

**IMPLEMENTACIÓN DE LA INICIATIVA DE CIUDADES EMERGENTES Y SOSTENIBLES EN
SANTIAGO DE LOS CABALLEROS, REPÚBLICA DOMINICANA**

Contratación de Servicios para la Realización de Encuestas de Opinión Pública

TÉRMINOS DE REFERENCIA

I. ANTECEDENTES

- 1.1 El rápido proceso de urbanización observado en América Latina y el Caribe (ALC) durante las últimas décadas ha traído numerosos retos para el desarrollo de la región: (i) crecimiento desordenado y patrones de uso de suelo inadecuados; (ii) proporción creciente de la población viviendo en condiciones de pobreza; (iii) limitación de recursos y capacidades institucionales; y (iv) crecientes problemas ambientales y sociales, aumento de la vulnerabilidad de la población. Los desafíos de la urbanización acelerada adquieren mayor relevancia en ciudades de tamaño intermedio, donde la población urbana tiende a asentarse cada vez más.
- 1.2 Aproximadamente el 27% de la población urbana latinoamericana vive en asentamientos irregulares. Esta situación genera grandes contrastes en la calidad de vida dentro de las ciudades, con áreas desarrolladas y bien equipadas conviviendo con zonas de extrema pobreza, carentes de servicios e infraestructura urbana, deficientes en servicios sociales y viviendo en condiciones habitacionales y ambientales precarias. Los eventos climáticos extremos, cada vez más comunes, acrecientan la situación de vulnerabilidad de esta población, especialmente en las ciudades costeras o situadas en llanuras que pudieran ser afectadas por inundaciones. Al mismo tiempo, la vida urbana acelera el proceso de cambio climático: las ciudades son responsables del consumo de más del 75% de la energía distribuida y de la producción de un 75-80% de los gases de efecto invernadero¹. Por otra parte, el proceso de descentralización que se ha desarrollado en la región durante las dos últimas décadas ha provocado que una gran parte de los gobiernos locales deba asumir responsabilidades mayores en la provisión de servicios, aunque no explote de forma adecuada sus fuentes propias de ingreso y dependa de transferencias nacionales para su financiamiento.
- 1.3 El tratamiento de estos retos exigió el lanzamiento de una nueva iniciativa del BID, Ciudades Emergentes y Sostenibles (ICES), destinada a contribuir al logro de la sostenibilidad urbana, ambiental y fiscal de ciudades con una población intermedia en rápido crecimiento. La iniciativa CES procura un desarrollo integral de las ciudades, donde se ofrezca un alto nivel de calidad de vida de los habitantes, se generen menores impactos ambientales, y se tenga la capacidad fiscal y administrativa para hacer frente a las responsabilidades de la gestión urbana.

¹ Los países de nuestra región, en términos de generación per cápita, realizan más emisiones GEI que la mayoría de los otros países del mundo en desarrollo, incluyendo a China e India.

- 1.4 La iniciativa permite identificar restricciones o cuellos de botella que se encuentren obstaculizando el camino a la sostenibilidad y priorizar los problemas identificados para guiar decisiones de inversión en los sectores que tienen el potencial de generar mayores impactos positivos, elaborando un plan de acción y financiamiento. La priorización de los problemas se sustenta en: (i) el análisis de la situación relativa de la ciudad respecto a un *benchmark* teórico elaborado por expertos internacionales y otro compuesto por ciudades comparables; (ii) el impacto económico y ambiental de los mismos, incluyendo su relación con el proceso de cambio climático; (iii) el grado de priorización actual que poseen para el Gobierno, manifestado a través de las iniciativas institucionales vigentes; y (iv) la opinión pública.
- 1.5 Consecuentemente y con el objeto de poder recoger la información, es necesario la contratación de una encuesta de opinión pública coadyuvante a priorizar las iniciativas que surjan del análisis de la data.

II. OBJETIVOS DE LA CONSULTORÍA

- 2.1 Diseñar, recolectar y procesar una encuesta de opinión pública en Santiago de los Caballeros, República Dominicana, que permita revelar la opinión de sus habitantes en la identificación de los temas más problemáticos para el desarrollo sostenible de la ciudad.

III. ACTIVIDADES REQUERIDAS

- 3.1 El BID proporcionara un cuestionario modelo preliminar que la empresa debe perfeccionar con el objetivo de utilizarlo en una experiencia piloto que permitirá testear la eficacia de su diseño y de la metodología escogida. El diseño del cuestionario (preguntas tipo, escalas o rankings para hacer comparaciones y análisis de resultados, etc.) deberá incluir el registro de variables de control socioeconómicas-demográficas que permitan el procesamiento posterior de cruces específicos de información. La empresa deberá especificar los procesos de control y verificación de los datos recopilados, y la metodología de determinación de la muestra y selección aleatoria de casos. La encuesta estará dirigida a los habitantes de la ciudad mayores de 18 años y deberá cubrir las siguientes características:
 - a. Intersectorial, que es el principal objetivo de la encuesta, para conocer la jerarquización y comparación relativa que realizan los habitantes de la ciudad entre las distintas temáticas. Los temas que deberán ser tomados en cuenta en el diseño intersectorial de la encuesta serán proporcionados por el Banco². Las preguntas intersectoriales del cuestionario deberán permitir la jerarquización de los temas, ya sea a nivel ciudad, o a nivel de estratos o zonas de la ciudad, que serán definidos oportunamente con el Banco.

² Los temas finales a considerar, especialmente los relacionados con la sostenibilidad fiscal, serán definidos en detalle con anterioridad a la firma del contrato.

