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DOMINICAN REPUBLIC

CIRCULAR ECONOMY MODEL FOR ORGANIC WASTE IN TOURIST AREAS

(DR-T1213)

DONORS MEMORANDUM

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PROJECT SUMMARY

Food waste is a massive problem. According to the Food and Agriculture Organization of the United Nations, every year one third of all food produced for human consumption, which amounts to 1.3 billion tons, is lost or goes to waste. This represents an estimated economic value of US\$936 billion, not including environmental and social costs. In the province of La Altagracia in the Dominican Republic, it is estimated that more than 50% of the waste produced is organic and comes largely from food products used in the kitchens of various types of establishments, such as restaurants, hotels, and others linked to the tourism sector. As for the Puntacana Resort & Club, it is estimated that 10 metric tons/day of food goes to waste. In addition, 140 m³/day of green waste (grass, leaves, plants, and tree trimmings) are generated, along with some 180 metric tons/day of sargassum in the months when it reaches the coastline.

Currently, most organic waste is sent to the landfill all mixed together, and a smaller portion is delivered to pig farmers to prepare animal feed without taking adequate hygiene control measures. The foregoing has a direct impact on the contamination of groundwater due to leachate percolation into the aquifer, on the health of local communities and informal waste reclaimers, on the potential infection if animal with communicable diseases, and on the generation of high amounts of greenhouse gases. This reveals of the lack of a comprehensive waste management model that incorporates international best practices, knowledge, and technology to mitigate environmental and health risks. In addition to environmental problems, the coronavirus (COVID-19) pandemic is also affecting the region by driving up economic stress and private sector losses, reducing income in the communities, and adding to greater food insecurity within the population.

This situation opens up the opportunity to explore innovative initiatives that promote the efficient management of kitchen inputs in the restaurant and tourism sectors, to reduce the generation of organic waste and encourage its reuse through job-creating green initiatives, and to contribute to the area's economic recovery. In this regard, the project aims to develop a private organic waste management model in tourist areas by adopting a new culture and practices which, through the uptake of new technologies, will make it possible to monitor, measure, and understand the areas that warrant greater attention in order to minimize waste generation, optimize kitchen management and performance, and promote waste processing and reuse to create a circular economy model. The project will be led by Fundación Grupo Puntacana alongside strategic partners such as Club Med, the Caribbean Catering Service, the B747 kitchen and the Westin Hotel.

The expected final outcomes are as follows: (i) a reduction in kitchen management costs; (ii) 5,219 metric tons of CO₂e emissions avoided by the kitchens over the project's lifetime; (iii) three destinations applying the organic waste reduction and use model; and (iv) only 25% of the annual volume of the waste generated by the kitchens and resorts being ultimately disposed of in public landfills (1,825 metric tons/year); volume of waste processed in the experiments⁴ (7,300 metric tons/year).

The operation is part of IDB Lab's Inclusive Cities (document MIF/GN-238) thematic area, given its objective of testing innovative and scalable solutions, which allows the inhabitants of urban or periurban spaces or informal settlements to live with a better quality of life. In addition, IDB Lab, with the IDB's support, has been a major promotor of the Regional Initiative for Inclusive Recycling (IRR, now [Latitud R](#)), which promotes the coordination of actions, investments, and knowledge on inclusive recycling for the development of the circular economy in Latin America and the Caribbean. To date, the initiative has focused its work on nonorganic solid waste, so this project will introduce knowledge linked to the opportunities for improved management of organic waste. The project has a total cost of US\$516,712, of which US\$258,356 (50%) will be contributed by IDB Lab as a nonreimbursable contribution and US\$258,356 (50%) as a local counterpart contribution.

ANNEXES

Annex I	Results Matrix
Annex II	Summary Budget
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Proposed resolution

**INFORMATION AVAILABLE IN THE TECHNICAL DOCUMENTS SECTION OF THE IDB LAB
PROJECT INFORMATION SYSTEM**

Annex IV	Table of milestones
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ABBREVIATIONS

ARSEMAR	Association of Artisans and Marine Services
FAO	Food and Agriculture Organization of the United Nations
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH [German Agency for International Cooperation]
PCG	Puntacana Group
PCRC	Puntacana Resort & Club

