Assigned	**12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**
▪ Co-lead and co-management of the project ▪ Contacting all the local key stakeholders relevant in the project ▪ Coordination of waste characterization activities	[*Among the assignments in which the staff has been involved, indicate the following information for those assignments that best illustrate staff capability to handle the tasks listed under point 11.*] Name of assignment: **Responsible for Urban Solid Waste Division of the ACUW Department at INTI Central Region** Year: since 2011 Location: Argentina Client: Municipalities of Córdoba, Río Ceballos, Villa Allende, Unquillo, Salsipuedes, Mendiolaza, Agua de Oro, Cerro Azul, La Granja, Marcos Juárez, Capilla del Monte, Villa Dolores, Mina Clavero, Villa General Belgrano, San Francisco, Villa María, Leones in the Province of Córdoba; Los Berros, Media Agua, San Juan City in the Province of San Juan; General Alvear (Province of Mendoza) and Produce Supply Market for the city of Buenos Aires, and others. Main project features: Waste generation and composition (characterization) studies following IRAM 29.523 national standards. Positions held: Coordinator Activities performed: Seasonal waste generation and characterization studies.
	Name of project: **Comprehensive Strategic Plan for the Sustainable Waste Management of the Sierras Chicas Region.**

	Year: 2018-2021 Location: Nine municipalities in Sierras Chicas in the metropolitan area of the city of Córdoba, Argentina Client: Municipalities of Villa Allende, Mendiolaza, Unquillo, Río Ceballos, Salsipuedes, Cerro Azul, El Manzano, Agua de Oro and La Granja. Main project features: Design of a Strategic Regional Waste Management Plan Positions held: Project Manager Activities performed: Baseline studies of waste generation and composition, waste collection and management practices, recycling programs, environmental assessment of existing open dump sites and transfer stations, opinion and household waste management practices (recycling and composting) polls, existing informal waste pickers, circular economy entrepreneurs, existing infrastructure (recycling plants and transfer stations). Training of high school environmental promoters in waste separation and household composting. Design of Waste Management Strategy, necessary infrastructure, and remediation of existing open dump sites.
	Name of projects: **Design of Recycling Plant, Green Waste Plant and Landfill for the cities of San Francisco (2022) and Concepción del Uruguay (2021)** Year: 2021 and 2022 Location: San Francisco city (Province of Córdoba) and Concepción del Uruguay (Province of Entre Ríos), Argentina Client: Municipalities of San Francisco and Concepción del Uruguay Main project features: Design of waste treatment facilities Positions held: Urban Solid Waste Specialist Activities performed: Evaluation of waste generation and characterization studies and waste streams. Design of necessary infrastructure and waste treatment equipment (recycling and green waste plant, landfill, leachate and landfill gas management systems). Investment needs and evaluation of local providers.
	Name of project: **Córdoba Limpia Program** Year: 2002 - 2009 Location: Province of Córdoba, Argentina

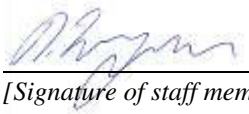
	Client: Environment Secretariat of the Province of Córdoba and Interamerican Development Bank Main project features: Design of the Comprehensive Strategic Waste Management Plan for the Province of Córdoba Positions held: Senior Waste Management Specialist Activities performed: Baseline studies, survey and environmental assessment of existing open dump sites across the Province. Design of provintial infrastructure (regional landfills, transfer stations and recycling plants) to absorb 90 % of provintial waste. Design of a GIS of needed infrastructure and baseline information. Monitoring contruction of Traslasierra and Punilla Region Infrastructure and remediation of existing open dump sites.

12. Do you currently or have you ever worked for the World Bank Group including any of the following types of appointments: Regular, term, ETC, ETT, STC, STT, JPA, or JPO? If yes, please provide details, including start/end dates of appointment.
NO

Certification

I certify that (1) to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience; (2) that I am available for the assignment for which I am proposed; and (3) that I am proposed only by one Offeror and under one proposal.

I understand that any wilful misstatement or misrepresentation herein may lead to my disqualification or removal from the selected team undertaking the assignment.



_____ Date: 07/11/2022

[Signature of staff member or authorized representative of the staff] *Day/Month/Year*

ANNEX 2: CURRICULUM VITAE (CV) OF PROPOSED KEY PERSONNEL

1. Name of Staff [*Insert full name*]: Leila Devia

2. Proposed Position
Waste Policy Analyst

3. Employer: Environmental Law Center of the Law School of the University of Buenos Aires (UBA) / National Institute of Industrial Technology (INTI)

4. Date of Birth: 13/09/1959 **Nationality**: Argentine

5. Education

School, college and/or University Attended	Degree/certificate or other specialized education obtained	Date Obtained
FACULTY OF LEGAL CS; SALVADOR'S UNIVERSITY	PhD in Political Sciences	In progress. Start in 2021
LAW SCHOOL; BUENOS AIRES' UNIVERSITY	Post Doctorate in Law	2015
FACULTY OF LEGAL CS; SALVADOR'S UNIVERSITY - USAL	Doctor of Law and Social Sciences	2010
FACULTY OF LAW; BUENOS AIRES' UNIVERSITY - UBA	Specialist in the Legal Regime of Natural Resources	1994
FACULTY OF LAW; BUENOS AIRES' UNIVERSITY - UBA	Lawyer	1987

6. Professional Certification or Membership in Professional Associations:

2022 Outstanding Personality in the Field of Science and Education in the Buenos Aires Legislature

2022 Academic number of the Academy of Environmental Sciences

2003/ Present
Argentine Council of Engineers

1991/ Present
Argentine Industrial Union

1989/ Present
Public Bar Association of the City of Buenos Aires

1999 Member of the Technologist Career of the National Institute of Industrial Technology, INTI. Associate Technologist Category. Res. INTI No. 27/99. Technical barriers to trade and environmental protection.