- b. Intrasectorial, lo que permitirá saber cuáles son las principales preocupaciones que poseen los mejicanos con relación específica a cada tema. Mediante un trabajo en conjunto con los especialistas del Banco, y teniendo como base el cuestionario modelo mencionado y los temas que se levantarán en el ejercicio, la empresa deberá utilizar y complementar, o diseñar, las preguntas que se incluirán en el cuestionario a fin de determinar los principales problemas para la opinión pública dentro de cada tema.
- 3.2 Con la utilización del cuestionario piloto elaborado en el punto anterior la empresa contratada desarrollará una experiencia piloto con la recolección y el procesamiento de 30 encuestas válidas al público en general. Al finalizar el proceso piloto, la empresa entregará un reporte con el análisis de los resultados obtenidos, a fin de ajustar un cuestionario final.
 - 3.3 Luego del análisis conjunto de los resultados del proceso piloto con el equipo implementador, la empresa procederá al desarrollo del cuestionario final, que será acordado con el Banco antes de proceder al trabajo de campo final.
 - 3.4 Con la utilización del cuestionario final preparado en el punto anterior, la empresa llevará a cabo la recolección y el procesamiento de 1000 encuestas validas de opinión pública a la población en general. En la realización de las encuestas se deberá aplicar la metodología validada por el Banco en cuanto a la determinación de la muestra (que deberá determinarse estratificada o zonalmente en acuerdo con el Banco) y selección de casos, y la utilización de procesos de control y verificación de los datos recopilados.
 - 3.5 La información obtenida deberá ser procesada electrónicamente, con la digitación y edición de los datos en archivo SPSS V. 10.0 o similar. Con su empleo, la empresa deberá elaborar y enviar al Banco un informe de presentación de los datos obtenidos, de acuerdo a los cruces de información a ser propuestos por la empresa mediante el uso de las variables de control y validados por el Banco. Los cruces de datos realizados también deberán presentarse electrónicamente.
 - 3.6 La empresa mantendrá una interacción permanente con los miembros del equipo BID de la Iniciativa de Ciudades Emergentes y Sostenibles (ICES) asignado a la ciudad, de modo tal que el diseño final de la encuesta sea coherente con los objetivos planteados.
 - 3.7 La empresa tendrá plena autonomía para la recopilación de la información requerida y deberá ser autosuficiente en términos de transporte y equipamiento. La empresa utilizará personal debidamente entrenado para llevar a cabo y supervisar el proceso de encuestas y entrevistas.

IV. PRODUCTOS A ENTREGAR

- 4.1 La empresa deberá entregar los siguientes productos:

- a. Cuestionario a usar en el proceso piloto, de acuerdo a lo estipulado en la sección Actividades Requeridas en este documento, en un plazo no mayor a 3 días corridos desde la firma del contrato.
- b. Reporte de la experiencia piloto, donde se realice un análisis sintético de los resultados obtenidos durante su realización y se elaboren recomendaciones a seguir para el desarrollo del cuestionario final, en un plazo no mayor a 10 días corridos desde la firma del contrato.
- c. Cuestionario final para aprobación del BID, en un plazo no mayor a 17 días desde la firma del contrato.
- d. Versión borrador del informe final de presentación de los datos obtenidos en las encuestas, con tablas, gráficos, el detalle de la metodología empleada, cruces y principales conclusiones, a los 36 días de firmado el contrato. El informe deberá contener una sección de lecciones aprendidas que pueda servir para mejorar el proceso de conocimiento de la opinión pública en una futura aplicación de la metodología CES en otra ciudad. El borrador del reporte final deberá incluir el archivo de datos obtenidos en las encuestas, con un breve informe de las actividades preparatorias y de terreno.
- e. Informe final y base de datos, a los 43 días de firmado el contrato. El reporte final incorporará el contenido de todos los productos elaborados bajo este contrato. Esta versión final también deberá tener en consideración todas las observaciones, modificaciones o comentarios realizados por el BID. El reporte incorporará toda la información requerida explícitamente e implícitamente en estas especificaciones técnicas.

V. CRONOGRAMA DE ACTIVIDADES

- 5.1 Se prevé que el contrato entre la empresa y el BID estará firmado el tercer trimestre del 2014 y se estima un máximo de 60 días calendarios para finalizar el trabajo. Por la vigencia de disponibilidad de fondos, el cronograma de ejecución del contrato es sensible a cambios.

VI. FORMA DE PAGO

- 6.1 Los pagos se efectuarán de acuerdo al siguiente esquema:
 - a. 20% a la firma del contrato.
 - b. 40% a la entrega del cuestionario final.
 - c. 40% a la entrega del informe final.

VII. SUPERVISIÓN Y COORDINACIÓN

- 7.1 La consultoría estará bajo la supervisión del equipo a cargo de la implementación de la metodología de Ciudades Emergentes y Sostenibles en la ciudad, bajo la coordinación de Horacio Terraza, Especialista Líder (INE/WSA).

VIII. CONFIDENCIALIDAD

- 8.1 Los consultores aceptan no divulgar ninguna información confidencial del Banco que pueda ser proveída durante el desarrollo de las consultorías.

Consultor Individual Local – Actividades de coordinación en la aplicación de la metodología en Santiago de los Caballeros, República Dominicana.