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EXECUTIVE SUMMARY

Country and geographic location:	Punta Cana, province of La Altagracia, Dominican Republic		
Executing agency:	Fundación Grupo Puntacana		
Focus area:	Inclusive Cities		
Coordination with other donors/Bank operations:	This operation will serve as the basis for the preparation of a request that the German Agency for International Cooperation (GIZ) will make to the Nationally Appropriate Mitigation Action Facility to finance a national operation that will propose transforming organic waste into renewable energy. It will also provide knowledge and a new business model for operation RG-M1179 Latitud R - Inclusive Recycling for the circular economy.		
Direct and indirect beneficiaries:	<p>The direct beneficiaries will be: 100 people (25% women) associated with the kitchens (chefs, assistants, purchasing managers, etc.) who will be trained in the use of new measurement, data analysis, and planning technologies; 100 people (30% women), including waste collectors, segregators, carriers, and processors who will be trained in organic waste processing; 8 pig farms that will reuse organic waste; 7 companies whose kitchens will improve their efficiency, and the environment by reducing the waste disposed of at public landfills and CO₂e emissions.</p> <p>The indirect beneficiaries will be the community of Punta Cana, with a new waste management model with the potential to be adopted at other resorts in the area, three communities near Puntacana Resort & Club, Verón, and Macao (Giri Giri landfill), which will have less waste disposed of in open dumps, and its consequent reduction in CO₂e emissions.</p>		
Financing:	Technical-cooperation funding:	US\$258,356	50%
	Counterpart:	US\$258,356	50%
	TOTAL BUDGET	US\$516,712	100%
Execution and disbursement period:	24 months for execution and disbursements.		
Special contractual conditions:	Conditions for the first disbursement are: (i) the signing of the collaboration agreements between Fundación Grupo Puntacana and the three companies that own the project's beneficiary kitchens, including their commitments and contributions to the project; and (ii) selection of the project's technical coordinator.		

Environmental and social impact review:	This operation was screened and classified on 9 September 2020 pursuant to the IDB's Environment and Safeguards Compliance Policy (Operational Policy OP-703). Given the limited impacts and risks, the project is proposed as a category "C" operation.
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I. PROBLEM ADDRESSED

A. Diagnostic assessment of the problem to be addressed by the project

- 1.1 Food waste is a massive problem. It affects the sustainability of food systems, reduces the availability of food locally and globally, lowers farmers' incomes, raises food prices for consumers, harms human health and nutrition, and affects the environment through the unsustainable use of natural resources.
- 1.2 According to the Food and Agriculture Organization of the United Nations (FAO), every year one third of all food produced for human consumption, which amounts to 1.3 billion tons, is lost or goes to waste. This represents an estimated economic value of US\$936 billion, not including environmental and social costs, according to the FAO report [The State of Food and Agriculture. Moving Forward on Food Loss and Waste Reduction](#).¹ In the same vein, the IDB Invest study [Fighting Food Waste in the Tourism Sector](#) indicates that food waste is responsible for 8% of global carbon emissions, including the water, energy, and other resources that go into producing, transporting, processing, and selling food, as well as the emissions and other byproducts generated along the way. When food goes to waste, these negative environmental impacts are generated in vain.
- 1.3 Within the province of La Altagracia, the Punta Cana area is a major generator of solid waste such as plastic, aluminum, glass, and paper, in addition to large amounts of organic waste. In Punta Cana approximately 250 to 350 metric tons/day of waste are disposed of mainly in public open dumps. The biggest challenge in this region in the eastern Dominican Republic is concentrated on improving the management and handling of organic waste coming mostly from tourist resorts that generate large volumes that have great potential for reuse.
- 1.4 **Deficient management of inputs and organic waste segregation in the resorts' kitchens.** In the province of La Altagracia, it is estimated that more than 50% of the waste produced is organic and comes largely from food products used in the kitchens of various types of establishments, such as restaurants, hotels, food services provided by supermarkets, catering companies, and others. As regards Puntacana Resort & Club (PCRC),² it is estimated that 10 metric tons/day of food waste is generated, starting with the supply, cleaning, and preparation of food and up to delivery to the customer. Among other reasons, this can happen as a result of an overestimate of the inventory of inputs when purchasing, the expiration or decomposition of the inputs, an overestimate in the amount of food prepared, or large portions being served. These leftovers lead to decreased efficiency and profitability in the kitchens, combined with the fact that the higher the volume of waste, then the higher the cost of collection and final disposal.

¹ FAO. 2019. The State of Food and Agriculture. Moving Forward on Food Loss and Waste Reduction. Rome.

² The name "Puntacana Resort & Club" includes hotels, restaurants, residential neighborhoods, supermarkets, the airport, and Fundación Puntacana. The name "Punta Cana" refers to the tourist destination in general and includes nearly 45,000 hotel rooms, residential communities, and other tourist properties. PCRC has been a point of reference for more than 50 years in sustainable tourism and has received numerous international awards, including awards from the World Travel and Tourism Council, Conde Nast Traveler, Travel & Leisure, and National Geographic Traveler.