7. Other Relevant Training:

2004 Technological Innovation Engineering Program between the University of Bologna and the National Institute of Industrial Technology

2003 Teaching Skills Update Program. Technological Institute and Higher Studies of Monterrey. Virtual University.

1999 Multiregional Program "The Impact of Global Climate Change!, sponsored by the Cultural Exchange Program of the Information and Cultural Agency of the United States of America. USA

1997 Environmental Negotiation. International Programs on the Management of Sustainability. Sustainability Challenge Foundation. Holland.

1997 ISO 14000 course – internal auditors RWIUW International, Argentina branch

1995 Course Measures to Reduce Use of the Ozone Depleting Substances. Japan International Cooperation Agency. JICA, Japan

1995 Environmental Auditor Course Aspects International Gamma Environmental in accordance with the requirements of the Environmental Auditors Registration Association based in London Bs As Argentina

1994 Seminar on Legislation on Pollution Control in Urban Areas. Organized by the International Development Law Institute, the Regional Studies Foundation and the Honorable Chamber of Deputies of the Province of Buenos Aires. La Plata, Buenos Aires, Argentina.

1993 Intersectoral Meeting on the Pollution of Fresh Surface Waters. Organized by the Secretary of Science and Technology of the Nation. SECyT

1993 Seminar on Environmental Risk Assessment. Organized by the Honorable Congress of the Nation.

1993 Seminar. Workshop on Environment. Organized by the Environment Program of the University of Buenos Aires.

1993 Exhibition on Economic Approaches to Environmental Issues. Led by Dr. Graciela Chichinisky from Columbia University USA. Organized by the Working Group "Environmental Issues" of the Ministry of Foreign Affairs and Worship of the Nation.

1992 Seminar on Comparative International Environmental Law. Global Forum 92, promoted by the Federal Council of the Brazilian Bar Association. Rio de Janeiro Section, Brazilian Environmental Society, International Center for Comparative Environmental Law of France. Rio de Janeiro Brazil.

1992 Ibero-American Congress of Science and Technology. Organized by the Secretary of Science and Technology of the Nation SECyT.

1991 Working Meeting on Toxic Waste. Commission of Natural Resources and Human Environment.

1991 Course on Environmental Law in Special relation to Water Pollution. Association of Lawyers of Buenos Aires.

1991 International Seminar on Engineering and Environment. Industry and the Environment. Faculty of Engineering, UBA.

1990 The New Hydrocarbons Policy. Institute of Natural and Energy Resources Law of the Public Bar Association.

1989 Advances in Environmental Law. Natural and Energy Resources Law Institute of the Public Bar Association.

1989 Conference on Environmental Policy Development. The Swedish Experience. Speaker Dr. Göran Persson, Deputy Director of the Swedish Environmental Protection Agency.

1989 Seminar on Industrial Hazardous Waste Management. Lecturer. Dr, William Futrell. Organized by the Environment and Natural Resources Foundation.

1988 Legal Aspects of Antarctica. Institute of Natural Energy Resources Law of the Public Bar Association.

1988 Environment, Natural Sciences and Law. Institute of Natural and Energy Resources Law of the Public Bar Association.

1988 Seminar on Fishing. Institute of Natural and Energy Resources Law of the Public Bar Association.

8. Countries of Work Experience: [*List countries where staff has worked in the last ten years*]: Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Paraguay, Peru, Venezuela, Uruguay, France

9. Languages [*For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing*]:

	Speaking	Writing	Reading
Spanish	Mother tongue		
English	Good	Good	Good
French	Good	Good	Good
German	Poor	Fair	Fair

10. Employment Record [*Starting with present position, list in reverse order every employment held*]:

- 2021 to date

  Environmental Law Center of the Law School of the University of Buenos Aires (UBA).

  Vicedirector

- 2019 to 2021

  Environmental Law Center of the Law School of the University of Buenos Aires (UBA).

  Director

- 2002 to date

  South American Regional Center for Training and Technology Transfer dependent on the Basel Convention (United Nations Environment Program) Buenos Aires Headquarters, INTI.

  Director

- 1997 to date

  UBA, University of Buenos Aires – Faculty of Law and Social Sciences

  Regular Assistant Professor with partial dedication of Legal Regime of Natural Resources Resolution 6522/97.

