The Green Corridor

Financing

Result Based Finance supporting Sustainable Development Goals: The Green Corridor, Cali, Colombia

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About

About Low Carbon City Lab (LoCaL)

This report was written through support from the Low Carbon City Lab (LoCaL).

LoCaL aims to reduce 1 Gt of CO_2 and mobilize € 25 billion of climate finance for cities annually by 2050. It is an innovation platform aiming to provide cities with better tools for assessing greenhouse gas emissions, planning, investing and evaluating progress. Started in 2015, LoCaL is a growing community of more than 20 organisations dedicated to unlocking climate finance for cities. This report was realized as part of the project Closing the Gap through Transformative LoCaL Action (CGTLA) under LoCaL. LoCaL is a Climate-KIC flagship programme.

http://local.climate-kic.org
Contact: victor.gancel@climate-kic.org

About Climate-KIC

Climate-KIC is the EU's largest public private partnership addressing climate change through innovation to build a zero carbon economy. We address climate change across four priority themes: urban areas, land use, production systems, climate metrics and finance. Education is at the heart of these themes to inspire and empower the next generation of climate leaders. We run programmes for students, start-ups and innovators across Europe via centres in major cities, convening a community of the best people and organisations. Our approach starts with improving the way people live in cities. Our focus on industry creates the products required for a better living environment, and we look to optimise land use to produce the food people need.

Climate-KIC is supported by the European Institute of Innovation and Technology (EIT), a body of the European Union.

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Summary

The Colombian city of Cali plans to implement an urban renewal project that involves the reconstruction of a 22 km long strip in the heart of the city along the old Pacific rail line. *"The Green Corridor"* project will include a network of electric light rail, high-quality public spaces and cycle paths. The project aims to improve access to economic opportunities for the population (especially low income groups) and reduce emissions from transportation. Project implementation will start in year 2016 and will be completed in three phases by the end of year 2022.

Gold Standard has developed a Sustainable Cities Programme, a results based finance framework for cities to develop and verify urban projects – in order to catalyse and scale up the currently missing investment. Projects applying the Gold Standard's Framework are required to carry out comprehensive evaluation that includes a socio-environmental risk assessment, sustainable development assessment and demonstrate use of participatory decision-making approaches for project implementation. The projects should demonstrate holistic contributions to sustainable development in line with the Sustainable Development Goals (SDGs) and mitigate any identified risks to achieve Gold Standard certification.

An assessment has been carried out for *"The Green Corridor"* project using the Gold Standard Sustainable Cities Framework[1]. The result shows a tremendous contribution to the *Sustainable Development Goals (SDGs)*[2]. The project will *directly reduce air pollution and greenhouse gas emissions* due to a reduction in motorized modes of transport. In addition, the project will lead to a *reduction in the number of deaths from road traffic accidents*. It will increase the amount of green space and the number of public spaces per inhabitant.

The project will help to improve the *affordability and accessibility of transport services* especially impacting low-income households. The risk assessment concludes that the project is not expected to lead to any risk of human right violations, discriminations, damage to habitats & cultural heritage, labour law violations and pollution. The only major finding is the relocation of informal residential and commercial settlements located near the corridor. The city authority has already identified this issue and has prepared a suitable resettlement plan. The implementation agency has proactively engaged the stakeholders during the project design phase and will further engage stakeholders during project implementation phase. This will ensure strong buy-in and stakeholder support for the project, helping to ensure long-term sustainability of the project.

This assessment demonstrates that the project is in line with Gold Standard principles and is very likely to achieve Gold Standard certification. The report recommends; *the quantification of the sustainable development outcomes/impacts* in order to monetize the benefits of the project for economic assessment. The economic assessment and demonstration of compliance to Gold Standard principles can be used to raise funding for project implementation. The monitoring, reporting and verification (MRV) of expected outcomes can be carried out using Gold Standard Sustainable Cities Framework, providing ongoing assurance of outcomes to investors.

The Gold Standard foundation is developing a standard in the year 2016 for city-level sustainable development actions under the Climate-KIC funded project *"Result Based Finance for Cities"*[3]. This aims to develop a Result Based Finance certification scheme that will allow cities to attract additional financing for their climate actions, based on contribution to sustainable development goals including GHG emission reductions, while offering funders transparent, impact-based results. The standard will be released for public use by the end of year 2016.

[1] For further details on Sustainable Cities Programme Framework, please follow the link http://www.goldstandard.org/our-work/innovations-consultations/sustainable-cities-programme-framework

[2] For further details on Sustainable Development Goals, please follow the link https://sustainabledevelopment.un.org/?menu=1300

[3] For additional information on the Climate-KIC funded project *"Result Based Finance for Cities"*, please write to m.stadelmann@thesouthpolegroup.com or abhishek.goyal@goldstandard.org

Project Background

Closing the Gap through Transformative LoCaL Action (CGTLA)

With around 93 trillion USD required by 2030 to transition cities infrastructure onto a low-carbon, resilient pathway, the CGTLA project funded by Climate-KIC has convened a group of experts, including the Gold Standard Foundation, ICLEI – Local Governments for Sustainability, South Pole Group and WWF, to address fundamental barriers to the required channeling of finance to low-carbon city projects. The CGTLA will help to unlock and scale up investments in local level, ambitious, cross-cutting and inclusive, low-carbon projects by improving the ability to match cities with private and public sector investors. The project is piloting innovative financial instruments like Results Based Finance and empowering local governments to develop bankable proposals for financing transformative actions. Phase I of the project has been completed in December 2015 and funding is being sought for next phase of work, that will also bring CDP as partner on board. This report is an outcome from the Phase 1 activities.

About Partners

Gold Standard

Gold Standard works to create a climate secure world where sustainable growth brings life-changing benefits to communities everywhere. Our role as a standard and certification body is to maximise the impact of climate and development activities. We design the strongest processes that amplify the impact of efforts to deliver clean energy and water, responsibly manage land and forests, and transform lives of the world's poor. We then verify those outcomes, inspiring greater confidence that drives investment to accomplish even more.