- 1.5 At present, waste is improperly segregated at the source, which impedes third parties from making better use of it. Such is the case with the region's pig farmers; PCRC currently provides waste to two of them free of charge for the preparation of animal feed. Using this waste mixed with decomposing matter creates the risk that this feed gives rise to a swine disease and affects consumer health. There are several swine-based diseases. In 2009, the H1N1 swine flu became a global pandemic that infected more than 1 billion people, with estimated fatalities of 12,000 to 18,000. Scientific studies showed that H1N1 originated in a small pig farm in rural Mexico.³
- 1.6 **Scant reuse and use of organic waste.** There is waste that has a great capacity for reuse for human consumption, such as leftover prepared food that was not served and was left in the kitchen, which could be used in schools, communities, or other entities. However, direct delivery to these entities could constitute a reputational and legal risk to the PCRC should intoxication arise from mishandling. Hence, no leftover prepared food in good condition is currently reused for human consumption. PCRC would be willing to donate such food if there were a safe delivery mechanism with no health risks. PCRC has supported the National Committee for the Prevention and Reduction of Food Loss and Waste in revising the proposed protocol regulating food donation, but it has not yet taken effect.⁴
- 1.7 **High volume of green waste and sargassum.** It is estimated that 140 m³/day of green waste (grass, leaves, plants, and tree trimmings) are generated at PCRC as a result of cleaning up the vegetation and maintaining the landscaping of the area. Approximately 180 metric tons/day of sargassum are also generated in the months when it reaches the coastline.⁵ In biodegradable waste alone (food and green waste) it is estimated that PCRC disposes of 30,400 kg of CO₂e per day.⁶ This is equivalent to 2,714 days of electricity consumption for an average family home (equal to 7.5 years of average consumption) or 260 50-liter tanks per day of car fuel,⁷ and results from the **inefficiency** with which the resorts operate in organic waste management, from the kitchens up to the management of green waste generated in the gardens and on the beaches. The PCRC is the only resort in the Caribbean region that has a permanent infrastructure to contain and collect the sargassum reaching the beaches.

³ [Origin of 2009 H1N1 Flu \(Swine Flu\): Questions and Answers](#), CDC.

⁴ <http://www.fao.org/republica-dominicana/noticias/detail-events/es/c/1181149/>.

⁵ In increasing numbers since 2011, sargassum has been present for at least six months of each year along the Caribbean coast of Punta Cana. It is a relatively new phenomenon that erodes beaches, negatively impacts coastal water quality and biodiversity, and generates high costs in the use of technology and infrastructure for containment, collection, and final disposal to prevent it from reaching the coastline. Coastal properties have invested millions of dollars in beach protection and clean-up, but a definitive solution has yet to be reached. It has affected the supply chain in the country's eastern region, leading to a reduction in visitors and local economic activity and affecting the businesses supplying the hotel chains.

⁶ <http://www.fao.org/3/a-i8000e.pdf>. As CO₂e emissions are particular to each country, for purposes of this document the calculation was made in consultation with and based on the standards used by the national climate change authority.

⁷ <https://watchmywaste.com.au/food-waste-greenhouse-gas-calculator/>.

- 1.8 **Environmental liabilities and poor landfill management.** The lack of a comprehensive waste management model, which includes appropriate public infrastructure and technical knowledge, and limited access to international best practices means that organic waste generates significant environmental problems in open and even illegal dumps, since the public waste management service in Punta Cana does not cover the tourism sector, which has to contract private collection and final disposal services that also lack good management practices. This generates multiple environmental and health risks, such as the contamination of groundwater due to leachate percolation into the aquifer, the impact on the health of nearby communities and informal waste reclaimers, animal infection with communicable diseases, pestilence, and the generation of high amounts of greenhouse gases, such as methane gas, which contribute to the climate crisis.
- 1.9 **Impact of COVID-19.** Coupled with the environmental problems is the coronavirus pandemic (COVID-19), which is driving up economic stress and private sector losses and reducing income in the communities. COVID-19 has demonstrated the risk of transmission of zoonotic diseases.⁸ that can become highly contagious diseases such as the H1N1 swine flu. These diseases have the capacity to rapidly grow and expand across the country, affecting both the economy and human health. At the time of preparation of this operation, the local economy of Punta Cana has been paralyzed. For the post-COVID stage and the gradual recovery of tourism and restaurant activity in the area, a central strategy is to implement a short- and medium-term input-optimization solution and the proper management of waste generated by these industries to optimize the use of inputs, to reduce food waste, and to encourage the reuse of waste either for human or animal consumption or other uses through new ventures and jobs. It is key to define and adopt sanitary protocols that provide for the proper management of food, waste in general, and, in particular, the waste that will be reused in other food chains, such as pig farms.
- 1.10 Given the foregoing, it is necessary to explore innovative initiatives to achieve greater efficiency in restaurant businesses and use the waste they generate under a circular economy logic, to develop replicable models and management methodologies to deal with the volumes of organic waste generated by the dining sector in the country, and to develop enterprises and create jobs that contribute in the short term to the area's economic recovery, thus involving the communities in the solution.