- Tenured professor of Law of Natural Resources of the Faculty of Legal Sciences of the University of Salvador, corresponding to the Franco-Argentine career of double degree in Law (USAL, Université Paris I)
- Member of the Interdisciplinary Program of the University of Buenos Aires, on Sustainable Energies (PRBAS) representing the Faculty of Law.
- Since 2001

  Director of the Environment and Sustainable Development Program of the National Institute of Industrial Technology.

- Since 1999

  Member of the Technologist Career of the National Institute of Industrial Technology, INTI. Associate Technologist Category. Res. INTI No. 27/99. Technical barriers to trade and environmental protection.

- Investigation work.
- Author of numerous publications and articles.

11. Detailed Tasks Assigned	**12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**
▪ Waste policy and institutional analysis ▪ Suggestion of required policy interventions	[*Among the assignments in which the staff has been involved, indicate the following information for those assignments that best illustrate staff capability to handle the tasks listed under point 11.*] Name of assignment or project: **Capacity Building Programme for the implementation of the Minamata Convention** Year: 2019 - ongoing Location: Argentina Main project features: The objective of the project is to strengthen the country's capacity to implement Article 4 of the Convention and develop information generation mechanisms to comply with the Minamata Convention.

	Positions held: Director of BCRC Argentina (Implementation Agent) Activities performed: Analysis of the feasibility of substitute products, including the identification of barriers and the socio-economic impact of prohibitions ++ Design of a legal framework that includes administrative regulations, incentives and application systems ++ Awareness campaigns with local governments and other stakeholders
	Name of assignment or project: **Strengthening of national initiatives and enhancement of regional cooperation for the environmentally sound management of POPs in waste of electronic or electrical equipment (WEEE) in Latin America Countries** Year: 2018 - ongoing Location: Argentina Main project features: The project's general objective is to achieve the environmentally sound management of WEEE, focusing especially on the management of Persistent Organic Pollutants (POPs), by strengthening national initiatives and improving regional cooperation. Positions held: Director of BCRC Argentina (Implementation Agent) Activities performed: Latin American Electronic Waste Project Presentation (Preal) ++ Presentation of the Manual “Integral Management Of Weee: Waste from Electrical and Electronic Equipment, a source of decent work to move towards the Circular Economy”
	Name of assignment or project: Existing Extended Producer Responsibility (EPR) Schemes for Lead Acid Batteries (ULAB) in the Latin American and Caribbean region Year: 2020 Location: Argentina Main project features: The objective of the project was to review the current regulations on Lead Acid Batteries (LABU) in Latin America and the Caribbean to analyze those experiences that have included or wish to include Extended Producer Responsibility (ERP) schemes, identifying the main lessons learned and the challenges in the implementation, with the purpose of preparing a list of guiding recommendations for the region that will allow the countries of Latin America and the Caribbean

	that so wish, to introduce concrete improvements in the management of this waste, exchange experiences in the different stages of the life cycle chain, and promote technical assistance and regional cooperation. Positions held: Director of BCRC Argentina (Implementation Agent) Activities performed: Annotated index of the report and preliminary identification of case studies (countries). ++ Draft report on existing EPR schemes for ULAB in the LAC region, including lessons learned. ++ Final report of EPR schemes with recommendations for the LAC region and description of the information exchange actions carried out. ++ Webinar to transmit the obtained results.

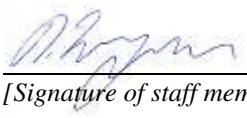
12. Do you currently or have you ever worked for the World Bank Group including any of the following types of appointments: Regular, term, ETC, ETT, STC, STT, JPA, or JPO? If yes, please provide details, including start/end dates of appointment.

NO

Certification

I certify that (1) to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience; (2) that I am available for the assignment for which I am proposed; and (3) that I am proposed only by one Offeror and under one proposal.

I understand that any wilful misstatement or misrepresentation herein may lead to my disqualification or removal from the selected team undertaking the assignment.



_____ Date: 07/11/2022

[Signature of staff member or authorized representative of the staff] *Day/Month/Year*

ANNEX 2: CURRICULUM VITAE (CV) OF PROPOSED KEY PERSONNEL

1. **Name of Staff** [*Insert full name*]: Cecilia Laura Belistri

2. **Proposed Position**
   Social Specialist

3. **Employer**: Instituto Nacional de Tecnología Industrial (INTI)

4. **Date of Birth**: 29/11/1976 **Nationality**: Argentine

5. **Education**

School, college and/or University Attended	**Degree/certificate or other specialized education obtained**	**Date Obtained**
Social and urban development, Universidad de Quilmes	Master's in social and urban development	Ongoing
Professor in sociology, Universidad de Buenos Aires	Sociology teacher	2007
Sociology, Universidad de Buenos Aires	Bachelor´s degree in Sociology	2005

6. **Professional Certification or Membership in Professional Associations**: n/a

7. **Other Relevant Training**: n/a

8. **Countries of Work Experience**: [*List countries where staff has worked in the last ten years*]: Argentina

9. **Languages** [*For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing*]:

	Speaking	Writing	Reading
Spanish		Mother tongue	
English	Intermediate	Intermediate	Intermediate

10. **Employment Record** [*Starting with present position, list in reverse order every employment held*]:

From: 2010 To: Ongoing
Employer: **Instituto Nacional de Tecnología Industrial (INTI)**
Positions held: Technical team member

From: 2018 To: 2019
Employer: **Secretaría de Integración Social y Urbana, Gobierno de la Ciudad de Buenos Aires**
Positions held: Technical team member

From: 2003 To: 2010

Employer: **Dirección General de Políticas de Reciclado Urbano, Gobierno de la Ciudad de Buenos Aires**
Positions held: Researcher urban solid waste / field operator

From: 2005 To: 2005
Employer: **Unicef / OIM**
Positions held: Expert consultant

11. Detailed Tasks Assigned	**12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**
▪ Focus on social inclusiveness regarding the informal sector ▪ Provision of inputs regarding awareness raising strategies, social inclusion, and grievance redressing	[*Among the assignments in which the staff has been involved, indicate the following information for those assignments that best illustrate staff capability to handle the tasks listed under point 11.*] Name of assignment or project: **Management reports** Year: 2020 / ongoing Location: Buenos Aires Client: Gerencia de Servicios Industriales, INTI Main project features: Economic management report of subsectors Positions held: Team leader Activities performed: Preparation and drafting of management reports for the Management of Industrial Services Name of assignment or project: **Care of people / gender perspective in resettlement of Villa 31 de Retiro** Year: 2018/ 2019 Location: Buenos Aires Client: Secretaría de Integración Social y Urbana del GCABA, Programa de Desarrollo Económico Main project features: Design of training projects to professionalize the care of people – proposal for childcare spaces Positions held: Team leader

	Activities performed: Care space projects – design and coordination of expert forum Name of assignment or project: **Development of a recyclable waste collection plant** Year: 2018/ 2019 Location: Buenos Aires Client: Secretaría de Integración Social y Urbana del GCABA, Programa de Desarrollo Económico Main project features: Generate alternatives for the location of a waste collection shed in Villa 31 de Retiro Positions held: Team leader Activities performed: Agreements with the owner of the recycling shed – survey of recyclable materials - conducting surveys of waste collectors Name of assignment or project: **Improvements in the production process of tomato from La Plata** Year: 2017 / 2018 Location: La Plata, Buenos Aires Client: Programa de Tecnología Industrial para la Agricultura Familiar, INTI Main project features: Know the process of making platense tomato sauce – Improve aspects of tomato and tomato sauce production Positions held: Technical advisor Activities performed: Contact with institutions in charge of small production units – preparation of processing rooms – trainer Name of assignment or project**: Training cooperatives of recyclers in Ciudad de Salta** Year: 2011 / 2012 Location: Ciudad de Salta, Argentina Client: Programa de Residuos Sólidos Urbanos INTI/ Empresa Agrotécnica Fueguina de Salta Main project features: Organization of the recyclable recovery work in the city dump Positions held: Trainer Activities performed: Training design – Training for reclaimers

	Name of assignment or project: **Training cooperatives of recyclers in Ciudad de Córdoba** Year: 2012 Location: Ciudad de Córdoba, Argentina Client: INTI Córdoba/ Programa de RSU INTI Main project features: Organize the recovery work of the cooperatives Positions held: Trainer Activities performed: Workshop design, workshop coordination, information gathering through direct observation Name of assignment or project: **Urban solid waste recycling plant in Venado Tuerto** Year: 2011 / 2012 Location: Venado Tuerto, Santa Fe Client: Municipalidad de Venado Tuerto / Programa RSU INTI Main project features: Organization of differentiated collection of recyclable materials Positions held: Technical advisor Activities performed: Technical advice for the generation of awareness campaigns towards the population Name of assignment or project: **Planta de reciclado de residuos sólidos urbanos en San Justo, Santa Fe** Year: 2010 / 2011 Location: San Justo, Provincia de Santa Fe Client: Municipalidad de San Justo, Santa Fe / Programa RSU INTI Main project features: Coordination of the recovery of recyclable materials in the recycling plant Positions held: Team leader Activities performed: Coordination and management of technical advice Name of assignment or project: **Workshops on the economic and environmental history of the Riachuelo in Day Homes of the Matanza Riachuelo Basin**

	Year: 2009 / 2010 Location: Ciudad de Buenos Aires Client: Agencia de Protección Ambiental del Gobierno de la Ciudad de Buenos Aires Main project features: Collect experiences of use of the waters of the Riachuelo of older adults / disseminate the relationship between economic models and type of contamination of the Riachuelo Position held: Trainer Activities performed: Coordinate workshops, compile experiences, write reports Name of assignment or project: **Waste weighing in CABA recycling plants** Year: 2008 Location: Ciudad de Buenos Aires Client: Dirección General de Políticas de Reciclado Urbano, GCABA Main project features: Establish the amount of recyclable materials recovered by urban reclaimers Positions held: Operator Activities performed: Separation of waste in recycling plants, weighing of recyclable materials, registration, writing reports Name of assignment or project: **Pilot Plan for the recovery of recyclables in Montserrat, CABA** Year: 2006 Location: Ciudad de Buenos Aires Client: Dirección General de Políticas de Reciclado Urbano, GCABA / Asociación de Vecinos de Montserrat Main project features: Build recovery circuit in CABA neighborhood Positions held: Field operator Activities performed: Contact with urban reclaimers, design and delivery of training for reclaimers, public officials and neighbors Name of assignment or project: **Trabajo infantil de recuperación en CABA**