Gold Standard was established in 2003 by WWF and other international NGOs as a best practice standard to ensure projects that reduced carbon emissions under the UN's Clean Development Mechanism (CDM) also delivered on their dual mandate to foster sustainable development. Now with more than 80 NGO supporters and 1100 projects in over 70 countries, our projects have delivered billions of dollars in climate and development outcomes in local communities all around the world.

Learn more about Gold Standard at
www.goldstandard.org

South Pole Group

Established in 2006, South Pole is one of the leading providers of sustainable climate solutions. It offers a full spectrum of sustainability services, including climate policy and strategy advisory, in addition to high quality carbon credits. South Pole's vision is to create a sustainable society and economy that positively impacts our climate, ecosystems and communities. Years of experience in relevant projects with key development institutions has provided SPG with a considerable portfolio of consulting mandates in the area of sustainable cities and buildings, renewable energy and energy efficiency, and water, forest and land use.

South Pole has advised governments on city-level mitigation in India, Thailand, and Indonesia, and has developed the CityActions platform as well as the Low-Carbon City Lab, a Climate-KIC funded innovation program that also covers this CGTLA project.

Learn more about South Pole Group at
www.thesouthpolegroup.com

ICLEI – Local Governments for Sustainability

ICLEI – Local Governments for Sustainability is the world's leading network of over 1,000 cities, towns and metropolises committed to building a sustainable future. ICLEI was founded in 1990 by 200 local governments from 43 countries who convened for the first World Congress of Local Governments for a Sustainable Future at the United Nations headquarters in New York. Operations started in 1991 at the World Secretariat in Toronto, Canada, and the European Secretariat in Freiburg, Germany. ICLEI's programs and campaigns look beyond mere environmental aspects and embrace wider sustainability issues. The ICLEI Council acknowledged this and formally broadened the mandate of the association in 2003, renaming the association *"ICLEI – Local Governments for Sustainability"*.

ICLEI is an effective sustainability and environmental Agency strengthening the capacity of local governments and their networks to identify and implement radical solutions and act rapidly; providing advanced knowledge and delivering training to local leaders, planners and decision makers; demonstrating creativity and excellence in developing innovative methods and tools; serving as the cities gateway to solutions for the future.

Learn more about ICLEI – Local Governments for Sustainability at www.iclei.org

WWF

WWF is one of the world's largest and most respected independent conservation organizations, with almost 5 million supporters and a global network active in over 100 countries. WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

We do this by:

- *protecting biodiversity* – the magnificent array of living things that inhabit our planet and the places they live
- *reducing humanity's footprint* on the natural world by challenging wasteful consumption and pollution, and promoting sustainable ways to use the Earth's resources

Learn more about WWF at www.wwf.ch

1. Introduction

The 17 sustainable development goals (SDGs) agreed by negotiators from UN member states in September 2015 are expected to drive the global development agenda for the next decade. The SDGs establish an ambitious set of goals, targets, and indicators to inform national agendas and policies through to 2030. While SDG 13 calls for *"Urgent action to combat climate change and its impacts"*, one stand-alone urban objective, SDG 11, challenges world leaders to *"Make cities and human settlements inclusive, safe, resilient and sustainable"*.

Cities have a key role to play in addressing the global climate change challenge. Urban areas are already home to half the world's population; but generate around 80% of global economic output, and around 70% of global energy use and energy – related to GHG emissions[4]. By 2050, that share is expected to rise to two-thirds or more. As urban populations grow, trillions of dollars will be spent on expanding and renewing urban infrastructure. Under a business-as-usual scenario, the aggregate urban infrastructure investment demand is in the range of $ 4.1 to $ 4.3 trillion per year over the period 2015–30[5]. Provided that the right policies are put in place, the current wave of rapid urbanization offers an unprecedented opportunity to create sustainable, liveable and dynamic cities.

With the amount of climate finance required growing, cities will need to adopt novel approaches to financing, as well as design and development planning, if they are to attract new investment. Results-based finance, which represents only a fraction of overall investments, has grown rapidly from $ 4 million in 2003 to $ 1.3 billion in 2012 (80% increase per year on average). At the same time, impact bonds and payment for performance schemes are seen positively by donors and investors because they provide certainty that public money is put to good use and have the potential to unlock private sector investments. It is widely acknowledged that these new financing schemes will play a critical role in funding interventions that can demonstrate measurable contributions towards the Sustainable Development Goals (SDGs). Development agencies, corporates and impact investors therefore are looking for performance indicators and impact metrics to measure and compare the potential of different interventions to help them make informed funding decisions.

The Gold Standard Sustainable Cities Program Framework is a results based finance[6] framework through which cities can develop and obtain independently verified results of urban low carbon growth programmes – in order to catalyse and scale up currently missing investment. The new framework goes beyond quantifying GHG mitigation, allowing funding agencies and developers to assess and showcase activities with significant social benefits. The Framework provides a mechanism to measure success in participating cities while increasing confidence and trust that expected outcomes can and are being delivered.

The Gold Standard Sustainable Cities Framework was released in Feb 2016 for public consultation and piloting. The next phase is to develop the standard for certifying low carbon cities.

> The objectives of this report are:
>
> - To pilot test the framework
> - To assess the contribution of the City of Cali's Green Corridor Project to the Sustainable Development Goals

The following section introduces the City of Cali, the Green Corridor Project and its implementation plan. It provides a snapshot of the Gold Standard Sustainable Cities Programme, the key requirements and approach to be followed for assessing the risks, the sustainable development elements and stakeholder engagement for Gold Standard certification.

Since the objective of the Green Corridor Project is to develop infrastructure for sustainable transportation that includes dedicated bicycle and pedestrian paths, trams, public parks, and other recreational facilities, the following section discusses the current transportation situation and its contribution to the city's GHGs budget. To carry out the baseline assessment, city level information has been collected from project reports, other published reports and literature available in the public domain.