TÉRMINOS DE REFERENCIA

I. ANTECEDENTES

- 1.1 Latinoamérica y el Caribe (LAC) es la región en desarrollo que ha registrado el mayor crecimiento de urbanización en el mundo, con una tasa de población urbana que pasó del 41% en 1950 a más del 75% en 2010. Las ciudades son los puntos focales del desarrollo latinoamericano, centros clave para la difusión de innovaciones, generación de conocimiento, concentración de mano de obra especializada, desarrollo de las actividades económicas más dinámicas y provisión de servicios de educación, cultura y recreación.
- 1.2 El acelerado crecimiento urbano de LAC plantea una serie de desafíos que deben ser encarados integral y multisectorialmente para asegurar la sostenibilidad futura de las ciudades, especialmente las de tamaño intermedio. Desde los años ochenta se observa una tendencia a la reducción del crecimiento de las grandes urbes en favor de las ciudades intermedias.
- 1.3 Este crecimiento en ciudades intermedias se da en el marco de una serie de retos urbanos que atentan contra su sostenibilidad y afectan especialmente la calidad de vida de sus habitantes. Estos problemas son variados y se encuentran interrelacionados, lo cual hace todavía más complejas las medidas que se deben poner en marcha para resolverlos.
- 1.4 Como respuesta a la situación actual de las ciudades y al proceso de urbanización de la región, el Banco está desarrollando la Iniciativa de Ciudades Emergentes y Sostenibles. El propósito de la Iniciativa es contribuir a mejorar la calidad de vida en las ciudades emergentes de LAC, en las dimensiones de sostenibilidad ambiental y cambio climático, urbana, fiscal y gobernabilidad.
- 1.5 En desarrollo de la Iniciativa, el Banco requiere del apoyo de consultores locales que faciliten la coordinación de las actividades de la Iniciativa en las ciudades, específicamente aquellas relacionadas con la compilación, procesamiento y análisis de información, así como las relativas a la coordinación entre el Banco y la ciudad.

II. OBJETIVO DE LA CONSULTORÍA

- 2.1 El consultor requerido tiene como objetivo apoyar al Coordinador y especialistas encargados de coordinar la aplicación de la metodología en Santiago de los Caballeros, República Dominicana.

III. ACTIVIDADES

- 3.1 Los consultores deberán realizar las siguientes actividades:
- a. Apoyar el relacionamiento entre especialistas del Banco, la ciudad y el gobierno central.
 - b. Compilar y procesar la información necesaria para el diligenciamiento de la coordinación de ICES. Para ello establecerán contacto con los especialistas sectoriales del Banco y las entidades del nivel local y nacional involucradas.
 - c. Apoyar el análisis de la información compilada, participando en procesos tales como la elaboración de estudios, proyectos de análisis temático.
 - d. Facilitar la preparación de las agendas relativas a las misiones.
 - e. Servir de facilitador en el nivel local.
- 3.2 Características de la Consultoría
- a. Tipo de consultoría: Individual, nacional.
 - b. Fecha de comienzo y duración: 6 meses a partir de la firma del contrato.
 - c. Lugar de trabajo: Santiago de los Caballeros, República Dominicana.
 - d. Calificaciones: Profesional con grado universitario en áreas relacionadas con la ICES, con experiencia en manejo de bases de datos, análisis de los mismos. Dependiendo del caso específico de cada ciudad estas calificaciones podrán variar.
 - e. Remuneración y forma de pago: Consultor Individual, Suma Alzada/mensual/diario, de acuerdo a las Políticas de Recursos Humanos.
- 3.3 Informes y Productos
- a. Los consultores deberán presentar informes mensuales con un resumen ejecutivo de las actividades realizadas y productos alcanzados.

IV. SUPERVISIÓN Y COORDINACIÓN

- 4.1 La supervisión de las consultorías será efectuada por Horacio Terraza, Especialista Líder (INE/WSA) y Ellis Juan, Coordinador General de la ICES (VPS/VPS).

V. CONFIDENCIALIDAD

- 5.1 Los consultores aceptan no divulgar ninguna información confidencial del Banco que pueda ser proveída durante el desarrollo de las consultorías.

Consultor Individual Internacional – Actividades de Profundización de actividades multisectoriales en la aplicación de la metodología en Santiago de los Caballeros, República Dominicana.

TÉRMINOS DE REFERENCIA

I. ANTECEDENTES

- 1.1 Latinoamérica y el Caribe (LAC) es la región en desarrollo que ha registrado el mayor crecimiento de urbanización en el mundo, con una tasa de población urbana que pasó del 41% en 1950 a más del 75% en 2010. Las ciudades son los puntos focales del desarrollo latinoamericano, centros clave para la difusión de innovaciones, generación de conocimiento, concentración de mano de obra especializada, desarrollo de las actividades económicas más dinámicas y provisión de servicios de educación, cultura y recreación.
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- 1.3 Este crecimiento en ciudades intermedias se da en el marco de una serie de retos urbanos que atentan contra su sostenibilidad y afectan especialmente la calidad de vida de sus habitantes. Estos problemas son variados y se encuentran interrelacionados, lo cual hace todavía más complejas las medidas que se deben poner en marcha para resolverlos.
- 1.4 Como respuesta a la situación actual de las ciudades y al proceso de urbanización de la región, el Banco está desarrollando la Iniciativa de Ciudades Emergentes y Sostenibles. El propósito de la Iniciativa es contribuir a mejorar la calidad de vida en las ciudades emergentes de LAC, en las dimensiones de sostenibilidad ambiental y cambio climático, urbana, fiscal y gobernabilidad.
- 1.5 En desarrollo de la Iniciativa, el Banco requiere del apoyo de consultores locales que faciliten la coordinación de las actividades de la Iniciativa en las ciudades, específicamente aquellas relacionadas con la compilación, procesamiento y análisis de información, así como las relativas a la coordinación entre el Banco y la ciudad.

II. OBJETIVO DE LA CONSULTORÍA

- 2.1 El Consultor tiene como objetivo apoyar al Coordinador y especialistas encargados de profundizar las actividades de la Iniciativa en Santiago de los Caballeros, República Dominicana.

III. ACTIVIDADES

- 3.1 Los consultores deberán realizar las siguientes actividades:
- a. Apoyar las actividades tendientes a revisar, analizar y perfeccionar los estudios técnicos y material de conocimiento de la Iniciativa.
 - b. Apoyar a los especialistas sectoriales en aquellos temas relacionados con la profundización de los estudios en las ciudades ICES estipulados en la metodología.
 - c. Compilar y procesar la información necesaria para el diligenciamiento de la profundización de los estudios de ICES. Para ello establecerán contacto con los especialistas sectoriales del Banco y las entidades del nivel local y nacional involucradas.
 - d. Apoyar el análisis de la información compilada, participando en procesos tales como la elaboración de estudios, proyectos de análisis temático.
 - e. Facilitar la preparación de las agendas relativas a las misiones.
 - f. Servir de facilitador en el nivel local.