	Year: 2005 Location: Ciudad de Buenos Aires Client: Unicef / OIM Main project features: Generate data for the report on child labor in the recovery of materials Positions held: Expert consultant Activities performed: Survey of urban reclaimers in CABA, conducting surveys, preparing reports Name of assignment or project: **Registration and attention to problems related to cartoneros and collection of materials, CABA** Year: 2003- 2007 Location: Ciudad de Buenos Aires Client: Programa de Recuperadores Urbanos, GCABA Main project features: Organize the activity of urban recuperators in CABA Positions held: Street operator Activities performed: Register of cartoneros, attention to demands of cartoneros and neighbors, report writing

12. Do you currently or have you ever worked for the World Bank Group including any of the following types of appointments: Regular, term, ETC, ETT, STC, STT, JPA, or JPO? If yes, please provide details, including start/end dates of appointment.
NO

Certification

I certify that (1) to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience; (2) that I am available for the assignment for which I am proposed; and (3) that I am proposed only by one Offeror and under one proposal.

I understand that any wilful misstatement or misrepresentation herein may lead to my disqualification or removal from the selected team undertaking the assignment.

_____ Date: 07/11/2022

[Signature of staff member or authorized representative of the staff] *Day/Month/Year*

ANNEX 2: CURRICULUM VITAE (CV) OF PROPOSED KEY PERSONNEL

1. Name of Staff [*Insert full name*]: Germán Guillermo Pasetti

2. Proposed Position

Financial Analyst

3. Employer: National Institute of Industrial Technology (INTI)

4. Date of Birth: 27/01/1971 **Nationality**: Argentine

5. Education

School, college and/or University Attended	Degree/certificate or other specialized education obtained	Date Obtained
Universidad de Buenos Aires. Center for Advanced Studies. Argentina	Master in Regional Integration Processes (Unfinished thesis)	2003- 2005
Higher Institute of Government Economists and the Central Bank of the Argentine Republic	Postgraduate in Financial Management	1999-2001
University of San Andrés. Argentina	Master in Government Economics	1997-1999
Universidad de Buenos Aires. Argentina	Degree in Economics	1990-1995

6. Professional Certification or Membership in Professional Associations:
Professional Body of Government Economists

7. Other Relevant Training:

A). Aug – Nov 2019 Bioeconomy: Potential and challenges for its use in Latin America and the Caribbean. Inter-American Cooperation Institute for Agriculture. IICA.

B) Sep– Nov 2019 Bioeconomy: Potential and challenges for its use in Latin America and the Caribbean. Inter-American Cooperation Institute for Agriculture. IICA.

C) Jan – Apr 2017 From Biomass to Renewable Energy. Dendroenergía in Argentina. FAO

D) Aug- Oct 2015. XII International Postgraduate Course on Environmental Impact Assessment. Foundation for Advanced Studies of Buenos Aires

8. Countries of Work Experience: [*List countries where staff has worked in the last ten years*]: Argentina

9. Languages [*For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing*]:

	Speaking	Writing	Reading
Spanish	Mother tongue		
English	Fair	Fair	Good
Portuguese	Fair	Poor	Good

10. Employment Record [*Starting with present position, list in reverse order every employment held*]:

From [Year]: 08/2016 To [Year]: Ongoing

Employer: INTI –Industrial Economics

Positions held: Economic Analyst – sector

From [Year]: 11/2017 To [Year] 09/2022

Prospective of the Argentine Bioeconomy towards the year 2030

Employer: INTI -INTA (National Institute of Agricultural Technology)

Positions held: Expert consultant for the area "Local Value Chains".

From [Year]: 08/2016 To [Year]: 06/2018

Employer: European Union and INTI

Project: "Contribution to poverty reduction in the Latin American and Caribbean region through sericulture with a sustainable approach and added local value". Project funded by the European Union with a budget of EUR 1,684,990

Positions held: Responsible for Monitoring, Evaluation and Monitoring of the Project. Presidential Provision (INTI) 248/17

From [Year]: 07/2011 To [Year]: 09/2016

Employer: European Union and INTI

Project Improvement of Regional Economies and Local Development. INTI Project – EU. DCI – ALA/2010/021-961. Budget EUR 14,600,000

Positions held: Alternate administrator. Provision of the Presidency (INTI) 752/2011.

From [Year]: 12/2007 To [Year]: 07/2011

Employer: INTI Wood and Furniture

Positions held: Project Manager

From [Year]: 10/2003 To [Year]: 11/2007

Employer: European Union and INTI

Improvement of the Efficiency and Competitiveness of the Argentine Economy. Convenio ARG/B7 – 3110/1B/99/0068

Positions held: Project Manager

From [Year]: 01/2001 To [Year]: 10/2003

Employer: European Union and INTI

European Cooperation for Argentina's Regions and SMEs (Cerpyme).