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[4] Better Growth, Better Climate, The New Climate Economy, The Global Commission on the Economy and Climate, 2014. Available at http://2014.newclimateeconomy.report/

[5] State of City Climate Finance 2015, Cities Climate Finance Leadership Alliance (CCFLA), New York. Available at www.citiesclimatefinance.org

[6] The Result Based Financing (RBF) is an umbrella term, which covers all financing approaches those are based on fundamental principal of providing a payment or financing or financial incentives on delivery of predetermined measureable and verifiable result(s). In recent past, it is being considered as of one of the effective means for financing GHGs mitigation and adaptation actions across the sectors. The Gold Standard carried out the feasibility of using results-based finance approach in urban context. For further details, please refer to full report available at *"Financing Cities of the Future: Tools to Scale-up Clean Urban Development"*

The next section is dedicated to the sustainable development assessment of the Green Corridor project. It details the likely sustainable development outcomes relevant to the Sustainable Development Goals and monitoring indicators. Other additional benefits of the project for example, employment generation, reduced social cost, increased land values are also summarized in this section. The risk assessment and stakeholder engagement that are pre-requisites for any Gold Standard project, are carried out in subsequent sections.

Conclusion of the assessment carried out for sustainable development contributions, risk assessment and stakeholder engagement and the next steps are presented in the last section of the report.

2. Background of Project

2.1 City of Cali

Santiago de Cali usually known by its short name *"Cali"* is the capital of the Valle del Cauca department. The city of Cali is the third largest city in Colombia, with a population of approximately 3.0 million. It spans 560.3 km² with 120.9 km² of urban area, making Cali the second largest city by area in the country. It is one of oldest cities in Colombia founded on July 25, 1536. Cali is the only major Colombian city with access to the Pacific coast. Due to its geographical location it has one of the fastest growing economies and infrastructures in the country. The Cali population is disbursed over more than 12,000 hectares, which implies a density of approximately 250 inhabitants per hectare. The city is also called *"the two cities"* as its divided by remains of the old rail line, previously known as *"Ferrocarril de Occidente"*.

2.2 The Train Cali: *"Ferrocarril de Occidente"*

The train was implemented during 1915–1990 and was the first mass transportation system in Cali. It was established as the main mode of urban transport in Cali for mobilizing the city and its trade, carrying passengers, manufactured goods, bananas, food, coffee, salt, firewood wood, sugar, snuff, cigarettes etc. However, the train faced strong competition with motorized vehicles (buses and private cars), which were perceived as a sign of the city's modernization. Due to the presence of cost effective alternatives, the steam trolley was soon abandoned.

2.3 Project: The Green Corridor

Cali has been characterized by marked socioeconomic differences between communities and neighborhoods, limiting the access for much of the population to opportunities for income generation and improvement of vulnerable conditions. Despite the heterogeneity that occurs along the axis of the old rail track it has continuous free space except for some informal settlements. The proposed project; *"the Green Corridor"* aims to reconstruct 22 km in the heart of the city along the old Pacific rail line, which crosses the city from north to south and includes a section that extends westward connecting Cali with the city of Palmira. The objective is to create a network of electric light rail, high-quality public spaces and cycle paths in line with the vision of zero emissions. The proposed project includes the following interventions:

1. The construction and improvement of sidewalks and squares
2. Building bicycle lanes
3. Developing priority areas for pedestrians and non-motorized transport. At-grade intersections, first priority will be given to pedestrians, then cyclist, followed by public transport and then private transport.
4. Alternate routes for mobility of private vehicles
5. Implementation of light rail tram system and bicycle track to meet the demand for public transport
6. Linear park with scenic cycle routes and public facilities with bridges over rivers and canals that will connect points of major activity
7. Ecological corridor between rivers to enable enhancement of biodiversity
8. Cultural, sports and other recreational facilities that will be connected with business parks

Fig.1: Illustration of the Green Corridor (Source: Espacio Coletivo and Opus)

The Green Corridor project is approximately 22.8 km in length comprising of two sections;

i. Track 1 Jamundí – Yumbo:
17.7 km – Between Calle 70 and
Avenida 4, up to 25th Street 126 Carrera.

ii. Track 2 Cali – Palmira:
5.1 km – Between Calle 25 and
Carrera 7 to 88 Street Race 7

The project impacts 11 of the 22 districts of the city that covers approximately 1.2 million inhabitants. Along its route, the proposed corridor intersects areas with different socio-economic strata and land use including industrial, residential, commercial, institutional, recreational, etc. It's influence area covers 110 meters, 55 meters from the pedestrian walk on each sense (west-east). It is an urban renewal project and the Master Plan considers the creation of opportunities for social inclusion and job creation that can overcome the barriers imposed by social inequality. It will improve access to economic opportunities in the city (especially for low income groups), as well as various services and public infrastructure, education, recreation, culture and sports.

This project is a very important step in helping the city to develop the transport system in a sustainable way, providing greater inclusion for people and reducing the impact on the environment and health. Another important element of the Green Corridor project is the vision of zero GHG emissions from transportation.

2.4 Project implementation plan

The project implementation is expected to take 5 years. The transport infrastructure will have an operational lifetime of 24 years. The actions proposed for each phase are summarised in Table 1. Investment in the project would be financed with public and private resources. Investment in infrastructure will be the responsibility of the public sector while private investments will be made in rolling stock, and other equipment.