II. THE SOLUTION

A. Description of the project

- 2.1 The **final objective** of the project is to reduce the negative environmental impact of the organic waste generated in tourist areas while contributing to making the management of the restaurant industry and its kitchens more efficient (in inputs and costs). The **specific objective** is to develop a private organic waste management

⁸ This refers to any infectious disease that is transmitted from animals to humans and vice versa. There are several zoonotic diseases that originate or are transmitted from swine, including ringworm, streptococcosis, salmonellosis, giardiasis, balantidiasis, influenza, and pathogenic *E. coli* infection.

- model⁹ through the uptake of new technologies and practices that minimize waste generation and promote waste processing and reuse under a circular economy logic in tourist areas.
- 2.2 The **intervention model** proposes adopting technologies and practices that enable the measurement and analysis of the organic waste generated by kitchens in the food preparation chain that begins with the provision of inputs, the food that is served to customers, and the leftovers. This will require promoting management plans that incorporate digital technology from senior management of the resort/hotel to involve, train, and motivate staff in the various areas involved (purchasing, kitchen, maintenance, etc.), by supporting champions in these new areas and affording an important role to the chef. The information generated will be used to determine the different areas of improvement needed by the business.
 - 2.3 Solutions such as [Leanpath](#) and [Winnow](#) will be employed so as to: (i) weigh and capture a snapshot of the organic waste tossed into the kitchen waste container; (ii) recognize the type of organic waste using images and artificial intelligence; and (iii) determine its caloric composition, the volume of organic waste, and environmental impact, etc. This information will be used to minimize organic waste generation in the kitchens, to identify the related reasons and costs in the phase in the chain when the most organic waste is generated, to define incentives that drive optimization of the inputs, to optimize segregation at source, and to provide information to third parties involved in the reuse or processing thereof (small businesses, collectors, etc.) on the type of organic waste generated. This will improve waste sorting by increasing the possibility for it to be turned into other products by small businesses and/or waste reclaimer associations.
 - 2.4 Operation resources will also be used to develop practices/processes in the use of the resorts' green waste and, in the particular case of sargassum, collection technologies and processing experiments will be explored.¹⁰
 - 2.5 The waste-related information on composition and volume that is captured at source will make it possible to develop pilot experiments to help determine the best treatment process for each type and/or combination of organic waste. Intervening in different kitchens and different establishments of varied size and business and conducting a variety of transformation experiments will result in a tested intervention model that can be replicated at other resorts. The results will make it possible to develop knowledge regarding the transformation of waste into new products and/or to generate new ventures.
 - 2.6 **Innovation:** The solution is unique in that it proposes the use of technology to transform and fundamentally measure and thus size the generation of waste, optimal waste classification at source (kitchens), the development of treatment alternatives that can vary in line with the demand for finished products, and a sustainable use of the end products. Treatment practices, processes, and experiments will also be generated that can be systematized into a replicable intervention model for resorts.

⁹ Waste arising from kitchen meals, the sargassum reaching the Punta Cana coastline, and the waste from the resorts' green areas.

¹⁰ These technologies will be provided and financed by the hotels.

- 2.7 The pilot will be launched at PCRC, where valuable basic experience already exists.¹¹ In 2019 a pilot was conducted using Leanpath in one of the PCRC kitchens. In addition, since 2007 a project has been under way that transforms organic waste into worm compost on a small scale, using only a portion of the kitchen waste. The operation will be carried out in a cluster of participants, mostly made up of five companies from different sectors which handle inputs, prepare food, and generate organic waste. Through this cluster, a decentralized business model will be developed that will function independently once the project is completed. This cluster will be formed from a variety of stakeholders (types and sizes of businesses and organizations) so as to reach a critical mass of waste of between 10 and 20 metric tons/day to justify investment in the business model.
- 2.8 The proposed intervention model will stimulate interaction between closely related stakeholders in the chain (kitchens with carriers, processors with pig farmers, etc.). This modularizable and decentralized approach¹² will make it possible to sidestep the limitation regarding the management of complex variables of large, centralized waste management projects, such as high infrastructure and logistics costs, business interests that come into conflict with trade unions and local authorities, and others. In turn, the use of technology will enable the systematization and management of the knowledge generated by the proposed solution to replicate the model.