IV. CARACTERÍSTICAS DE LA CONSULTORÍA

- 4.1 Tipo de consultoría: Individual, internacional.
- 4.2 Fecha de comienzo y duración: 5 meses a partir de la fecha de firma del contrato.
- 4.3 Lugar de trabajo: Santiago de los Caballeros, República Dominicana
- 4.4 Calificaciones: Profesional con grado universitario en áreas relacionadas con la ICES, con experiencia en manejo de bases de datos, análisis de los mismos. Dependiendo del caso específico de cada ciudad estas calificaciones podrán variar.
- 4.5 Remuneración y forma de pago: Consultor Individual, Suma Alzada/mensual/diario, de acuerdo a las Políticas de Recursos Humanos.

V. INFORMES Y PRODUCTOS

- 5.1 Los consultores deberán presentar informes mensuales con un resumen ejecutivo de las actividades realizadas y productos alcanzados.

VI. SUPERVISIÓN Y COORDINACIÓN

- 6.1 La supervisión de las consultorías será efectuada por Horacio Terraza, Especialista Líder (INE/WSA), y Ellis Juan, Coordinador General de la ICES (VPS/VPS).

VII. CONFIDENCIALIDAD

- 7.1 Los consultores aceptan no divulgar ninguna información confidencial del Banco que pueda ser proveída durante el desarrollo de las consultorías.

**Consulting Firm – Implementing a Monitoring System in Santiago de los Caballeros,
Dominican Republic**

TERMS OF REFERENCE

I. BACKGROUND

- 1.1 In 2010 the Inter-American Development Bank (IDB) created the Emerging and Sustainable Cities Initiative (ESCI) to support Latin American cities to achieve the objectives of: provide basic services, ensure adequate levels of quality of life, promote employment opportunities, and protect the environment. The ESCI focuses on medium-sized cities that are best positioned for effective planning and adapt to future challenges. Santiago de los Caballeros, Dominican Republic is going to be selected by ESCI with the objective of applying the methodology of the initiative that focuses on three critical areas: Environmental Sustainability and Climate Change, Urban Sustainability, and Fiscal Sustainability and Government.
- 1.2 The methodology is an analysis of the identification of the sustainability challenges of the city in each of the three areas through a rapid assessment (quantitative and qualitative) which allows for a diagnosis, identifying critical problems, and prioritizes areas or sectors that require more attention. From this diagnosis the methodology seeks to define: (i) strategies and action plans that can become useful tools for decision making and prepare the city for a sustainable future; and (ii) a citizen monitoring system of sustainability in cities seeking to track the progress on the commitments and targets set in the action plan.
- 1.3 As part of the citizen monitoring the IDB seeks to establish a formal relationship with the local government to strengthen their ability to report relevant information to the public. With funding and technical assistance from the IDB, the city will improve their information systems and dissemination, its ability to report on the whole Municipality, its financial sustainability strategy, its ability to raise relevant issues that enable citizen participation in local decisions and help the authorities respond more directly to the concerns of its people.

II. OBJECTIVES OF THE CONSULTANCY

- 2.1 Strengthen the citizen monitoring system through public perception surveys covering all subjects covered by ESCI and covering the entire urban area of the city.
- 2.2 Support the exchange of experiences with other successful citizen monitoring organizations in the region as the network of cities ‘Como Vamos en Colombia’ in a way that experiences can be exchanged and financial mechanisms strengthen for funding such initiatives through relationships with potential sponsors.

- 2.3 Build: (i) detailed indicators that cover all the areas that ESCI is working on; (ii) databases that collect in an organized way the collected information through the indicators; and (iii) an interface on the internet that allows access to these indicators and the aggregated information of the same.
- 2.4 Generate knowledge, periodicals and a network of printed media, television, radio, and social networks.

III. WORK PLAN

- 3.1 To achieve each of the objectives of the consultancy four areas of action are expected, each linked to a target. The activities are listed below:

A. Strengthen the citizen monitoring system

- 3.2 The monitoring is done through annual surveys of public perception that allows inquiring how the city population feels about problems related to the environment, risk prevention, urban sustainability, security, transportation, local management, and especially, the authorities' attitude in the solution to these problems and improving the quality of life. The citizens monitoring should be structured so it covers representatively the entire urban area of the city. It must:

- a. Establish formal agreements with all municipalities to access necessary information from each one and cover all the urban area of the city and all the areas of ESCI.
- b. Design a sampling system to collect survey information from all municipalities and are representative of each one.
- c. Establish a system for collecting information through surveys so that the information collected has all the necessary credibility and technical support.

B. Support the exchange of experiences

- 3.3 Generate an information exchange between Santiago de los Caballeros, Dominican Republic and other monitoring experiences in ESCI cities such as Trujillo, Santa Ana, Montevideo, Port Spain, and others.
- 3.4 Search formal support and the commitment of business sectors and the civil society to give sustainability to their work.

C. Build indicators, databases and interface

- 3.5 The consultant will take the following actions:
 - a. Define appropriate indicators to cover all areas included by the ESCI's methodology. This work will be done taking into account the work done by other

networks of cities and the IDB. Each indicator should be described in detail in terms of the exact definition, the methodology to be applied and the rationale for its use.

- b. Create a database that collects information from the indicators and technical specifications and centralize data generated by public and private institutions related to the selected indicators in the Action Plan.
- c. Strengthening the network of institutions that generate information, will look for consensus and validation of the indicators by the authorities, also, will recognize the evolution of the indicators and will make comparisons with international standards.
- d. Create an interface that allows citizens and institutions to access all the information generated and collected easily and effectively.