Table.1: Implementation plans and expected cost

Phase	Duration	Project cost*	Planned actions
Phase I	2016 (Feb–July)	10 Million $	Demarcation for pedestrian crossings, bike routes, increase green areas and public spaces between Carrera 8 entre calles 26 y 70
Phase II	2017–2019	110 Million $	Development of 17 km lineal park that will have pedestrian side walks, bike routes, amenities, rivers, green areas and publics spaces
Phase III	2017–2022	780 Million $	Development of 22 km electric train transportation system within the city of Cali, which will be further extended to cities like Jamundí, Yumbo and Palmira

*Expected cost

3. Gold Standard Sustainable Cities Framework

The Gold Standard Sustainable Cities Programme is a framework for enabling results based finance, helping to catalyse and scale up the currently missing investment. The Sustainable Cities framework goes beyond strictly GHG-driven interventions, allowing funding agencies and developers the flexibility to include activities with significant sustainable development benefits. The objective of the Cities Programme is to provide transparent and consistent information on the performance and progress of planned actions in cities. With this objective in mind the framework document aims to:

- Enable assessment, monitoring, reporting and verification (MRV) of sustainable development and climate change mitigation outcomes of city-based projects
- Provide an assurance of outcomes to investors, city authorities and stakeholders thereby helping to mobilize results based finance

The projects are assessed against the Gold Standard Principles to ensure robustness of programme design, transparency, stakeholder involvement, legal adherence and assurance of a net positive contribution towards sustainable development. The key requirements for all Gold Standard certified projects are:

- Risk assessment
- Sustainable development assessment
- Stakeholder engagement

Risk assessment

The project shall assess the risk of potential harmful impacts against a series of safeguarding principles and international conventions. The purpose of the safeguarding principles is two fold; firstly to identify, avoid, mitigate or repair the negative impacts of planned actions. Secondly, to enhance the robustness of a programme design by integrating social, environmental and governance concerns into the decision-making process at an early stage. Any relevant risk identified, must be included in the Sustainability Monitoring Plan.

Sustainable development assessment

The project shall demonstrate a net positive contribution to sustainable development over and above the baseline (pre-project) scenario through the completion of a detailed impact assessment using Gold Standard tools i.e. the Sustainable Development Matrix (SD Matrix). As a minimum requirement, the planned actions need to have a positive impact on at least three of the four sustainability dimensions that form the basis of the Gold Standard Sustainable Development Matrix. The four categories are *"Environment", "Social Development", "Economic and Technical Development"* and *"Governance & Capacity Building"*. Each category includes a set of indicators to evaluate the project's contribution towards sustainable development and its relevance to the Sustainable Development Goals (SDGs). All impacts/outcomes need to be monitored, using appropriate monitoring parameters that are defined in the Sustainability Monitoring Plan.

Stakeholder engagement

An extensive stakeholder consultation process is required for each project, during which the stakeholders should have an opportunity to provide inputs on the indicators that constitute social, economic and environmental success. Ideally, the stakeholder consultations shall be organised prior to implementing the programme/activity so that:

- Stakeholders understand the relevant aspects of the planned actions and the impacts this will have prior to the programme starting
- The sustainable development impact assessment can be discussed with stakeholders, enabling them an opportunity to provide their opinion and input to influence the project design. The project developer must provide an account of all relevant feedback received from stakeholders during the consultations.
- Stakeholders can understand the process behind the input and grievance mechanism, to ensure a transparent and continuous feedback channel is maintained.

The key stakeholders involved in a typical city based project include city authorities, local legislators, private sector and civil society organisations, who may have direct influence in decision-making and who are familiar with local issues of concern and local stakeholders who are likely to be affected by the project, the municipality, local NGOs etc. Further guidelines on stakeholder consultations are available in Annex-1 of the Framework document.

4. Baseline Assessment

This section provides a brief summary of the baseline (pre-project) situation with respect to the transportation and related aspects in the City of Cali. It is important to understand the baseline situation in order to assess the sustainable development impacts/outcomes that the project will create.

Transportation

In Cali, about 3 million motorized trips are made daily in the urban area, with public transport accounting for 1.9 million of them[7]. The BRT, locally known as MIO, is the main mode of public transport followed by other motorized vehicles like buses, taxis and motorcycles. In recent past, growth in ownership of private vehicles has grown significantly. While most of the absolute growth has been in the form of private cars, motorbike ownership has skyrocketed from 50,000 to 150,000 registered motorbikes in the past four years. Following empirical measurements and growth trends in income levels in Colombia, one can expect that the rate of motorization in coming years will grow rapidly, which would imply more congestion on roads, increased levels of pollution & noise and more road accidents.

The bicycle is also considered a means of affordable and friendly transportation. For Cali, over 11% of all trips made are by bicycle. And 97% of the total that cycle use this as their main mode of transportation. However, it has been found in many cases that Cali has a very low amount of Bikeability (e.g. biking friendly) areas. Also, the recreational facilities are not easily accessible by walking.

Greenhouse Gas (GHG) emissions

According to the recent GHG inventory prepared for the city of Cali, the transport sector is the largest contributor to total GHGs emission. The transport sector alone emits 2.5 million tons of CO_2eq/annum, which accounts for approximately 54% of the total GHGs emissions of the city (DAGMA, 2012). Other leading emission sources are electricity consumption, waste generation, fuel distribution and industry (both domestic and commercial).

Air quality

On average the quality of air in Cali varies between good and moderate according to the data obtained from the Air Quality Index[8]. In 2010 the air quality was reported as moderate. In 2011 and 2012, it was concluded that for the north-central area of Cali, quality of air was good. By December 2013, the north showed variations between good and moderate air quality.

Green space

It is a known fact that the green space in cities is vital for its health, social and environment benefits. It is becoming challenging to manage and grow green areas, especially in developing nations where there is a pressure for space, resources and development. In 2012 the city of Cali had approximately 1000+ hectares that comprised of green areas (including road dividers).

Road safety

In 2012 the number of deaths from road accidents (per 100,000 population) in the city of Cali were 13 – the highest for any city in Colombia. As per data available from the International Road Traffic and Accident Database (IRTAD) LAC, the most vulnerable groups are motorized two wheeler users and pedestrians. Drink driving, distraction (use of mobiles while driving), speed and avoidance of helmet use are the main causes of accidents[9]. Developing areas that prioritize pedestrians and non-motorized transport will have an impact on the number of road accidents.

Biodiversity

Trees are the lungs of a city as they absorb odours and pollutant gases (nitrogen oxides, ammonia, sulfur dioxide and ozone) and filter particulates out of the air by trapping them on their leaves and bark. Trees also play an important role in cooling the urban heat island effect and moderating the local climate. In the various ecosystems of the city of Cali there are 768 species of tree. On the western side particularly in the foothills and in the south there is high tree density. In contrast, there is an absence of important tree species in the central and eastern areas.