B. Project beneficiaries

- 2.9 The project's direct beneficiaries will be:
- 100 people (25% women) associated with the kitchens (chef, assistants, buyers, etc.) will be trained in the use of new technologies, data analysis and best practices in planning and selection, etc.¹³
 - 100 local participants (30% women) as waste reclaimers, segregators, carriers, and processors, in three main areas: food waste, green area waste, and sargassum.
 - At least eight pig farming ventures related to waste processing and the use of the products resulting from it (processors and end users). The participation of women on pig farms will be encouraged.
 - Three communities in the area that will not be exposed to the communicable diseases generated by the lack of waste management.

¹¹ The Punta Cana area includes the following companies that will participate in the project: Club Med, B747, Westin, Four Points, Club House/Catering, a supermarket from the Nacional chain, and Caribbean Catering Services, which provide food services to airlines that in turn provide food and transport to nearly four million tourists a year to the eastern region of the Dominican Republic.

¹² It is modularizable because it can be systematized and then replicated at other resorts, and it is decentralized because it is private and does not depend on local public infrastructure or on groups, such as carriers, that have no interest in reducing the environmental impact of waste management.

¹³ Discussions have been held with the human resources department of the kitchens involved in the project on how to tie kitchen performance, in terms of efficiency and waste production, to their variable bonuses. For the purposes of the project, within their annual objectives, the subject of waste will be linked to a percentage bonus in their income. These large kitchens have several shifts and a large number of employees who will be involved in the process.

- Seven companies whose kitchens¹⁴ will adopt best practices, of which three will be equipped with new technology and four will benefit from the good efficiency practices generated by this new model, as they will be trained in waste treatment processes under a circular economy logic.
- 2.10 The indirect beneficiaries will be the community of Punta Cana, with a new waste management model with the potential to be adopted at other resorts in the area, three communities located near Punta Cana Resort & Club, Verón, and Macao (Giri Giri landfill), which will have less waste disposed of in open dumps, and its resulting reduction in CO₂e emissions.

C. Project components

- 2.11 **Component I: Measurement and improvement of kitchen efficiency (IDB Lab: US\$124,550 - Counterpart: US\$31,700).** The objective of this component is to measure waste production in kitchens using technology based on the use of artificial intelligence, the development of management protocols, and the training of personnel in waste reduction.
- 2.12 Under this component the following activities will be financed: (i) baseline characterization and survey (of inputs, waste generated broken down by its capacity to be reused for human and animal consumption, and final disposal in a landfill); (ii) definition of a protocol for handling and measuring organic waste and incentives for reduction thereof within the framework of a plan to improve food handling in kitchens; (iii) implementation of technology packages in the kitchens, efficiency analysis, improvement in purchase scheduling, menus, and portion sizes; and (iv) training by technology providers for kitchen assistants and related staff. The possibility of linking entities that can reuse food left over from the kitchen inventory for safe human consumption will be assessed. In order to determine whether this possibility is cost-effective, the volume of this waste generated in the supply and production chain will be monitored.
- 2.13 The expected outcome is to have at least three large kitchens implementing the technology to be transferred to the Dominican Republic and four additional kitchens that will be trained without directly receiving the artificial intelligence technology; a protocol detailing waste management and measurement; and 100 people trained in the use of the technology, information analysis, and the new management protocol.¹⁵ The Fundación Grupo Punta Cana project team will be open to share learning and best practices with other sector participants during the project execution period, facilitating internships and visits, the cost of which will be covered directly by the interested entities. It will also promote visits by municipal authorities and

¹⁴ The three large kitchens are B747, belonging to the Punta Cana airport, Caribbean Catering Services, and the Westin Hotel; Club Med could be added, which would contract technology on its own. These kitchens have a higher volume of prepared food production and staff, and sometimes have up to three shifts. Smaller kitchens handling a lower volume of waste, such as Galería, La Yola, El Burrito, Mama Luisa, and Valentina, will also be selected. Although they will not apply the selected technology, they will apply practices and processes that minimize waste generation and promote its processing and reuse.