D. Generate knowledge and periodicals

- 3.6 The aim is to generate knowledge through forums for dialogue, debate, and work of citizens; such is the case of the thematic panels, forums, mobilization, campaigns, etc., and trying to involve and collect proposals from a greater number of actors and civil society specialists in building alternatives to the problems of the city, and promoting institutional spaces of dialogue, consensus and agreement with the political authority.

IV. TERM AND PLACE OF SERVICE

- 4.1 The consultancy will be held in Santiago de los Caballeros, Dominican Republic, for a period of up to 24 months from the date of signature of the contract.

V. COORDINATION AND MONITORING

- 5.1 The coordination and monitoring of the Consultancy will be in charge of the ESCI team in Washington, D.C. under the supervision of Horacio Terraza, Lead Specialist INE/WSA and the IDB office in the Dominican Republic.

Consultancy on Urban Development and Climate Change for Santiago de los Caballeros, Dominican Republic**TERMS OF REFERENCE****I. BACKGROUND**

- 1.1 Cities have a key role in the diffusion of innovations, generation of expertise, concentration of specialized labor, development of more dynamic economic activities and provision of educational, cultural and recreational services. It is also worth noting that 180 million people (33% of the LAC population) live in conditions of poverty and 66% of these are presently concentrated in the cities. This population has increasing and unsatisfied demands for urban and social services, decent housing conditions, employment and opportunities to generate income.
- 1.2 The accelerated urban growth of LAC presents a series of challenges that should be dealt with comprehensively to ensure the future sustainability of the region's cities, especially the intermediate-sized ones. Since the 1980s, the region's large cities have been growing more slowly compared to the region's intermediate cities (Cristini et al., 2008).
- 1.3 This growth has occurred while these cities have simultaneously faced a series of challenges that jeopardize their sustainability and negatively affect the quality of life of their inhabitants. These problems are varied and interrelated, which makes the measures taken to resolve them even more complex.
- 1.4 As a response to the current situation of the cities and the region's urbanization process, the Bank developed the Emerging and Sustainable Cities Initiative. The purpose of the Initiative is to contribute to improve the quality of life in LAC's emerging cities, in the environmental, urban, and fiscal sustainability dimensions.
- 1.5 The Bank is supporting cities through this Initiative, by combining the capacities of different internal sectors in the formulation of action plans designed to guide the actions of local government in search of sustainability. The Bank is involved in this effort not only as the most important development bank in the region, but also because of its familiarity with the countries, in addition to the potential opportunities that the support of the Initiative represents for the institution.
- 1.6 One of the topics that have been prioritized in many cities of the region is urban growth and territorial expansion, and the negative environmental, social and economic impact that formal and informal occupation is producing in the landscape of cities and their immediate regions.
- 1.7 Policy makers at the municipal level in intermediate cities of the region usually lack adequate supporting information and analysis to aid them in the design of policies that help to promote growth in an orderly, sustainable way. The links between how

- the city grows and the municipal budget (in terms of infrastructure investment and operation costs) are not clear. Furthermore, the environmental impacts of the growth of the city footprint are usually not fully considered; i.e. how conservation areas, aquifer recharge areas, natural disaster-prone areas, areas vulnerable to the effects of climate change and Greenhouse Gas emissions levels are influenced by the type of growth the city promotes.
- 1.8 The studies to be undertaken as part of this consultancy aim to provide this understanding and awareness on the dynamics of the urban footprint, and on the impacts of different growth patterns, by analyzing infrastructure costs associated with different growth scenarios (low density sprawl, medium to high density mixed-use communities), as well as the Greenhouse Gas Emissions implications. These studies will allow urban planners to make the necessary adjustments to the territorial development plans, allowing for growth while protecting key green infrastructure (e.g. conservation areas, aquifer recharge areas, etc.), avoiding occupation of highly vulnerable areas, and keeping infrastructure costs and greenhouse gas emissions down.
 - 1.9 The impacts of climate change on cities are becoming clearer. The foreseen increase in the number and intensity of extreme climate events together with the lack of resilience and socio-economic fragility of urban centers elevate the risks for flooding, landslides and droughts. For instance, coastal communities' livelihoods are at increasing risk of sea level rise due to a combination of different factors including the high sensitivity and exposure of economic assets and the limited capacity to cope with rapid changes in the shoreline due to physical processes accelerated by climate change. Half of LAC urbanized areas with a population of over 5 million people are located in low-lying coastal areas. According to Dasgupta et al. (2007), the damage caused by sea level rise in LAC would cost between 0.54% and 1.30% of the regional GDP.
 - 1.10 The lack of an adequate urban and rural planning significantly also exacerbates the risk of disasters' occurrence, as occupied land is usually located on areas highly exposed to environmental risks (i.e. river banks, wetlands and areas with steep slopes). This issue, together with changes in the occurrence probability and intensity of certain natural hazards will deepen the impacts of floods, hurricanes and earthquakes on the poorest.
 - 1.11 In the case of hydro-meteorological events, the situation is critical due to the accentuation of extreme phenomena and the non-stationarity of hydrological cycles echoed by higher climate variability. The potential effects of this phenomenon on the cities and their inhabitants are projected to increase economic and human losses, reduce water availability and production capacity, aggravate erosion, threaten coastal areas and generate significant social impacts. According to ECLAC/IDB (2009), if LAC does not take actions to reduce the effects of extreme events in the following decades, it could cost up to an estimated 250 billion USD at 2100.