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[7] 2015, Comparative Case Studies of Three IDB-supported Urban Transport Projects, Cali Case Study Annex, Inter-American Development Bank available at https://publications.iadb.org/bitstream/handle/11319/7162/BRT__Cali_Case_Study_(Final_--_Clean)brik.pdf?sequence=1

[8] Refer the Air Quality Index defined in SDG target and indicator tables in section 5.1

[9] Road Safety Annual Report 2014

5. Sustainable Development Assessment

5.1 Key outcome/impact

The Green Corridor project is designed to impact the socio-economic and environmental aspects of the city in a holistic way, ensuring that the sustainable development of the city is integrated. The table below provides a snapshot of the key impacts/outcomes of the project and their relevance to the UN Sustainable Development Goals, which are expected to drive the global development agenda for the next decades.

The key project outcomes/impacts and contribution to SDGs are discussed in detail in *Annex -1*.

Table. 2: Summary key project outcomes/impacts and contribution to SDGs

S. No.	Sustainable Development Outcome/Impact	Relevant SDG	Relevance to other SDGs
1	Reduction in number of deaths from road traffic accidents	11 – Sustainable cities and communities	3 – Good Health and well being 9 – Industry, innovation and infrastructure
2	Increase in green area per resident	11 – Sustainable cities and communities	–
3	Increase in percentage of all trips made on a typical day in non-motorized mode of transport	11 – Sustainable cities and communities	–
4	Decrease in GHG emissions per capita per trip	13 – Climate Action	–
5	Improvement in air quality index for ambient air	11 – Sustainable cities and communities	3 – Good Health and well being 9 – Industry, innovation and infrastructure
6	Increase in public spaces per inhabitant	11 – Sustainable cities and communities	13 – Climate action 17 – Partnerships for the goals
7	Reduction in percentage of monthly income spent by a household on transport	11 – Sustainable cities and communities	9 – Industry, innovation and infrastructure

5.2 Additional Project Outcomes/Impacts

Employment generation

The project includes the creation of formal employment for the community within the Community Improvement Districts (DMC) schemes, which includes the management and operation of several mobility services, collective space and public facilities. It is expected that the Green Corridor, as a driver of economic activity in currently non-productive areas and development of the city, will generate long-term local employment. The project will create opportunities for increasing local skills and the local skill mix. This is achieved by committing to hire locally and by providing training and education programmes to strengthen the skill base, with an emphasis on minority and/or disadvantaged groups. Thus, the project will increase the long-term competitiveness of the local community.

Reduced social costs

The Green Corridor has the potential to significantly decrease the social cost of transportation for the entire Municipality of Cali by reducing negative externalities like congestion, pollution, noise and accidents.

- Implementation of the Integrated Mass Transit System can contribute to a 32% reduction of NOx, 39% reduction of CO and 8% reduction of Volatile Organic Compounds (VOCs). This can help to significantly reduce healthcare costs incurred on account of respiratory diseases.
- Due to the lack of essential infrastructure for motorized means, this form of transport is very vulnerable to traffic accidents. Hence a major benefit of the Green Corridor project will be a reduction of deaths and injuries by accidents.
- Use of bicycle as a mode of transport will help in reducing congestion, environmental pollution, noise pollution, demand for parking, user costs, costs for road maintenance, energy cost etc. Bicycle users are also likely to benefit from improved health.

Improved accessibility

The largest hospitals and health centers are located in the Eastern side of the city implying that access to these services might not be as good for the people living in the West. Implementation of the Green Corridor will help improve the connection between these facilities, improving access to these hospital and health centers as well as other educational institutions, sports and recreational centers and the rest of the city.

Restoration of habitats and biodiversity

The five rivers that run along the Green Corridor provide an opportunity to generate intersections of high landscape and environmental value. The project will also contribute to restoration of existing landscapes and water bodies that are deteriorating, thus conserving habitats and biodiversity.

The Green Corridor project is proposed as a way to reinforce degraded areas with lots of vegetation and increase greenery in the city center. Increased vegetative cover can influence the microclimate, so in a city like Cali it can lead to the establishment of cooler and more comfortable places for recreation and physical activity.

Increased land value

The project implementation is expected to generate greater valuation of land for those areas where land prices are currently lower.

6. Risk Assessment

The risk assessment is based on safeguarding principles that seek to avoid adverse impacts of the project to both people and the environment. The safeguard principles are derived primarily from the UNDP's Social and Environmental Standards (SES, 2014)[10]. Other key resources are UNEP's Environmental, Social and Economic Sustainability Framework (2015)[11] and IFC's Performance Standards on Environmental and Social Sustainability (2012)[12]. Adverse impacts do not always stop activities from going ahead as some risks can be mitigated/minimized/managed.

The mitigation plan should be included in the Monitoring, Reporting and Verification (MRV) plan, with the relevant indicators to monitor the progress of implementation and results achieved. The assessment for this project had only one major finding. That is the relocation of informal residential and commercial settlements located near the corridor. The implementing agency has already identified this issue and has prepared a suitable resettlement plan. Therefore the assessment concludes that there is no risk of the proposed project activity. The detail assessment is provided in the *Annex -2* of the report.

7. Stakeholder Engagement

A participatory decision-making process is key to success for any project and especially large infrastructure projects such as this Green Corridor. It ensures that communities affected by the implementation of the project are fully supportive of the idea and have a sense of ownership of the project. By ensuring that their preferences/suggestions are taken into account in the project design phase, encourages maximum, long-term and careful utilization of the infrastructure by communities.

Focused group discussions, surveys, interviews and consultations have been carried out with residents and floating population to gather feedback on current socio-economic and environmental aspects including education, health, security, traffic & transport, demography, infra-structure, public spaces (recreation, culture, sports etc.).

Focused group discussions were used with community leaders, and were aimed at primarily identifying major gaps or shortcomings faced by communes. It was based on the identification of the main transportation issues faced by the communities, then voting on the most important problems and establishing an order of priority. The discussions took into account aspects: such as bike paths, public transport, non-motorized transport, infrastructure and accessibility. The focused group empowered the communities to propose ideas for change that would improve transport infrastructure in the City.