¹⁵ Large kitchens such as B747, Caribbean Catering Services, and Westin have a significant number of employees working multiple shifts and serve 4,000 meals per day, while a small restaurant or relatively low-volume kitchen serves an average of 100 meals per day. A large group of people will be trained to offset staff turnover, replacements, etc. The use and reduction of the waste generated in the kitchens will be tied to a percentage bonus of the employees' income.

- tourism/restaurant associations to apprise them of the progress made and the lessons learned.
- 2.14 **Component II: Organic waste processing (IDB Lab: US\$62,652 - Counterpart: US\$156,906).** The objective of this component is to experiment with alternative uses of waste, develop processing pilots, and validate them to determine the best uses of organic waste.
- 2.15 This component will support the following main activities: (i) development of model agreements with pig farmers; (ii) development of processing experiments (animal feed, energy production, composting); and (iii) training for pig and other farmers¹⁶ and the validation of the treatment processes.
- 2.16 The expected outcome is to have at least four formalized agreements with pig farmers, four documented nontraditional processing experiments that constitute an innovation challenge,¹⁷ 100 people trained in organic waste processing, such as kitchen staff, farmers, and local entrepreneurs, and at least eight pig farmers using segregated food.
- 2.17 **Component III: Knowledge generation (IDB Lab: US\$26,000 - Counterpart: US\$15,750).** The objective of this component is to systematize the solid waste management intervention model specific to tourist areas.
- 2.18 This component will finance the following activities: (i) development of a case study, which includes the experiences of the seven kitchens, with the definition of areas for improvement in the kitchens and measurement of their efficiency, and processes relating to the waste management model to serve as a technical guide for adoption in tourist establishments and for reflection by local municipal authorities¹⁸; (ii) development of audiovisual material on the processes to transform and structure recipes; and (iii) dissemination of the project outcomes to resorts, local government, and tourist associations.
- 2.19 Implementing the activities is expected to produce: one case study with the description of the intervention model; two meetings to present the project outcomes to the local government and the restaurant/tourist sector of Punta Cana and two additional tourist destinations in the Dominican Republic; and the participation of Foundation representatives in local and international forums promoting the model's replication in other tourist areas.

¹⁶ There are processes to sanitize waste before its consumption by the pigs, preventing potential diseases. Pig farmers will take part in pilots and training in these techniques.

¹⁷ Nontraditional refers to processing that adds value and knowledge to those techniques already existing in the market. Experimentation with this processing is required because the process to reach the end product is not clearly known.

¹⁸ The terms of reference for this consulting assignment should include an economic and financial evaluation as part of the measurements on the experiments in order to document the sustainability of the technology proposals promoted by the project. To this end, it could be supplemented with resources from the investment category related to evaluations and audits.

D. Project outcomes, impact, monitoring, and evaluation

- 2.20 The expected final outcomes are as follows: (i) a reduction in kitchen management costs; (ii) 5,219 metric tons of CO₂e emissions avoided by the kitchens over the project's lifetime compared to the metric to be determined in the baseline;¹⁹ (ii) three destinations applying the organic waste reduction and use model; and (iii) only 25% of the annual volume of waste generated by the kitchens and resorts being ultimately disposed of in public landfills (1,825 metric tons/year); volume of waste processed in the experiments (7,300 metric tons/year).
- 2.21 For project monitoring, the executing agency will develop a monitoring and evaluation plan that will enable information to be collected on the progress of the metrics established in the Results Matrix, while validating a starting point or baseline with indicators. A final evaluation will produce evidence to validate the development of the private organic waste management model. The knowledge products generated on the project outcomes should answer questions such as the following: What is the cost-efficiency ratio in terms of savings at hotel kitchens? How does the knowledge generated in the documented model help to make investment decisions and create public policy innovations and solutions for the private and public sectors in tourist areas? Which of the experiments in organic waste processing are valid for tourist areas?
- 2.22 Taking into account the logic of the project intervention and the expected impact, 100% of the IDB Lab financing for this project will be invested in adaptation to climate change activities, according to the joint approach of the multilateral development banks for tracking climate finance. This contributes to the IDB Group target of increasing financing for climate-related projects to 30% of approvals by the end of 2020.