Positions held: Coordination of technical assistance activities. Economic Analyst

From [Year]: 03/2001 To [Year]: 06/2001

Employer: Spanish Chamber of Commerce of the Argentine Republic

Positions held: Project Analyst

From [Year]: 01/2000 To [Year]: 12/2000

Employer: Secretariat for Small and Medium Enterprises. Corporate Restructuring Program. (PRE). Loan BID N° 989 / OC-AR

Positions held: Investment Project Analyst

From [Year]: 03/1999 To [Year]: 12/1999

Employer: Pre-investment Unit. Ministry of Economy and Public Works and Services

Positions held: Project Analyst

11. Detailed Tasks Assigned	**12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**
▪ Study of steering effect of waste fees ▪ Development of guidelines and requirements for fee systems ▪ Input on financial aspects for required investments suggested in the action plan	[*Among the assignments in which the staff has been involved, indicate the following information for those assignments that best illustrate staff capability to handle the tasks listed under point 11.*] Name of assignment or project: **Waste from the Wood Industry in the Buenos Aires Conurbano. Characterization and Quantification of the different types of waste** Year: 2008 - 2010 Location: Province of Buenos Aires Client: Federal Investment Council e INTI Main project features: Survey in the main municipalities that produce furniture in the province of Buenos Aires,

	the amount of waste produced after the production process. Quantify it, characterize it and propose technological solutions for the recycling / rejection of wood. Then propose active government policies to solve the problem and cost of disposing of this waste Positions held: Project Manager Activities performed: Interviews with more than 150 companies in 7 municipalities. Removal of samples for waste characterization. Quantification of waste. Integration of outcome document with policy proposals Name of assignment or project: **Energy Recovery of Industrial Agro and Forestry Waste** Year: 08/2015-09/2015 Location: Provinces of the Argentine Northeast. Formosa, Chaco, Corrientes y Misiones Client: INTI. Proyecto Union Europea Main project features: The mission of Technical Assistance aimed to train professionals and technicians from INTI, INTA, companies and other institutions that belong to the value chain of forestry industry on the **Energy Recovery** of Agro and Industrial Forestry Waste. Thus, the training referred to the development of bioenergy businesses for Argentine SMEs. In this the following topics were addressed: 1. Definitions on the design and implementation of a reference technology center for the valorization of biomass. Thus, an Analysis and characterization of the laboratories necessary to support the sector is carried out with a description of the services and tests to be provided 2. Elaboration of regulations and basic specification of equipment and infrastructure. 3. I work on implementation projects to value resources of key actors or focal points of the subject – Tools for pre-feasibility studies in energy and environmental integration projects. Development of heat demand survey methodology. 4. Development of the Zero CO2 Industrial Parks Model, including a payment initiative for reducing emissions. - Improvement in communication capacities for the promotion of biomass for energy use.

	Among the main results / conclusions obtained we have: 1. **New terms** in the equation of added value of Biomass: indices of use of the raw material have opportunities for relevant improvements. It is foreseeable that in any case any energy recovery project must be based on two fundamental pillars: optimization of production processes in which waste is recovered or reused prior to any energy recovery project; and energy efficiency in production processes prior to an energy generation proposal. 2. Development of indicators on the positive externalities and local and regional impacts of energy recovery models: The advantages offered by biomass energy recovery alternatives are mainly that if use models are developed on the appropriate scale, direct impacts on local and regional economies are induced and produced from the generation of employment 3. Develop technological solutions at the right scale. The definition of appropriate scale refers to the development of projects in which participation in the supply of products and by-products for the local industry can be ensured as well as for those that can be marketed within a technically and economically convenient radius. An example of this is: When developing an energy generation project in which the commercialization of Electric Energy, E. thermal in its various forms, is designed, these last products require local demands to realize their commercial opportunity. This defines not only the location of projects immersed in specific productive conglomerates, but also at scales where everything produced can be commercialized. Positions held: Technical Assistance Mission Coordinator Activities performed: In addition to the training activities mentioned above; In this process, the development of a **documentation system** containing at least: 1. Heat demand survey sheets. 2. Analysis sheets, formulas for the analysis of technical-economic feasibility of biomass

	exploitation projects. Integrated energy recovery projects. 3. Structure of the pre-feasibility and feasibility studies for the projects analyzed Within the framework of this technical assistance, two technological clinics were held in companies to apply the concepts and tools taught. Name of assignment or project: **"Development of sustainable businesses based on the use of biomass as an energy resource"** Year: 05/2015-06/2015 Location: Norte Grande Argentino (10 provinces) Client: INTI. European Union Project Main project features: Survey for the 10 provinces of northern Argentina for the sectors benefiting from the actions of the Project (textile, leather, metalworking, clean energy, wood and furniture and food and beverages) the amount of biomass waste generated in the production process, environmental problems and economic and financial costs derived from the accumulation of this residual biomass. This survey was the initial step to identify the biomass generators, the amount generated and their geographical location and then value that biomass technically, economically and financially. ++ Once the results were achieved mainly for agro-biomass and industrial forest, the technical profiles of the human resources necessary to incorporate in each region were defined to respond to the technological demands of the companies in the use of biomasic waste. To this end, "technological multipliers" were trained, providing them with concepts and methodological tools for the analysis of projects and thus leaving installed the capacity to develop business models for the valorization of biomass resources, in a complementary way to the technical tools available to INTI and the Ministry of Industry. That is, they include economic feasibility and possible financing, and not only the analysis of technical and environmental feasibility. Positions held: Technical Assistance Mission Coordinator Activities performed: Interviews with companies and business chambers where they showed the production process, the technology used and the amount of biomasic waste generated ++ Training. Technical, environmental, economic and financial evaluation for the valorization of

	biomasic resources. ++ Circular economy. The transformation of a waste into a productive input.