Follow up stakeholder consultations are planned during the different implementation phases of the project. These consultations should be used to update the communities on how their ideas for improvement in public transport, bike paths and public spaces were incorporated in the design of the Green Corridor project. Further, an input and grievance mechanism should be established for the entire project to allow stakeholders to raise any concerns or provide suggestions during project implementation and operation stages. As part of this mechanism, a transparent procedure should be established to receive, analyze and act on any input/grievance received. The outcome should be communicated to the relevant party that raised the input/grievance. All information on the input/grievance should be transparently hosted on the City's website.

[10] UNDP's Social and Environmental Standards

[11] UNEP Environmental, Social and Economic Sustainability Framework (ESES)

[12] IFC's Performance Standards on Environmental and Social Sustainability

8. Conclusion

The Green Corridor is an excellent example of an urban renewal project that will have tremendous contribution to the Global Sustainable Development Goals. As per the assessment presented above, the project will primarily contribute to SDG 11 – 'Sustainable Cities and Communities' and SDG 13 – 'Climate Action'. In addition the project will also indirectly contribute to SDG 3 – 'Good Health and well being' and SDG 9 – 'Industry, innovation and infrastructure'. The project will impact on socio-economic and environmental aspects in a holistic way, leading to more integrated sustainable development. The project will help reduce the number of deaths from road traffic accidents and increase the amount of green space and the number of public areas for inhabitants.

The project will also increase the share of non-motorized transport such as bicycles, directly impacting the levels of air pollution and helping to reduce greenhouse gas emissions. Most importantly the project will help to improve the affordability and accessibility of transport services, especially for those from low-income households. Relevant SDG indicators have been defined for each outcome/impact. These can be used to assess the actual outcome/impact achieved in project scenario against the baseline (pre-project) situation.

A detailed monitoring plan, including the measurement method, frequency, QA/QC procedures, and source of data etc. for each of these SDG indicators should form the core of the MRV plan for the project. Quantification of baseline value and the actual value in project-scenarios for each of these SDG indicators can help to quantify the net positive outcome/impact. And these outcomes can be assigned a dollar value using suitable approaches. The monetization of sustainable development impacts can help investors to realize the full economic returns from their investments in infrastructure projects such as this, which are developed for public good.

The risk assessment carried out above shows that relevant policies and procedures are planned to avoid any human right violations, discriminations, damage to habitats & cultural heritage, labour law violations and pollution. The only major finding from the assessment is the relocation of informal residential and commercial settlements located on the corridor. However, this issue has already been identified and a suitable resettlement plan has been drawn out. The resettlement plan should be included in the MRV plan with relevant indicators to monitor the progress of its effective implementation. This assessment enhances the robustness of the Green Corridor project by integrating social, environmental and economic concerns into the decision-making process at an early stage.

Detailed stakeholder consultations have already been carried out while designing the project. This will ensure full support of the Local Government's idea by the urban population. Follow up consultations should be planned in parallel to implementation of the project to apprise the communities and other stakeholders on how their suggestions were incorporated in the final project design. Also, a transparently managed input and grievance mechanism should be implemented to collect feedback from communities during the project implementation and operation phases.

It is highly desirable that a detailed MRV plan is developed and quantification of sustainable development outcomes/ impacts is carried out as an extension of this work in the next phase. By assigning monetary values to the sustainable development impacts, an assessment to determine the economic returns of the project can be carried out. The economic assessment, risk assessment and assessment on contribution to SDGs can be used by Cali and World Bank to raise funding for project implementation. The certification of the Green Corridor project under Gold Standard's Sustainable Cities Framework will provide assurance of outcomes to investors thereby helping to mobilize results based finance.

To assist the project developers and investors *"Gold Standard Sustainable Cities Framework"* is being developed into a certification standard for city-level actions, under the Climate-KIC funded project *"Result Based Finance for Cities"*[13]. The standard will be based on result based financing model for city-level sustainable development actions This aims to develop RBF certification scheme that will allow cities to attract additional financing for their climate actions, based on contribution to sustainable development goals including GHG emission reductions, while offering funders transparent, impact-based results.

[13] For additional information on Climate-KIC funded project *"Result Based Finance for Cities"*, please write to m.stadelmann@thesouthpolegroup.com or abhishek.goyal@goldstandard.org

ANNEX -1

Contributions to SDGs

In this section the key sustainable development outcomes/impacts that are likely to be achieved by the Green Corridor project are discussed in detail. Relevant SDG indicators are defined for each outcome/impact – and can be used to assess the actual outcome/impact achieved in project scenario against the baseline (pre-project) situation. Each SDG indicator is linked to the relevant target and the SDG.

Id No. - 1	Road Safety
SDG	11 – Sustainable cities and communities
Relevance with other SDGs	3 – Good Health and well being 9 – Industry, innovation and infrastructure
SDG Target number	11.2
SDG Target	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
SDG Indicator number	25
SDG Indicator	Road traffic deaths per 100,000 population
Sustainable development dimension	Social
Unit	Deaths per 100,000 population
Time period for baseline data collection	Average of the last three years before commissioning of the project
Frequency for project scenario data collection	Monthly and then aggregated annually
Outcome	Reduction in number of deaths from road traffic accidents in area of influence of the project
Relevance to the project	One of the main objectives of the Green Corridor project is to improve road safety by reducing the number of deaths and serious injuries in traffic accidents. The project is expected to reduce the speed of vehicles and encourage the use of non-motorized transport such as walking and cycling thus reducing chances of accidents. In this context, knowing the impact of the Green Corridor project in decreasing the number of deaths and injuries from traffic accidents in its area of influence is vital.