III. ALIGNMENT WITH THE IDB GROUP, SCALABILITY, AND PROJECT RISKS

A. Alignment with the IDB Group

- 3.1 The project is aligned with the second **Update to the Institutional Strategy** (document GN-2933-5), which reinforces the IDB Group's emphasis on promoting technology adoption and innovation and mainstreaming the crosscutting issues of climate change and environmental sustainability.
- 3.2 It is also aligned with the **IDB Group Country Strategy with the Dominican Republic 2017-2020** (document GN-2908) in priority area 1 ("improve the quality and coverage of basic services"), in that it complements the lines of action that explore private sector participation in the provision of basic infrastructure for waste management, provided improved efficiency of the services is projected.
- 3.3 The operation is part of IDB Lab's **Inclusive Cities** (document MIF/GN-238) thematic area, since it is consistent with its objective of testing innovative and scalable solutions that allow the inhabitants of an urban space, periurban space, or informal settlement to live with a better quality of life. In addition, with support from

¹⁹ In broad terms, the organic kitchen waste produced by the entire Puntacana Group has been estimated at 10 metric tons/day in the high season, of which 5 metric tons/day originate from large kitchens. The baseline will serve to characterize the waste and determine its composition, thus ensuring greater accuracy in measuring the reduction.

the IDB the IDB Lab has been the driving force behind the Regional Initiative for Inclusive Recycling ([IRR](#)), now Latitud R, which is committed to coordinating actions, investments, and knowledge relating to inclusive recycling for the development of the circular economy in Latin America and the Caribbean. To date, Latitud R has focused mostly on nonorganic waste, so this project will introduce knowledge linked to opportunities for better organic waste management.

- 3.4 It is also aligned with the Sustainable Development Goals of the United Nations Sustainable Development Programme, particularly the following goals: (i) Goal 6, Clean Water and Sanitation; (ii) Goal 11, Sustainable Cities and Communities; and (iii) Goal 13, Climate Action.

B. Sustainability and scalability

- 3.5 A key factor for the project's sustainability is the generation of a scalable and replicable model both in Punta Cana and in other tourist areas of the Dominican Republic. The areas that have been identified as having the greatest potential for replication are Bávaro, La Romana, and Puerto Plata, where there are hotels which have high waste production and high collection costs and normally send their waste to an open dump.
- 3.6 The proposed project will generate lessons so that the private sector can replicate the initiative. Agreements with private tourism-related groups in the eastern region of the Dominican Republic are being considered to replicate the model. Fundación Grupo Puntacana will seek to strengthen ties and ensure continuity in work with organizations such as the Association of Artisans and Marine Services (ARSEMAR) and community groups.
- 3.7 The project will serve as a pilot for a potential operation with the Nationally Appropriate Mitigation Action (NAMA) Facility that the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), the Ministry of the Environment, the IDB, and IDB Invest are preparing, and if approved, would be implemented starting in 2022. This initiative will provide resources to support investments in biogas production and the development of regulations for the recently approved Law 225-20 on the comprehensive management and coprocessing of solid waste.

C. Project risks

- 3.8 **Improper segregation.** There may be improper segregation due to the lack of continuity in the involvement of the kitchens beyond the project's technical assistance and training activities. To mitigate this risk, the Foundation will closely monitor the project activities to ensure that its objectives are met.
- 3.9 **Precarious regulations.** The lack of regulations and possible changes in laws and regulations on solid waste management may affect the proposed operation of this project. This risk will be mitigated by the Foundation remaining informed and adapting to any such changes, without deviating from the project objectives.

IV. COST AND FINANCING

- 4.1 The project has a total cost of US\$516,712, of which US\$258,356 (50%) will be contributed by the IDB Lab as a nonreimbursable contribution and US\$258,356 (50%) as a local counterpart contribution.

Project components	IDB Lab	Counterpart	Total
Component I: Measurement of organic waste in kitchens	124,550	31,700	156,250
Component II: Processing of organic waste	62,652	156,906	219,558
Component III: Knowledge generation	26,000	15,750	41,750
Program execution unit	27,150	54,000	81,150
Evaluations, audits, and incidentals	18,004	0	18,004
Grand total	258,356	258,356	516,712
	(50%)	(50%)	(100%)

V. PROJECT PARTNERS AND IMPLEMENTATION STRUCTURE

A. Description of the project executing agency

- 5.1 The project will be led by **Fundación Grupo Puntacana**, which was created by the Puntacana Group as a nonprofit organization with the mission to protect and restore the natural resources of the Punta Cana region while contributing to the sustainable development of the Dominican Republic. Fundación Grupo Puntacana has experience in managing large, multiyear, multidisciplinary national and regional community/environmental/educational projects with: GIZ, European Union, UNDP-GEF, Counterpart International, The Nature Conservancy-USAID, the Caribbean Hotel and Tourism Association, and the IDB-MIF. Several of these projects developed solutions that were later replicated in the Dominican Republic and other Caribbean countries. Fundación Grupo Puntacana spearheaded the design and implementation of the "Descarga Cero" corporate recycling program, the first and largest in its category in the Dominican Republic. Initiated in 2007, the project pioneered the large-scale classification of waste for subsequent sale as recyclable. Descarga Cero was developed and used as a case study at Barna Business School.
- 5.2 Collaboration agreements will be signed with Fundación Grupo Puntacana's strategic partners to develop the model, including:
- **The Puntacana Group (PCG)** - a group of companies leading sustainable tourism in the Dominican Republic for 50 years. Through collaborations with various partners, PCG has pioneered the creation of high-impact environmental and social solutions in the country. It will provide land, infrastructure, personnel, and cash support to ensure project success.
 - **Club Med** - an international hotel brand with a high social/environmental commitment, which will contribute resources in kind, channeling its kitchen, green area, and sargassum waste to the project.