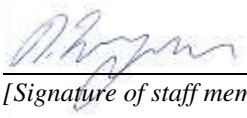
12. Do you currently or have you ever worked for the World Bank Group including any of the following types of appointments: Regular, term, ETC, ETT, STC, STT, JPA, or JPO? If yes, please provide details, including start/end dates of appointment.

NO

Certification

I certify that (1) to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience; (2) that I am available for the assignment for which I am proposed; and (3) that I am proposed only by one Offeror and under one proposal.

I understand that any wilful misstatement or misrepresentation herein may lead to my disqualification or removal from the selected team undertaking the assignment.



_____ Date: 07/11/2022

[Signature of staff member or authorized representative of the staff] *Day/Month/Year*

ANNEX 2: CURRICULUM VITAE (CV) OF PROPOSED KEY PERSONNEL

1. **Name of Staff** [*Insert full name*]: Elizabeth Rómula Palomeque

2. **Proposed Position**
   Geographic Information System Specialist

3. **Employer**: National Institute of Industrial Technology (INTI)

4. **Date of Birth**: 12/07/1958 **Nationality**: Argentine

5. **Education**

School, college and/or University Attended	**Degree/certificate or other specialized education obtained**	**Date Obtained**
National University of Córdoba Faculty of Exact, Physical and Natural Sciences	Architect	1986

6. **Professional Certification or Membership in Professional Associations**.
Colegio de Arquitectos de la Provincia de Córdoba

7. **Other Relevant Training**
* Diploma Superior en Desarrollo Local y Economía Social – FLACSO 2010
* Posgrado en Gestión Estratégica Local y Regional – ICDA –2008
* Diplomatura en Gestión Pública – Universidad Católica de Córdoba –2007
* Aspectos Tecnológicos de una infraestructura de Datos Espaciales (IDE) Servidores de mapas y Objetos (WMS)- Departamento de Ingeniería Topográfica y Cartografía de la Universidad Politécnica de Madrid (España) –2005.-
  * Curso Taller "Metadatos de Información Geográfica basados en Estándartes - Departamento de Ingeniería Topográfica y Cartografía de la Universidad Politécnica de Madrid (España) –2005

8. **Countries of Work Experience**: [*List countries where staff has worked in the last ten years*]: Argentina

9. **Languages** [*For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing*]:

	Speaking	Writing	Reading
Spanish	Mother tongue		
English	Poor	Poor	Fair

10. **Employment Record** [*Starting with present position, list in reverse order every employment held*]:

From [*Year*]: 2006 To [*Year*]: ongoing
Employer: INTI Córdoba – Department of Chemistry and Urban Waste

Position held: Responsible for GIS System, Blueprints and Infrastructure Design

From [*Year*]: 2005 To [*Year*]: 2007
Ministerio de Gobierno y Políticas Regionales. Dirección de Municipalidades y Comunas
Employer: Gobierno de la Provincia de Córdoba.
Proyecto de Infraestructura de Datos Espaciales de la Provincia de Córdoba

From [*Year*]: 2002 To [*Year*]: 2007
Ministerio de Gobierno y Politicas Regionales. Direcciòn de Municipalidades y Comunas
Employer: Gobierno de la Provincia de Córdoba.
Positions held: Profesional Técnico - Asesoramiento técnico a Municipalidades y Comunas de la Provincia de Córdoba

From [*Year*]: 1993 To [*Year*]: 2002
Ministerio de Economìa y Finanzas de la provincia de Córdoba
Employer: Gobierno de la provincia de Córdoba
Asesora en Secretaria Privada de Ministro

11. Detailed Tasks Assigned	**12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**
Identification and collection of information on key waste management hotspots	[*Among the assignments in which the staff has been involved, indicate the following information for those assignments that best illustrate staff capability to handle the tasks listed under point 11.*] Name of assignment: **Geographic Information System applied to the Santo Domingo Goat Residual Milk Watershed** Year: 2015 and ongoing Location: Argentina Client: Departamento Cruz del Eje e Ischillin. Main project features: Geographic Information System - GIS- where the relationship between basin and territory is linked to the collection of residual goat milk directly or indirectly; exploring the aspects that make the field work relevant, recognizing and identifying these places so isolated and punished by poverty, the projection of expansions, the design of corridors and logistical improvement. This leads us to create a database with geographic information that allows us to see through thematic plots, patterns, relationships, giving a new perspective, a dynamic of information never done before in this type of Basins, which helps to improve the value chain of the sale of milk in the decision-making process. Positions held: Project Manager - GIS specialist