- 1.12 In the case of adaptation to climate change and disaster risk management, our mid-sized cities usually lack of a robust risk assessment. Based on these findings, the Bank has decided to provide each of the cities of the Sustainable Emerging Cities Initiative with tools that will enable them to have observed and projected data on key climate and geophysical hazards and vulnerability parameters to analyze variance in those on a short and long term bases. Counting with valuable projections and concrete adaptation measures will help improve the adaptive capacity of the city.
- 1.13 Urban areas in LAC are not major Greenhouse Gas (GHG) emitters. However, the great challenge of the region is to achieve sustainable development in accordance with its economic and social realities while preserving its historic low-carbon footprint; that is, to be able to consider future generations when the present ones still lack essential elements such as food, housing and basic utilities, and social services. The challenge is to promote a culture of efficiency, savings and respect for the environment while enhancing the quality of life in today's cities. This requires a concerted, holistic effort with a long-term vision, combining the actions of the different parties involved under the leadership of local governments and with the participation of their citizens. The Bank is an involved party in this effort, not only because it is the major financing institution of the region's policies and programs, has a close relationship with the countries and knows them well, but also because this initiative offers the potential for the Bank to accelerate a sustainable development agenda in the region.

II. OBJECTIVE

- 2.1 The expected outcome of the consultancy is to develop an understanding of the urban dynamics that will aid the city in planning its growth policies. The study will analyze the historic growth of Santiago de los Caballeros, Dominican Republic, its projected growth under current trends, and the effects that the vulnerability to natural disasters and to climate change adaptation and mitigation will have on its growth.
- 2.2 The specific objective of the consultancy is to develop the following three studies for Santiago de los Caballeros, Dominican included in the scope:
- a. Inventory of Greenhouse Gas Emissions. This study will develop a GHG Inventory for the city, as well as for city government operations, including forecasts and potential mitigation actions for specific sectors.
 - b. Study on risk assessment and vulnerability to climate change. The study will provide the city with a probabilistic disaster risk assessment, impact analysis and mapping including prioritized hydro-meteorological and geophysical hazardous events and sea level rise (where applicable), taking into account the impacts associated with climate change.
 - c. Study of urban footprint and growth scenarios. This study will take into consideration the urban form and its dynamics under past and current trends and

policies, for the assessment and implementation of successful infrastructure and environmental planning at the city and regional levels. In addition, it will produce an analysis of costs for the provision of basic infrastructure and GHG emission levels under two different growth scenarios (current trends growth, and smart growth), including policy recommendations.

III. ACTIVITIES

A. Consulting Engagement 1: Develop an inventory of GHG emissions.

3.1 The consulting firm will undertake the following activities:

- a. Develop a GHG inventory for the city, based on existing methodologies for estimating GHG emissions, in accordance with the national context and taking into consideration methodological approaches used by the IDB, the Global Protocol for Community-scale Greenhouse Gas Emissions developed by ICLEI, UNEP, UN-Habitat and the World Bank in 2012; and other documented methodological sources of international recognition.
- b. Develop a baseline/ baselines scenarios for key economic sectors including transport, solid waste, water, energy consumption (residential, industrial and commercial) and energy supply. This analysis will provide an understanding of challenges and opportunities facing these sectors.
- c. Identify and prioritize mitigation options, for planned policies and potential “beyond policies” scenarios, including measures in sectors such as energy efficiency, promotion of renewable sources of energy, local regulatory frameworks to incentivize sustainability, sustainable transport, opportunities of methane capture in landfills, among others.
- d. Investigate the relationship between air quality and GHG inventories at a local level in the city of work.
- e. Comparatively evaluate the identified potential mitigation options for the sectors (including energy, transportation, solid waste, wastewater, industry and land use change and forestry) with regards to monitoring, verifying and reporting GHG emission reductions (MRV), cost and benefit, non-GHG related co-benefits and investment and financial flows needed for each measure. The follow up of this diagnostic will monitor the effectiveness of the actions put into practice.

B. Consulting Engagement 2: Develop a probabilistic hazard and risk assessment study³.

- 3.2 Each consulting firm should include in their proposal a detailed description of the methodology that will be applied to fulfill the requirements of these Terms of Reference. It is desirable that the aforementioned methodology has been applied by the firm in similar cases in the past. If the methodology has not been applied by the firm in the past, the proposal should also include a detailed description of the reasons why such methodology has been chosen and provide examples on where and when it has been applied in the past by other firms and the results of its application in those cases. In the cases that the methodology has never been applied in the past by any firm, then a more thorough description should be included. This description should include technical data and a quantitative and qualitative analysis that describes why this methodology has been chosen.
- 3.3 The consulting firm will undertake the following activities:
- a. Identify and summarize available information (study and literature) including historical disaster data, risk information and climate change scenarios. The information includes international study results (IPCC) and other recent studies conducted by regional and national organizations.
 - b. Estimate probable disaster risk analysis, including climate change scenarios, with the following steps:
 - i. The consultant will develop an estimated probabilistic hazard analysis of the priority hazards in the city. Depending on data availability the consultant will incorporate in hazard analysis projections of hydro-meteorological variables based on climate change scenarios. Otherwise consultant shall estimate hydro-meteorological changes under climate change with the best available data.
 - ii. Exposure value calculation. The consultant will develop an inventory of critical infrastructure and residential and commercial areas that may be affected by those hazards. The data should include health infrastructure, potable water supply, sanitation, drainage, electricity supply, solid waste collection, houses and roads. In the case of residential areas, the consultant will define construction area, value of assets and exact location of construction. In case that the cadastral information is not available at residential level the consultant shall apply a methodology of approximation (proxy).
 - iii. Description and identification of vulnerability functions. The consultant shall define, with the appropriate technical justification, the physical vulnerability

³ The probabilistic hazard and risk assessment of this ToRs will be limited to the urban area of Santiago de los Caballeros only. The study, even though limited to that area, will review and consider all other Bank activities related to disaster prevention, given to the country specifically as well as regional TCs including: RG-T1579, RG-T1478, RG-T2064 and RG-T2174 to complement existing information and avoid duplication of activities.

function of each type of construction and infrastructure for the considered hazards. Existing vulnerability functions developed by other IDB projects (e.g. CAPRA4) may be applied.