- **Caribbean Catering Services** - company that provides food for airplanes, restaurants, catering, and employees. It is a large producer of waste with a high social/environmental commitment. It will contribute resources in kind and channel the waste from its kitchens to the project.
 - **B747** - a kitchen of PCG employees and airport-related partners that produces a high volume of food waste.
 - **Westin** - non all-inclusive hotel owned and operated by the PCG.
- 5.3 Fundación Grupo Puntacana will be key in developing this decentralized circular economy business model that, in addition to ensuring the participation of local stakeholders, will also involve the management of information transformed into knowledge in real time so as to optimize the model to be replicated in tourist areas in the Dominican Republic and the Caribbean.
- 5.4 **Organizations/private sector:** The Foundation will have an agreement with ARSEMAR to maintain barriers and collect sargassum and other local organizations that involve the local community in managing organic waste.
- 5.5 **Public sector.** At the local level, the experience will be shared with members of the Veró-Bávaro-Punta Cana Municipal District and the Ministry of the Environment.
- B. Structure and implementation mechanism**
- 5.6 A project coordination unit will be formed within the Foundation, consisting of: (i) a project director; (ii) a technical project coordinator; and (iii) an administrator/accountant. The project director will actively participate with the physical and logistical structure necessary to execute the operation effectively and efficiently and will be responsible for managing the counterpart contribution necessary to complement the resources of the contribution in the execution of the activities. The technical coordinator will be a contracted environmental professional with experience in environmental impact projects and will be responsible for day-to-day operations, leading the procurement processes included in the project, and for submitting project status reports through the IDB Lab project management platforms every six months. The administrator/accountant will be from the Foundation and charged with managing the project's cash and accounting records.
- 5.7 Periodic coordination meetings will be held to determine action and implementation strategies. IDB Lab will support the executing agency in project execution and will participate in the related strategic decisions.

VI. FULFILLMENT OF MILESTONES AND SPECIAL FIDUCIARY ARRANGEMENTS

- 6.1 The executing agency will agree to IDB Lab's standard arrangements relating to results-based disbursements and the procurement and financial management policies applicable to the private sector, in accordance with the Financial Management Guidelines for IDB-financed Projects (document OP-273-12), 12 June 2019 version, and the IDB Lab and SEP guidelines for milestone management and financial supervision for technical cooperation operations.
- 6.2 The level of risk resulting from the diagnostic assessment of integrity and institutional capacity was low, demonstrating that Fundación Grupo Puntacana has a financial management system acceptable to IDB Lab and a monitoring and accountability

structure to submit its institutional financial statements to the Bank. The disbursements for the project will be subject to verification of the fulfillment of the milestones, in accordance with the means of verification agreed by the executing agency and IDB Lab. Fulfilling the milestones does not release the executing agency from responsibility for fulfilling the agreed outcomes.

- 6.3 Unless otherwise determined by the Bank during execution, the executing agency's policies will be used for procurement. An annual plan for the procurement required for project execution and fulfilment of the milestones will be submitted together with the annual work plan. IDB Lab will perform an ex ante review of the procurement-related technical issues that it deems necessary, particularly those considered critical.
- 6.4 The executing agency will prepare and make its annual financial statements available to the Bank. With resources from the contribution, the Bank may review the financial statements and make revisions to the use of resources applied to the project, verifying financial practices and procurement.

VII. ACCESS TO INFORMATION AND INTELLECTUAL PROPERTY

- 7.1 **Access to information.** The information contained herein is classified as public upon approval under the Bank's Access to Information Policy.²⁰
- 7.2 **Intellectual property.** The knowledge resulting from implementation of the technology packages in the kitchens will be owned by the Bank. The Bank may provide free public access to the information it deems relevant by granting the Creative Commons IGO 3.0 BY-NY-ND license.

²⁰ Link to the Bank's [Access to Information Policy](#).