	Activities performed: Project management. Manage the GIS system of the project, georeference key information.
	Name of project: **Analysis and comparison of Cement and Concrete Plants in Argentina through a geo-referenced information system by means of a data search, Annual Production from 2014 to 2018 by region.** Year: 2018-2021 Location, Argentina Client: INTI Main project features: Survey and baseline study of cement and concrete plants in Argentina Positions held: GIS Specialist Activities performed: Data analysis and georeferencing of cement and concrete plants throughout Argentina, including annual sales, number of employees, and compliance with legislation. Name of project: **Analysis through a Georeferencing System of early detection of fires in garbage dumps and vacant lots for the Municipality of Capilla del Monte, province of Córdoba.** Year: 2020 Location: Province of Córdoba, Argentina Client: Municipalidad de Capilla del Monte Main project features: Wild Fire Risk Assessment in the jurisdiction of Capilla del Monte Positions held: GIS Specialist Activities performed: Data analysis. Development of a GIS, georeferencing key information on hot spots associated with fire risks and risk assessment.

12. Do you currently or have you ever worked for the World Bank Group including any of the following types of appointments: Regular, term, ETC, ETT, STC, STT, JPA, or JPO? If yes, please provide details, including start/end dates of appointment.
NO

Certification

I certify that (1) to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience; (2) that I am available for the assignment for which I am proposed; and (3) that I am proposed only by one Offeror and under one proposal.

I understand that any wilful misstatement or misrepresentation herein may lead to my disqualification or removal from the selected team undertaking the assignment.

Date: 07/11/2022

[Signature of staff member or authorized representative of the staff] *Day/Month/Year*

Annex III – Work Schedule

N°	Activity	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
	Incenption Meeting												
	Development of Work Plan for CABA, ACUMAR, PBA												
Task1	Baseline Assessment												
1.1	Policy and institutional review												
1.2	Review of management practices												
1.3	Conduction of waste characterizations												
1.4	Review of waste management financing												
1.5	Review of Waste Pollution Hotspots												
	Initial drafts of Baseline Assessments for CABA, PBA, and ACUAMR												
Task 2	Gap Analysis												
2.1	Analysis of gaps between expected and actual service												
2.2	Analysis of gaps against international best practices in waste management												
2.3	Analysis of gaps against international trends of circular economy development												
2.4	Analysis of gaps between existing capacity and capacity needed in the forecast period												
	Initial drafts of Gap Analysis for CABA, PBA, and ACUMAR												
Task 3	Policy recommendation and proposed action plan												
3.1	Development of the strategic frameworks of a GIIRSU strategy												
3.2	Development of specific long, medium and short-term action plans												
	Draft GIIRSU/CE strategies adn action planes for CABA, PBA, and ACUMAR												
	Final GIIRSU/CE strategies adn action planes for CABA, PBA, and ACUMAR												
	Meetings with World Bank												

Meetings

Report

Annex IV – Power of Attorney

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Walter Kahlenborn
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HRB 85067
USt.-ID: DE813485763

GLS Gemeinschaftsbank eG
BLZ: 430 609 67
Konto: 402 111 3600

IBAN: DE38 4306 0967 4021 1136 00
BIC: GENODEM1GLS

Vollmacht | Power of Attorney

Hiermit bevollmächtige ich, Angelica E. Roehr,
als einzelvertretungsberechtigte Geschäftsführerin
der adelphi consult GmbH,
Hereby I, Angelica E. Roehr, as sole authorized representative
of adelphi consult GmbH, authorize

Herrn Nanne Zwagerman, Willibald-Alexis-Str. 31, 10965 Berlin

die Gesellschaft im Rahmen der folgenden Geschäftsfälle allein
rechtsverbindlich zu vertreten:
to represent the company as an authorized representative
in the following business transactions:

- Abgabe von Angeboten
  submission of tenders
- Abgabe von Anträgen
  submission of proposals

Diese Vollmacht gilt vom 01.01.2022 bis zum 31.12.2022.
This Power of Attorney is valid from 01.01.2022 until 31.12.2022.

Berlin, 17.12.2021

Angelica E. Roehr

Annex V – Letter of Intent

The World Bank Group
1818 H Street, NW Washington, DC
20433 USA (202) 473-1000

RE: Waste Management Study for the City and Province of Buenos Aires

Assignment Number: 1282304

Letter of Intent

Córdoba, September 13th, 2022

To whom it may concern,

I, the undersigned, Jorge Alberto Melo, in the capacity of Technical Director of Instituto Nacional de Tecnología Industrial (INTI – Occidental), hereby confirm our intent to enter into a Subcontracting Agreement for the above-mentioned project, with adelphi consult GmbH ("adelphi") as the project lead.

The parties agree to work together for this project based on the project scope as it is currently understood during the entire duration of this agreement.

In the event of contract award to adelphi, we will enter into a formal agreement.

adelphi and their authorised representative are duly authorised to sign any document relating to this bid.

Yours sincerely,

ING. JORGE MELO
INTI-Occidental (Córdoba)
Director Técnico