- iv. Risk estimation. Based on the information of hazards, exposure value and function of vulnerability, the consultant will develop a quantitative probabilistic risk analysis in terms of physical and human losses. This calculation includes the probable maximum loss and expected annual loss from the prioritized hazards.
 - v. Analysis of socio-economic impacts of prioritized slow onset hazards (as droughts, heat wave and sea level rise) including climate change scenarios.
 - vi. Development of impacts assessment maps for the projected floods to include the following city sectors: (i) education facilities; (ii) municipal buildings; (iii) medical facilities; (iv) road system; (v) productive sectors (agriculture and industry); and (vi) current and future urban footprint. The maps will use a street-light indicator using red for critical impact, yellow for moderate and green for no impact.
 - vii. Development of maps that illustrate the result of: (i) the analysis on probabilistic disaster risk analysis, including climate change scenarios; and (ii) analysis of socio-economic impacts of slow onset hazards including climate change scenarios. A target scale of the mapping will be 1:10,000/1:25000 in accordance with the city studied. The generated maps should include the city and surroundings (metropolitan area), including watersheds.
- c. The Assessment Report for the city that shall include:
- viii. Hazard, and risk maps at appropriate scale (e.g. 1:10,000/1:25,000 scale, depending on the city) including GIS data archive. The scale of the map proposed should be justified on technical grounds.
 - ix. Documents on the analysis of probabilistic hazard and disaster risk assessment including climate change scenarios.
 - x. Documents of Projections of slow onset hazards and its socio-economic impacts including climate change scenarios.

⁴ See <http://www.iadb.org/en/projects/advanced-search.1301.html?query=RG-T1587> (a TC Project RG-T1587).

C. Consulting Engagement 3: Develop the urban footprint study and analysis of growth scenarios.

- a. Current and Historic Urban Footprint. Review the documents that support the methodological development of the Initiative.
 - i. Define a study area spatially and temporally, deriving its boundaries from human and natural systems geographies and data by using a spatial boundary which encompasses both the metropolitan statistical area as well as infrastructure services and supporting natural systems.
 - ii. Satellite imagery and remote sensing technology will be used to produce and analyze past and current urban footprints. All imagery analysis must be done on 30 meter (or better resolution) remote sensing data. All the data must be produced in spatial data structure following the ISO 19115 standard.
 - iii. A baseline land cover classification leading to the definition of the urban footprint must be conducted on the baseline imagery using highly accurate object oriented supervised classification methodology that has been adopted by mayor governmental specialized agencies (ex. United States Geological Survey's (USGS) or British Geological Survey (BGS)).
 - iv. Sample points or training data, to conduct classification, shall be collected remotely through imagery and site survey of the city. Experts from the consulting team will travel to the city to collect ground sample to calibrate training data that will be used to produce supervised classification. If an existing ground sample or land cover data is available, classification process must be able to incorporate those data in sampling process.
 - v. The consulting firm will specify in their proposal the number of land cover classes that will be interpreted from satellite imagery, including the technical grounds for it. Urban areas will have three separate categories based on their imperviousness: high density, medium density and low density (20-50%; 50% to 80%; and 80% to 100%). Categories such as agriculture and pasture land will be separated with a dependable rule set that can be replicated on all data sets.
 - vi. Final land cover classification will be checked for any quality assurance and quality control (QA/QC) issues. Land cover classes shall address any logic/illogic issues. For example, a speckle of urban categories in the middle of lake or river will be an illogical classification.
 - vii. A Metadata library will be generated for all the land cover classification data using standard process as guided by FGDC. It will include a comprehensive spatial inventory of the best available information on green and gray infrastructure using satellite imagery classifications, open street map databases, and other relevant sources.

- b. Urban Growth Scenarios. Review information on planned infrastructure (roads and bridges, energy infrastructure, and other) that may have an impact on future land use.
- c. Analyze census data, including population projections, allocated densities and uses in urbanized areas.
- d. Review existing urban development plans and identify areas where various kinds of development are currently allowed and at what densities.
- e. Perform a market segmentation analysis to determine a proposed number of classes appropriate to the region, taking into account available calibration information. At least three types of land development should be considered, corresponding to high, moderate and low density visible in satellite imagery. Further refinement is at the discretion of the contractor.
- f. Develop a set of constraining factors to future development, such as environmental masks that identify areas where various forms of development are impractical or inadvisable and should be protected by urban growth policies. For example, general constraints should include public lands, steep slopes, aquifer recharge areas, as well as flood plains. Areas that are highly vulnerable to natural disasters (as resulting from the Consulting Engagement 2) will also be added to the constraints. Specific constraints should include areas where industrial uses or agriculture uses are specifically zoned. For each market segment, the current legally and practically-buildable land supply in hectares should be estimated.
- g. Perform an analysis of recent historic land cover change and its associations with various potential non-spatial explanatory factors, such as aggregate population and employment growth. For each market segment identified, the contractor will project future land use demands (in hectares) for the forecasting horizon (e.g. demand for total urban residential land should be related to jobs, population growth rates, and built density, etc.).
- h. Analyze the spatial factors that can potentially explain the spatial patterns exhibited in recent historic change (attractiveness factors), which are expected to remain important across future scenarios for each market segment (e.g. distance or travel times to various amenities).
- i. Develop a future-oriented “attractiveness” or “suitability” model which estimates the relative likelihood of each legally and practically-buildable unit to be developed.
- j. Using the information gathered (green and gray infrastructure, planned infrastructure, census and population projections, urban development plans and satellite imagery), perform an economic calculation to determine land

attractiveness for various uses across all potential development areas using a 20-30-year projection of land cover, taking into account land use conflicts, vulnerable areas, economic changes, and existing planning rules and regulations. The objective of this calculation is to estimate the distribution of future populations over time, resolving land use conflicts using adjustable rules.