Id. No. 2	Green Space
SDG	11 – Sustainable cities and communities
Relevance with other SDGs	–
SDG Target number	11.7
SDG Target	By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, particularly for women and children, older persons and persons with disabilities
SDG Indicator number	– (Additional indicator)
SDG Indicator	Green area per inhabitant

Sustainable development dimension	Environmental
Unit	m^2 per inhabitant
Time period for baseline data collection	Data from last year before start of project on population and green cover in project's area of influence
Frequency for project scenario data collection	Annually
Outcome	Increase in green area per resident in area of influence of the project
Relevance to the project	The green areas in the city are surfaces covered with vegetation that have not been settled by concrete and still allow the natural soil permeability. The tree planting in green areas will contribute to sequestration of GHG emissions, improve local air quality and influence the microclimate. In a city like Cali, it can lead to the establishment of cooler and more comfortable places for recreational and/or physical activities. The Green Corridor, as the name suggests aims to increase green areas in the City.

Id. No. - 3	**Non-moterized transport**
SDG	11 – Sustainable cities and communities
Relevance with other SDGs	–
SDG Target number	11.2
SDG Target	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
SDG Indicator number	– (Additional indicator)
SDG Indicator	Modal split – share of non-motorized transport (cycling and walking)
Sustainable development dimension	Environmental, Social, Economic
Unit	%
Time period for baseline data collection	Data from last year, before commissioning of project, collected at the commune level within project's area of influence
Frequency for project scenario data collection	Annually
Outcome	Increase in percentage of all trips made on a typical day in non-motorized mode of transport
Relevance to the project	One of the main objectives of the Green Corridor project is to increase the share of non-motorized transport in the modal split. This will directly impact the levels of air pollution due to lesser use of motorized modes of transport that predominantly use fossil fuels. It will help in saving costs on fuels and lead to healthier lifestyles. Monitoring of percentage of women that use non-motorized mode of transport can be a good indicator of bikeability of the project. Increase in percentage of women using the non-motorized transport will indicate sustainability of the transportation mode and also gender equality. Lack of safe cycling infrastructure limits the opportunities for women in participation in economic activities. The Green Corridor project can help to remove these barriers and enable greater participation of women in economic activities.

Id. No.- 4	GHGs emission
SDG	13 – Climate Action
Relevance with other SDGs	–
SDG Target number	13.2
SDG Target	Integrate climate change measures into national policies, strategies, and planning
SDG Indicator number	– (Additional indicator)
SDG Indicator	Greenhouse gas emissions per capita/trip
Sustainable development dimension	Environmental
Unit	ton CO_2/capita/trip
Time period for baseline data collection	Data from last year, before commissioning of project, collected at the commune level within project's area of influence
Frequency for project scenario data collection	Annually
Outcome	Decrease in GHG emissions per capita per trip
Relevance to the project	An important element of the Green Corridor project is the vision of zero emissions from mobility. The project aims to promote electric mobility in passenger mass transit systems and use of non-motorized modes like cycling and walking. In this context it will be important to monitor the impact on GHG emissions per trip made by residents.

Id. No. 5	Air Quality
SDG	11 – Sustainable cities and communities
Relevance with other SDGs	3 – Good Health and well being 9 – Industry, innovation and infrastructure
SDG Target number	11.6
SDG Target	By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality, municipal and other waste management
SDG Indicator number	– (Additional indicator)
SDG Indicator	Air Quality Index
Sustainable development dimension	Environmental
Unit	Less to 50 – Good 51 to 100 – Moderate 101 to 150 – Unfavorable for sensitive groups 151 to 200 – Harmful to health 151 to 200 – Very harmful to health
Time period for baseline data collection	Monthly data from last three years before commissioning of project collected at monitoring stations within project's area of influence
Frequency for project scenario data collection	Data on PM10, PM2.5, tropospheric ozone, sulphur dioxide and nitrogen dioxide is collected daily and is analysed on monthly basis to arrive at the air quality index (good, moderate, unfavourable, harmful and very harmful)
Outcome	Improvement in air quality index at monitoring stations within project's area of influence
Relevance to the project	An important element of the Green Corridor project is improvement in air quality. The project aims to promote electric mobility in passenger mass transit systems and use of non-motorized modes like cycling and walking. In this context it will be important to monitor the impact on O_3, NOx, SOx, PM10 and PM2.5 concentrations in ambient air.

Id. No. – 6	Public Space
SDG	11 – Sustainable cities and communities
Relevance with other SDGs	13 – Climate action 17 – Partnerships for the goals
SDG Target number	11.7
SDG Target	By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, particularly for women and children, older persons and persons with disabilities
SDG Indicator number	70
SDG Indicator	Area of public space per inhabitant
Sustainable development dimension	Social
Unit	m^2 per inhabitant
Time period for baseline data collection	Data from last year before start of project on population and public spaces in communes that lie in project's area of influence
Frequency for project scenario data collection	Annually
Outcome	Increase in public spaces per inhabitant in the area of influence of the project
Relevance to the project	A public space is a social space that is open and accessible to people. Roads (including the pavement), public squares, parks and beaches are considered public space. In urban setting, availability of public spaces and their proximity is one of the key principles of development. It provides the rights of way required for streets and infrastructure (and their connectivity) as well as the green space necessary for recreation. Well-designed and maintained streets and public spaces can help lower rates of crime and violence and make space for formal and informal economic activities. One of the biggest contributions of the Green Corridor Program in the city of Cali can be the creation of more and better public spaces to improve the quality of life of its inhabitants. The Green Corridor aims to increase public areas in the City and hence it will be important to monitor the change in area of public spaces per inhabitant.

Id. No. 7	Affordability
SDG	11 – Sustainable cities and communities
Relevance with other SDGs	9 – Industry, innovation and infrastructure
SDG Target number	11.2
SDG Target	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
SDG Indicator number	– (Additional indicator)
SDG Indicator	Percentage of monthly income spent by a household on transport
Sustainable development dimension	Economic
Unit	%

Time period for baseline data collection	Data of previous year before commissioning of the project collected from communes in project's area of influence
Frequency for project scenario data collection	Annually
Outcome	Reduction in percentage of monthly income spent by a household on transport
Relevance to the project	Proportion of monthly income spent by low-income households on transport is mostly much higher compared to that spent by high-income groups. In some cases the proportion for low-income households becomes too high, preventing their affordability of transport system. This indicator is very important because it measures the equity in the transport system of the city. Improvement in affordability and geographical accessibility of transport services is a major objective of the Green Corridor project and hence this is an important parameter to monitor.