- k. Analyze two different urban growth scenarios (“current trends” scenario and “smart growth” scenario). The latter scenario will take into account increases in growth density, as well as infill and densification of urbanized areas.
 - l. With the collected data, and using the results of the Consulting Engagement 1 (GHG Inventory for the city) develop an estimation analysis for GHG emissions change for both the current trends and smart growth scenarios, by analyzing changes in the transport, land use change, energy and other relevant sectors.
 - m. Analyze the investment costs required for the provision of basic infrastructure to accommodate growth in the different scenarios. The consulting firm should specify and technically justify in their proposal the type of infrastructure selected for the cost analysis, which could include potable water supply, sanitation, drainage, electricity supply, urban mass transit, solid waste collection, roads, and mitigation works required to reduce natural disaster risk. Local costs for infrastructure should be considered.
 - n. Based on the results of the cost projections, provide an analysis that includes detailed policy recommendations which can be used to improve the urban development plan.
- 3.4 In carrying out the aforementioned activities, the consulting firm will be responsible for the information collection and analysis. In addition to travelling to the selected city to gather information, it is highly recommended that the consulting firm hires local consultants for aiding in the data collection process and in the follow up with local officials. The consulting firm should not rely solely on the local Municipality as the sole source of information. It will be a responsibility of the firm to find alternative information sources and expert calculations to reach the desired results.

IV. PRODUCTS

- 4.1 All Reports, technical background material, briefings, articles and news in the context of this consultancy must follow the Bank specifications⁵. The outputs of the consultancy as well as reports must follow the Bank publication’s protocol.

⁵ The report(s) should be presented to the Bank in electronic form in one file. The document must contained cover, main document and annexes. No zip, PDF, or PowerPoint Presentation file will be received as a final report, according to the regulation in the Record administrative Section.

D. Consulting Engagement 1: Develop an inventory of GHG emissions.

- 4.2 The consulting firm must produce the following studies for the city in the scope:
- 4.3 Preparation of a GHG emissions inventory.
- 4.4 Identification of baseline scenarios (for sectors).
- 4.5 Identification and prioritization of mitigation options and scenarios for each sector, including an analysis of cost-efficiency of different mitigation scenarios, including investment and financial flows needed and other co-benefits (social, environmental, health, etc).
- 4.6 Analysis of air quality in the city, including observed relationship of Nitrogen Dioxide (NO₂), ground-level Ozone (O₃) and particulate matter (PM₁₀) and its impacts on health. This analysis should be based on existing studies based on officially and scientifically approved data or studies.
- 4.7 Proposal to streamline a decision making process that allows selecting mitigation options, financing them and ensuring that GHG emissions reductions are monitored, verified, reported and updated continuously. This proposal needs to take in consideration the city's development priorities and goals. International examples of mitigation measures with successful outcomes will be an asset to give the municipality different options of emission reduction actions.
- 4.8 Organize and carry out a capacity building workshop in the city for the technical teams of the municipality to be capable of replicating the exercise and understand the results of the activities of the Consulting Engagement 1 from the Activity section in this document.
- 4.9 Provide the municipalities and the Bank with a manual that will list all the activities to be performed in order to update this study.

E. Consulting Engagement 2: Develop a probabilistic hazard and risk assessment study.

- 4.10 The consulting firm must produce a **Risk assessment report** and **Mapping** for the city. The result of the map and spatial dataset shall provide including a description of the dataset and its format. The format shall be PC compatible with ESRI ArcGIS.

F. Consulting Engagement 3: Develop the urban footprint study and analysis of growth scenarios.

- 4.11 The consultant must produce the following documents and studies:
 - a. GIS Database - Development of Geospatial data infrastructure. A Geographic Information System with relevant georeferenced data, including densities (existing densities measured in inhabitants per hectare in the consolidated

portion of the city and in the periphery) and land uses, key green and gray infrastructure, natural disaster-prone areas, among others.

- b. Report on Current and Historic Urban footprint. A historic analysis of the urban change since 1984-85 for the city that presents the composition of the urban footprint in terms of land cover using 10 classes, and the identification of the areas of change since 1984, including a study of the historic densities associated with each urban footprint, and a study of the current densities for the city with documentation and imagery and photographs samples of each density category.
- c. Report on Development of Urban Growth Scenarios A simulation analysis for current trend conditions up to 2030 (or closer temporal demographic data set available), and for a smart growth approach, including: a) a cost analysis of infrastructure for the two growth scenarios analyzed (current trends and smart growth); b) analysis in terms of the impacts of each scenario (costs and GHG emission level implications), assessing which of the two would be more convenient for the city, and policy recommendations; and c) a planning summary for policy makers expressing major findings of the analysis performed.

V. TIMEFRAME

- 5.1 The activities under these terms of reference should be completed within six (6) months from the starting date of the contract. It is expected that the Consulting Firm will submit an advanced draft of the studies for Santiago de los Caballeros, Dominican Republic, 3 months after the starting date of the contract.

VI. PAYMENT SCHEDULE

- 6.1 The payments will be done according to the following schedule:
 - a. 30% upon Signature of the contract and agreement on the scope of work and deliverables.
 - b. 30% upon Consultant submitting an advanced draft for the 3 key studies for the city. This advanced draft should include: a) GIS Database and draft report on Current and Historic Urban Footprint; b) draft Risk Assessment report and mapping; and c) draft Inventory of GHG Emissions, including identification of mitigation options.
 - c. 40% upon the Bank's approval of the final reports and all deliverables corresponding to Santiago de los Caballeros, Dominican Republic.

VII. COORDINATION AND SUPERVISION

- 7.1 The supervision of the consultant’s work and deliverables will be done with the coordination of Mr. Ellis Juan, General Coordinator of the Emerging and Sustainable Cities Initiative (VPS/VPS); and Mr. Horacio Terraza, Lead Specialist (INE/WSA).