Id. No. 7	**Affordability**
SDG	11 – Sustainable cities and communities
Relevance with other SDGs	9 – Industry, innovation and infrastructure
SDG Target number	11.2
SDG Target	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
SDG Indicator number	– (Additional indicator)
SDG Indicator	Percentage of monthly income spent by a household on transport
Sustainable development dimension	Economic
Unit	%
Time period for baseline data collection	Data of previous year before commissioning of the project collected from communes in project's area of influence
Frequency for project scenario data collection	Annually
Outcome	Reduction in percentage of monthly income spent by a household on transport
Relevance to the project	Proportion of monthly income spent by low-income households on transport is mostly much higher compared to that spent by high-income groups. In some cases the proportion for low-income households becomes too high, preventing their affordability of transport system. This indicator is very important because it measures the equity in the transport system of the city. Improvement in affordability and geographical accessibility of transport services is a major objective of the Green Corridor project and hence this is an important parameter to monitor.

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Risk Assessment

This section summarises the risk assessment carried out for the Green Corridor project.
The project is evaluated against the Gold Standard Principles to assess the potential socio-environmental risks of the projects.

S. No.	Principle	Risk	Assessment criteria	Risk present (Yes/No)	Comments
1	Human rights	Risk that the activity will lead to/contribute to human rights violations and/or abuses	1. Complicit in Human Rights abuses. 2. Conflict with the economic livelihood of the local/ affected community. 3. Discrimination based on race, ethnicity, gender, age, language, disability, sexual orientation, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority.	No	No discrimination policy shall be implemented and practised for the Green Corridor project.
2	Gender Equality and Women's rights	Risk that the activity will lead to/contribute to adverse impacts on gender equality and/or the situation of women and girls.	1. Sexual harassment, 2. Discrimination based on gender, race, religion, sexual orientation or any other basis. 3. Physical and mental punishment and coercion 4. Limit women's ability to use, develop and protect natural resources	No	No discrimination policy shall be implemented and practised for the Green Corridor project.
3	Community health, safety and working conditions	Risk that the activity will negatively impact health and safety.	1. Activity affects the health of local community surrounding the activity area during design, construction, operation or decommissioning. 2. Workers are provided with a safe and healthy work environment taking into account inherent risks in its particular sector 3. Provision of health insurance scheme for workers who are impacted by workplace accidents	Yes	Safety of workers during construction of the project will be a priority area. The project shall ensure the provision of a safe working enviornment following relevant safety guidelines. Workers exposed to riskier situations should also be provided with health insurance scheme.

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S. No.	Principle	Risk	Assessment criteria	Risk present (Yes/No)	Comments
4	Cultural Heritage, Indigenous Peoples, Displacement and Resettlement	Risk of negative impacts on cultural heritage	1. Activity is complicit in the alteration, damage or removal of any critical cultural heritage.	No	The choice of the location for the project takes into account protected areas, nature reserves and cultural heritages sites, as well as areas that are defined as prime habitat by third parties.
		Risk of forced evictions, temporary or permanent and full or partial physical displacement and economic displacement	1. Activity is complicit in the involuntary relocation of people. 2. Activity leads to physical (i.e., relocation or loss of shelter) and economic (i.e., loss of assets or access to assets that leads to loss of income sources or means of livelihood) displacement	Yes	There are some informal residential and commercial settlements along the corridor that will have to be relocated. These people will be resettled/rehabilitated to mitigate the impacts caused by the displacement when it is unavoidable for the development of the project.
		Risk of impact on indigenous peoples	1. Indigenous people are provided with the equitable sharing of benefits to be derived from utilization and/or commercial development of natural resources on their lands by the activity 2. Forcible removal of indigenous peoples from their lands and territories.	No	–
5	Labour standards	Risk of abuses or violations of labour rights or the exploitation of labour groups	Compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions including freedom of association, elimination of discrimination in employment and occupation, elimination of forced or compulsory labour, and elimination of the any forms of child labour.	No	National labour and occupational health and safety laws shall be fully complied with.

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S. No.	Principle	Risk	Assessment criteria	Risk present (Yes/No)	Comments
6	Pollution	Risk that the activity potentially results in the release of pollutants to the environment.	Pollution prevention and control technologies and practices consistent with national regulation or international good practice are applied during the Project life cycle.	No	A management system for solid waste is in place, which predicts the quantities and types of waste produced throughout construction and operation (e.g. through an LCA). The project is designed in a way to minimize waste production by applying the mitigation hierarchy – avoidance, reduction, reuse and recycling. Waste is tracked and handling, disposal/recycling processes are audited at regular intervals.
7	Hazardous chemicals	Risk that the activity potentially uses hazardous chemicals	1. Activity uses chemicals or materials subject to international bans or phase-outs? For example, DDT, PCBs and other chemicals listed in international conventions such as the Stockholm Conventions on Persistent Organic Pollutants or the Montreal Protocol. 2. Activity uses products that fall in Classes IA (extremely hazardous) and IB (highly hazardous) of the World Health Organization Recommended Classification of Pesticides.	No	–
8	Biodiversity conservation	Risk that the activity will impact habitats (e.g modified, natural habitats) and/or ecosystems and ecosystem services	1. Activity will be implemented in and around natural or critical habitats. 2. Habitats of endangered species have been identified and managed to protect or enhance the biological diversity. 3. Impact on priority ecosystem services of relevance to affected communities.	Yes	The project commits to the preservation of biodiversity by protecting (large enough) natural habitats, avoiding the fragmentation of nature reserves and allowing for safe movement of species between different parts of the habitat. Introduction of invasive species is avoided. The identification of core species in the area is at the basis of the preservation effort. The impacts of the project on natural habitats and ecological corridors (including wetlands and water bodies) are evaluated early on and negative impacts avoided, minimized or mitigated.